UTC Fire & Security
A United Technologies Company

FP2000 & FP780
SERIAL COMMUNICATION FORMAT

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1. INTRODUCTION

1.1 SCOPE

This document defines the Serial Communication Format (protocol) for the inter-communication of the FP2000 and FP780 range of fire panels and related products.

1.2 APPLICABLE DOCUMENTS

1. COM20020 ULANC

   Universal Local Area Network Controller with 2K x 8 on-board RAM; Standard Microsystems Corporation.

2. COM20051

   Integrated Micro controller and Network Interface; Standard Microsystems Corporation.

3. FP2000 Series Analogue Addressable Fire Panel Reference Guide
4. FP2000 Series Analogue Addressable Fire Panel Installation and Commissioning Manual
5. FP780 Series Fire Panel Reference Guide
6. FP780 Series Fire Panel Installation and Commissioning Manual

1.3 DEFINITIONS

- **FP2000 Panel**

  FP2000 Fire Panel/Repeater Panel

- **FP2000 Fire Panel**

  Any fire panel of the range of FP2000 fire panels.

- **FP2000 Repeater (Panel)**

  A FP2000 Panel without a front end processor (FEP) that is connected (via serial RS232 or ARCNET link) to one or more FP2000 Fire Panels and enables specified operations to be performed on the FP2000 Fire Panel(s) via it's (the FP2000 Repeater) front panel. A FP2000 Repeater furthermore displays, on it's front panel, the status LED's of the connected FP2000 Fire Panel(s).

- **FEP**

  Front-end processor.

- **Global Repeater (Panel)**

  A FP2000 Repeater that is configured to communicate with more than one FP2000 Fire Panel. A Global Repeater can be configured to work as a Universal Node.

- **Local Repeater (Panel)**

  A FP2000 Repeater that is assigned to only one FP2000 Fire Panel.

- **FR2000**

  A Global repeater fire panel.

- **UN**

  Universal Node.

- **PC**

  Personal Computer.

- **ARCNET Protocol Device**

  Any of the FP2000 Panels or related products communicating via the ARCNET network.

- **NID**

  Node identification address.

- **TX**

  Transmission/transmit.

- **RX**

  Reception/receive.

- **LCD**

  Liquid crystal display

- **VDU**

  Video display unit

- **FP780 Panel**

  FP780/FEP780 Fire Panel/Repeater Panel

- **Protocol Device**

  Any system that uses the Serial Communication Format described in this document.

2. CONTEXT

FP2000 Panels may be connected in a network configuration using the ARCNET protocol. The same messages that are transferred between / these systems via the ARCNET network may also be transferred between two systems via a serial RS232 link using the Serial Communication Format.

The Universal Node interfaces a Protocol Device, communicating via a serial port and using this Serial Communication Format, and the devices on the ARCNET network. In other words, a FP2000 Protocol Device can become part of the ARCNET network via the Universal Node. The Universal Node is a Protocol Device as well as an ARCNET Protocol Device.

FP780 Panels may be connected via a serial RS232 link using the Serial Communication Format.

3. SERIAL LINK

3.1 SERIAL PROTOCOL

- RS232
- Full duplex
- Eight (8) data bits
- No parity
- One (1) stop bit.
- 9600 baud is the default and recommended setting.
- Protocol Device is DTE (Data Terminal Equipment)

The RTS and CTS lines are used for handshaking during packet transfer while DTR, DSR, DCD and RI are used for presence indication and checking.

3.2 HARDWARE

The serial cable connections to link two Protocol Devices are shown in Figure 1. It is assumed that both devices implement the same hand-shaking convention, if not, the cable must be changed accordingly. The serial connections of the Protocol Devices terminate in male D-type connectors (DTE), the connecting cable is therefore a crossover connection with female connectors at both ends.

The FC700, FC700L, FC780 and FC780RTC do not use the DTR, DCD, DSR and RI pins. The same cable can be used.

RS232 Cable Connections between Protocol Devices "A" and "B"

Device A			Direction	Device B		
Pin number		Signal name		Signal name	Pin number	
9pf	25pf				25pf	9pf
1	8	DCD	←----------I			
6	6	DSR	←----------+----------	DTR	20	4
9	22	RI	←----------I			
2	3	RX	←----------	TX	2	3
3	2	TX	----------→	RX	3	2
			I----------→	DCD	8	1
4	20	DTR	----------+----------→	DSR	6	6
			I----------→	RI	22	9
5	7	GND	----------	GND	7	5
7	4	RTS	----------→	CTS	5	8
8	5	CTS	←----------	RTS	4	7

9pf: 9 pin female D-type

25pf: 25 pin female D-type

4. PACKET TRANSFER

4.1 PACKET CONSTRUCTION

4.1.1 Packet Structure

Section	Position	Abbreviation	Range	Description
Header	1	STR	254 (Feh)	Start of packet
Header	2	TYP	0-255 (FFh)	TX packet type and number
Header	3	PKT	0-63 (3Fh)	RX packet number
Header	4	DES	0-255 (FFh) (Note 1)	Destination node identification
Header	5	SOR	1-255 (FFh)	Source node identification
Data	6	MES	0-255 (FFh)	Command number
Data	7	DTA	0-255 (FFh)	First data byte
Data	8	DTA	0-255 (FFh)	Second data byte
“	“	“	“	
“	“	“	“	
Data	6+n	DTA	0-255 (FFh)	n’th data byte (Note 2)
Footer	6+n+1	CKH	0-255 (FFh)	High byte of checksum
Footer	6+n+2	CKL	0-255 (FFh)	Low byte of checksum
Footer	6+n+3	STR	254 (Feh)	End of packet

Note 1: Node Number “0” means “all” (See 4.2).

Note 2: 0 >= n <= 252. The top limit is in accordance with the ARCNET protocol for short packets. See 1.2.1 and 1.2.2.

Example:

Watchdog message (47/2Fh) from Global Repeater 1 to FP2000 Fire Panel 1. TX packet number is 5 and RX packet number is 23:

Feh	05h	17h	80h	01h	2Fh	00h	CCh	Feh
STR	TYP	PKT	DES	SOR	MES	CKH	CKL	STR

4.1.2 Descriptions

General:

The high byte, or most significant byte, of a word value (two bytes) is transmitted first.

There are two special control bytes namely:

STR- 254 (Feh) – start/end byte and

NTF- 253 (FDh) – Normal byte to follow.

If any byte of a packet (other than the start and end byte) has a value of 253 (FDh) or 254 (Feh) the NTF byte is inserted just before that byte and that byte's value is changed to "value – 128 (80h)". This is referred to as "NTF byte expansion" and the reversal of this process is referred to as "NTF correction".

Example:

Watchdog message (47/2Fh) from Global Repeater 1 to FP2000 Fire Panel 1. TX packet number is 51 and RX packet number is 27:

Feh	33h	1Bh	80h	01h	2Fh	00h	Feh	Feh	
STR	TYP	PKT	DES	SOR	MES	CKH	CKL	STR	

Must be changed to:

Feh	33h	1Bh	80h	01h	2Fh	00h	FDh	7Eh	Feh
STR	TYP	PKT	DES	SOR	MES	CKH	NTF	CKL-80	STR

Or if TX packet number is 50:

Feh	32h	1Bh	80h	01h	2Fh	00h	FDh	Feh	
STR	TYP	PKT	DES	SOR	MES	CKH	CKL	STR	

Must be changed to:

Feh	32h	1Bh	80h	01h	2Fh	00h	FDh	7Dh	Feh
STR	TYP	PKT	DES	SOR	MES	CKH	NTF	CKL-80	STR

Header:

STR byte: Start of the packet and has a fixed value of 254 (Feh).

TYP byte: Consist of two fields:

The first field is made up of the six least significant bits and contains the TX packet number, a sequential number ranging from 0 to 63 (3Fh). A FP2000 Protocol Device allocates TX packet numbers to the packets it transmits and uses the TX packet numbers of the packets it receives to acknowledge these packets. Acknowledge (ACK) and not acknowledge (NAK) packets (see second field description below) do not have packet numbers.

The second field comprising the two most significant bits indicates the packet type being transmitted.

BIT 7	BIT 6	Description
0	0	Normal message (NRM) packet - 00
0	1	Acknowledge (ACK) packet – 64 (40h)
1	0	Not acknowledged (NAK) packet – 128 (80H)
1	1	Network message (NET) packet – 192 (C0h)

PKT byte: Consist of two fields:

The first field is made up of the six least significant bits and contains the RX packet number that indicates what packet is being acknowledged. To acknowledge a received packet the TX number of that received packet is put into this field of the packet that is going to be transmitted (see 4.2.1).

It is recommended that the value in this field must always be up to date, meaning the field should contain the packet number of the latest valid received packet even if it means that the packet is acknowledged more than once. On the other hand a packet only have to be acknowledged once, therefore “any” value may be put in this field if a new packet has not been received since the previous one was acknowledged. The current Universal Node put “00” in this field if a new packet has not been received, but it will be corrected in future versions.

Note also that for a not acknowledge (NAK) packet, the meaning of this field is unchanged — the value in the field must be that of the latest valid received packet. The packet number of the packet that caused the transmission of the not acknowledged (NAK) packet must not be in this field.

The second field comprising the two most significant bits of the PKT byte is reserved for future use and both bits should be made “0”.

DES byte: Destination Node identification address ranging from 0 to 255. See also 4.2.5.

Address zero (0) means “all” and is used with network message (NET) packets – see 4.2.

SOR byte: Source Node identification address ranging from 1 to 255. See also 4.2.5.

Data:

The Data section (MES byte and DTA bytes) contains the message information (see section 5.).

The length of this data is limited to not less than 1 byte and not more than 253 (FDh) bytes. This is to comply with the ARCNET protocol (see 1.2.1 and 1.2.2). In, for example the Universal Node, packets received via the serial port are transmitted to the specified (DES) device via the ARCNET network. The data that gets transmitted via the ARCNET network consist of only this Data section original data – i.e. the packet without the Header and Footer sections and with NTF correction done, if necessary. (The ARCNET protocol firmware puts this information into it's own packet structure.)

Acknowledge (ACK) and not acknowledge (NAK) packets do not have a Data section. These two packets have no message information and do not have to comply with the ARCNET protocol (they are not transferred between the serial and ARCNET networks as described in the example above).

MES byte: This contains the command number. There are three command types, namely:

Normal message (NRM) packet transfer commands ranging from 0 to 127 (7Fh).

Request for normal message (NRM) packet commands ranging from 128 (80h) to 255 (FFh); it is 128 (80h) added to the normal message (NRM) packet transfer commands.

Example:

Global Repeater 1 requesting System delay times – command number 32 (20h) + 128 (80h) = 160 (A0h) – from FP2000 Fire Panel 1:

Feh	01h	00h	80h	01h	A0h	01h	22h	Feh
STR	TYP	PKT	DES	SOR	MES	CKH	CKL	STR

FP2000 Fire Panel 1 responds with message number 32 (20h) with 120 (78h) for data bytes 1 and 2 (the default Sounder and Fire Brigade delay times):

Feh	01h	01h	01h	80h	20h	78h	78h	01h	93h	Feh
STR	TYP	PKT	DES	SOR	MES	DTA	DTA	CKH	CKL	STR

Note that FP2000 Fire Panel 1 acknowledges the received packet at the same time (see 4.2.1).

Network message (NET) packet commands ranging from 0 to 13 (Ah) (see 5.2).

DTA bytes The data bytes associated with a command. The maximum number of data bytes is 252 (FCh) and the minimum is 0.

Footer:

CKH and CKL bytes:

The checksum bytes – CKH the most significant byte and CKL the least significant byte.

The checksum is calculated with the original data (before NTF byte expansions) and is the summation of all the bytes starting from byte number 2, TYP, up to byte number "6 + N", the N'th data byte, or, in the case of an acknowledge (ACK) or not acknowledge (NAK) packet up to byte number 5, SOR. After the checksum is calculated all packet bytes, excluding only the start and end bytes, must be checked and NTF byte expansion done, if necessary.

STR byte: End of the packet and has a fixed value of 254 (Feh).

4.2 PACKET PROTOCOL

4.2.1 Packet Acknowledging

Each and every normal message (NRM) or network message (NET) packet that is transmitted must be acknowledged.

Such an acknowledge packet indicates that FP2000 Protocol Device “A” (in the SOR byte) acknowledges packet number “m” (in the PKT byte) received from Protocol Device “B” (in the DES byte) with packet “n” (in the TYP byte).

Acknowledgement does not have to be with an acknowledge (ACK) packet, but may be done by putting the correct packet number value in the PKT byte of a normal message (NRM) or network message (NET) packet that was going to be transmitted anyway. It is recommended that the PKT byte must always contain the packet number of the latest valid received packet (see PKT byte description in 4.1.2).

Note that a specific packet gets acknowledged, this means that an acknowledge (ACK) packet must also have the correct value in it’s PKT byte position.

Example (all values in hexadecimal):

Global Repeater 1 sends a watchdog message (47/2Fh) with packet number 04h to FP2000 Fire Panel 1 just before that FP2000 Fire Panel sends a watchdog message (47/2Fh) with packet number 13h to Global Repeater 1.

Watchdog message from Global Repeater 1 to FP2000 Fire Panel 1 –

Feh	04h	12h	80h	01h	2Fh	00h	C6h	Feh
STR	TYP	PKT	DES	SOR	MES	CKH	CKL	STR

The FP2000 Fire Panel responds with an acknowledge (ACK) packet –

Feh	40h	04h	01h	80h	00h	C5h	Feh
STR	TYP	PKT	DES	SOR	CKH	CKL	STR

And transmits the watchdog message –

Feh	13h	04h	01h	80h	2Fh	00h	C7h	Feh
STR	TYP	PKT	DES	SOR	MES	CKH	CKL	STR

Note that the PKT byte does not have to contain 04h but it is recommended to have it like this.

The following is also valid:

Watchdog message from Global Repeater 1 to FP2000 Fire Panel 1 –

Feh	04h	12h	80h	01h	2Fh	00h	C6h	Feh
STR	TYP	PKT	DES	SOR	MES	CKH	CKL	STR

The FP2000 Fire Panel responds with the watchdog message with 04h in the PKT byte and thus acknowledging the received packet:

Feh	13h	04h	01h	80h	2Fh	00h	C7h	Feh
STR	TYP	PKT	DES	SOR	MES	CKH	CKL	STR

If a packet is not acknowledged within a period of three seconds the packet is retransmitted – without incrementing the TX packet number. If a packet is transmitted a maximum of four times without being acknowledged, or is not acknowledged (NAK) for four times (see 4.2.2), the initialisation sequence (see 5.2.3) is started to try and re-establish communication.

See 4.2.4 for the Universal Node packet acknowledgement.

4.2.2 Packet negative acknowledging

When a FP2000 Protocol Device receives a faulty packet, for instance wrong destination address (DES) or wrong checksum, the FP2000 Protocol Device may send a not acknowledge (NAK) packet. Such a not acknowledge (NAK) packet's structure is the same as that of an acknowledge (ACK) packet except that the TYP byte must be 80h instead of 40h (see TYP byte description of 4.1.2 and also 4.2.1).

The value of the PKT byte of a not acknowledge (NAK) packet is the value of the latest valid received packet (the same as with any other packet type) and not the packet number of the packet that caused transmission of the not acknowledge (NAK) packet.

Upon reception of a not acknowledge (NAK) packet, the FP2000 Protocol Device must immediately retransmit the packet (the packet with packet number one more than the value of the PKT byte of the received not acknowledged (NAK) packet, because the PKT byte should contain the number of the last valid received packet).

Keep in mind that if a packet is not acknowledged (NAK) for 5 times (see 4.2.1), the initialisation sequences (see 5.2.3) is started to try and re-establish communication.

4.2.3 Network Message (NET) Packets

The network message packet transfer is exactly the same as for normal message (NRM) packets except for the serial initialisation request message.

The packet that transmits the serial initialisation request message contains "0" in it's DES byte. This is because a FP2000 Protocol Device does not have to know the node identification address of the FP2000 Protocol Device at the other end. The value in the SOR byte of the packet that acknowledges this serial initialisation request message packet is the node identification address of the FP2000 Protocol Device at the other end.

4.2.4 Node Identification

All FP2000 Protocol Devices must have a non-zero node identification address to be able to communicate with another FP2000 Protocol Device. This node identification address is calculated in the same manner as the node identification addresses of the ARCNET Protocol Devices.

The node identification address of a Protocol Device is a byte value and is determined by the ARCNET network configuration. There are three ARCNET modes namely:

- 15/15,
- 7/31 and
- 31/7.

The first number is the panel number and the second number the repeater number. A Protocol Device is allocated a panel number and a repeater number in accordance with the ARCNET network mode. In, for example, a 15/15 network panel and repeater numbers range from 0 to 15.

These numbers is used to calculate the node identification address as follows:

The panel number is bit reversed – i.e. a byte with binary value “b7 b6 b5 b4 b3 b2 b1 b0” becomes “b0 b1 b2 b3 b4 b5 b6 b7”. This reversed panel number is “OR’ ed” with the repeater number to give the node identification address.

Note that if a device needs to communicate via the serial port with the FP2000 Serial Communication Format or via the ARCNET network, the node identification address cannot be zero.

Example 1 – FP2000 Fire Panel 3:

Description	Value	Range
ARCNET network mode	15/15	
Panel number	3	0 – 15
Repeater number	0	0 – 15
Node Identification Address	192 (C0h)	1 – 255

Example 2 – Global Repeater 3:

Description	Value	Range
ARCNET network mode	15/15	
Panel number	0	0 – 15
Repeater number	3	0 – 15
Node Identification Address	3	1 – 255

Example 3 – Local Repeater 3 of FP2000 Fire Panel 3:

Description	Value	Range
ARCNET network mode	15/15	
Panel number	3	0 – 15
Repeater number	3	0 – 15
Node Identification Address	195 (C3h)	1 – 255

Example 4 – FP2000 Fire Panel 3:

Description	Value	Range
ARCNET network mode	7/31	
Panel number	3	0 – 7
Repeater number	0	0 – 31
Node Identification Address	192 (C0h)	1 – 255

Example 5 – Global Repeater 29:

Description	Value	Range
ARCNET network mode	7/31	
Panel number	0	0 – 7
Repeater number	29	0 – 31
Node Identification Address	29 (1Dh)	1 – 255

Example 6 – FP2000 Fire Panel 29:

Description	Value	Range
ARCNET network mode	31/7	
Panel number	29	0 – 31
Repeater number	0	0 – 7
Node Identification Address	184 (B8h)	1 – 255

Example 7 – Global Repeater 3:

Description	Value	Range
ARCNET network mode	31/15	
Panel number	0	0 – 31
Repeater number	3	0 – 7
Node Identification Address	3	1 – 255

Example 8 – Global Panel 27:

Description	Value	Range
ARCNET network mode	0/31	
Panel number	0	0 – 0
Repeater number	27	1 – 31
Node Identification Address	27	1 – 255

Example 9 – Global Panel 60:

Description	Value	Range
ARCNET network mode	0/63	
Panel number	0	0 – 0
Repeater number	60	1 – 63
Node Identification Address	60	1 – 255

5. MESSAGE TRANSFER

5.1 OVERVIEW

Messages are divided into two main groups namely:

- Network Messages and
- Normal Messages.

A Protocol Device transfers network messages with network message (NET) packets and normal messages with normal message (NRM) packets (see TYP byte description in 4.1.2).

Messages consist of two parts namely:

- Message Number (MES byte of a packet) and
- Data (DTA bytes of a packet).

Messages do not need to have any data (see also 4.1.2 for a description of a packet's Data section). The length of the data, as specified in the following sections, is used by the receiving device rather than the transmitting device.

This means that the specified length is actually the minimum length of a message. When a FP2000 Protocol Device receives a packet containing message number "m", specified to have "p" data bytes, it will only process the first "p" data bytes even if "q" data bytes were sent. The restrictions is off course that "q'' must be larger than "p", that the checksum is correct, calculated for the data that was transferred – that is for "q" data bytes – and that "q" is not larger than the maximum allowed length (253 bytes).

5.2 NETWORK MESSAGES

5.2.1 Network Message Overview

Network message are used for initialisation of communication and for communication management.

Although a FP2000 Protocol Device may send any network message to another FP2000 Protocol Device it should be kept in mind that some of these messages can only be used sensibly by an Universal Node or similar device.

Network Messages are transferred with network message (NET) packets – the two most significant bits of the TYP byte must be set (“1”) - see 4.2.3 and 4.2.4 and also the TYP byte description in 4.1.2.

There are 13 network messages as listed below.

Number	Data	Description
0	None	Serial Initialisation Request
1	None	Reserved
2	None	Own Node Down
3	None	Duplicate Node Identification Address
4	None	New Next Node Identification Address
5	None	Change in Network Configuration
6	None	Network Map
7	None	No Network Map
8	None	Excessive Not Acknowledge
9	None	No Response
10 (Ah)	None	Network Map Request
11 (Bh)	None	Network Disconnect Request
12 (Ch)	None	Network Line faulty
13 (Dh)	None	Network Line ok

5.2.2 Network Message Descriptions

For a FP2000 protocol device only the following 4 messages are relevant.

Serial Initialisation Request:

Message Number: 0

Data: None

Message length: 1

A serial initialisation request is transmitted by a FP2000 Protocol Device to establish communications. The destination identification address of the packet (DES byte) is always “0” (see 4.2.3).

Network Map

Message Number: 6

Data: Map

Message length: Message Number + 32 Data bytes = 33 (21h) bytes (fixed)

The Network Map message is the only network (NET) message that has data information and is used during the initialisation sequence. The Network Map message is send upon reception of a Network Map Request message (10/Ah) – see also No Network Map message (7).

The network map is a representation of the existing FP2000 Protocol Devices or ARCNET Protocol Devices. A FP2000 Protocol Device creates a Network Map message with only it’s own node identification address.

The FP2000 Protocol Device requesting the map must take into account the time that it takes to build a map and to create a Network Map message (a few seconds).

As described in 4.2.5 the node identification address is calculated using the panel and repeater numbers resulting in a value from 1 to 255 (FFh).

The data of Network Map message is a 32 byte array whose bits are sequentially allocated to node identification addresses. Node identification address 0 is allocated to the least significant bit of the first byte and node identification address 255 (FFh) to the most significant bit of the 32nd byte. If a device exists on the ARCNET network it’s specific bit will be set (“1”) in this network map. Note that node identification address 0 is not valid for communication and that it’s bit will never be set.

Example 1:

Node identification address: 1

Byte Number:	MES	00 01 02 03 04 05 06 07 08 09 10 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Map Message:	06	02 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

Example 2:

Node identification address: 255 (FFh)

Byte Number:	MES	00 01 02 03 04 05 06 07 08 09 10 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Map Message:	06	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 80

Example 3:

Node identification address: 234 (Eah)

Byte Number:	MES	00 01 02 03 04 05 06 07 08 09 10 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Map Message:	06	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 04 00 00

Example 4:

Node identification address: 77 (4Dh)

Byte Number:	MES	00 01 02 03 04 05 06 07 08 09 10 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Map Message:	06	00 00 00 00 00 00 00 00 00 20 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

Example 5 (More than one device)

Node identification addresses: 1; 255(FFh); 234 (Eah); 77 (4Dh)

Byte Number:	MES	00 01 02 03 04 05 06 07 08 09 10 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Map Message:	06	02 00 00 00 00 00 00 00 00 20 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 04 00 80

Network Map Request

Message Number: 10 (Ah)

Data: None

Message length: 1

Whenever a FP2000 Protocol Device requires a map from another FP2000 Protocol Device, this message is send to that device. This message is used during the initialisation sequence. See also Network Map (6) and No Map (7) messages.

Network Disconnect Request

Message Number: 11 (Bh)

Data: None

Message length: 1

Whenever a FP2000 Protocol Device wants to disconnect itself from another FP2000 Protocol Device, this message is sent to that device.

5.2.3 Network Message Functions

See 4.2 for a description of the packet protocol.

The network messages are used for a higher level of communication management.

Initialisation Sequence

The initialisation sequence establishes communication between two FP2000 Protocol Devices.

Whenever a system is restarted, or if there is a failure in communication, serial initialisation request messages (0) must be transmitted at regular three (3) second intervals in order to establish communication.

Upon acknowledgement of the packet containing the serial initialisation request message the initialisation sequence is complete.

After this FP2000 Panels will transmit a network map request message (10/Ah) upon which a network map message (6) should be received, but this is not part of the initialisation sequence.

Initialisation Sequence:

	Direction			Packet
1.	B	to	A	Serial initialisation request message (Note 1)
2.	A	to	B	Serial initialisation request message
3.	B	to	A	Acknowledge (ACK)
4.	A	to	B	Map request message
5.	B	to	A	Acknowledge and Network map message
6.	A	to	B	Acknowledge and Network map message (Note 2)
7.	B	to	A	Acknowledge (ACK)

5.3 NORMAL MESSAGES

5.3.1 Normal Message Descriptions

Notes and definitions regarding this paragraph:

Definitions:

Pos.: The byte positions in the message structure. The message number is always in the first position ("0") and is transmitted first. The values of the message number for the different message options are shown. With word (two bytes) value Message Data parameters the higher significant byte always precedes the lower significant byte in the message structure. For example a word parameter with value "ABCD" hexadecimal, contained in position [p] and [p+1] of a message will be split up with "AB" in position [p] and "CD" in position [p+1].

Message Data: The information associated with a particular message number. Descriptions of the parameters that are in capital letters will be given with each message description, or the parameter will be referenced to another message. Message Data Parameters is described using the following format:

Length:	The parameter's size – for example: a byte, a word (2 bytes) or a string of bytes.
Range:	The allowable range of the parameter's value, where applicable.
Description:	Short description of the parameter.

Message Options: The three Message Options columns indicate what Message Data parameters are relevant for each option. A "yes" means that the specific parameter is included and a "-" means that it is not included. In a few cases there are two options for one Message Data parameter, in which case all the options will be shown under the "Message Data" heading and a "yes" will be replaced with the correct option. Where the option names won't fit into the available space, the different options will be listed and assigned a number that will be displayed in place of a "yes".

There three Message Options are:

Control:	A message that is sent to the panel either to control the panel or to configure the panel or a message that is initiated by the panel.
Request:	A message requesting a specific message from the panel. The message number of such a request message is 128 (80h) plus the message number of the required message.
Response:	A message that is sent following reception of a Request message.

Note: All values in decimal unless stated otherwise. The index number assigned to each message is the same as the message number (the hexadecimal value of the message number Is shown in brackets).

5.3.1.1 Not used (0, 00h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
-	-	-	-	-	-	-	-

5.3.1.2 Access (1, 01h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	1	1	1	-	-	-	-
1,2	ENTERED ACCESS (hb, lb)	Yes	Yes	-	-	-	-

ENTERED ACCESS

Length: 2 bytes

Range: 0...9999

Description: 0: Disconnecting access

1…9999: Possible access codes

5.3.1.3 Not used (2, 02h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
-	-	-	-	-	-	-	-

5.3.1.4 Clear Non-volatile Memory (3, 03h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	3	3	3	-	-	-	-
1	BLOCK	Yes	Yes	-	-	-	-

BLOCK

Length: Byte

Range: FP2000: 0…23

FP780: 0…24

Description: Numbers assigned to the different memory blocks of a FP2000 Panel software:

BLOCK	Description	FP2000	FP780
0	Configuration	Yes	Yes
1	Loop 1	Yes	-
2	Loop 2	Yes	-
3	Loop 3	Yes	-
4	Loop 4	Yes	-
5	Loop 5	Yes	-
6	Loop 6	Yes	-
7	Loop 7	Yes	-
8	Loop 8	Yes	-
9	Outputs	Yes	Yes
10	Inputs	Yes	Yes
11	Zones	Yes	Yes
12	Areas	Yes	Yes
13	Events	Yes	Yes
14	System	Yes	Yes
15	General	Yes	Yes
16	Loops	Yes	Yes
17	Logic	Yes	Yes
18	Markers	Yes	Yes
19	Timers	Yes	Yes
20	Modem	Yes	Yes
21	-	-	-
22	LON Devices	Yes	Yes
23	Pager Configuration	Yes	-
24	Language	-	Yes

5.3.1.5 Default Non-volatile Memory (4, 04h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	4	4	4	-	-	-	-
1	BLOCK	Yes	Yes	-	-	-	-
2	PARAMETER	Yes	Yes				

BLOCK (see message 3)

PARAMETER

Length: Byte

Range: 0...255

Description: Defines the default set-up:

Block: 0-19, 21-24

Not used

Block: 20

Modem Type	Initialisation String 1	Initialisation String 2
0: None	-	-
1: US Robotics	AT&F1M1L1	S0=1&W0
2: Fastlink	AT&F0M1L1	S0=1&W0
3: Datatronics	AT&F0M1L1	S0=1&W0
4: Bausch	AT&F1M1L1	S0=1&W0

5.3.1.6 Clear Volatile Memory (5, 05h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	5	5	5	-	-	-	-
1	BLOCK	Yes	Yes	-	-	-	-

BLOCK (see message 3)

5.3.1.7 Configuration (6, 06h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	6	6	6	134	134	6	6
1	SENSORS (loop 1)	Yes	Yes	-	-	Yes	Yes
2	SENSORS (loop 2)	Yes	Yes	-	-	Yes	Yes
3	SENSORS (loop 3)	Yes	Yes	-	-	Yes	Yes
4	SENSORS (loop 4)	Yes	Yes	-	-	Yes	Yes
5	SENSORS (loop 5)	Yes	Yes	-	-	Yes	Yes
6	SENSORS (loop 6)	Yes	Yes	-	-	Yes	Yes
7	SENSORS (loop 7)	Yes	Yes	-	-	Yes	Yes
8	SENSORS (loop 8)	Yes	Yes	-	-	Yes	Yes
9,10	LOGIC LINES (hb, lb)	Yes	Yes	-	-	Yes	Yes
11,12	INPUTS (hb, lb)	Yes	Yes	-	-	Yes	Yes
13,14	OUTPUTS (hb, lb)	Yes	Yes	-	-	Yes	Yes
15,16	EVENTS (hb, lb)	Yes	Yes	-	-	Yes	Yes
17,18	SENSOR TEXT BYTES (loop 1) (hb, lb)	Yes	Yes	-	-	Yes	Yes
19,20	SENSOR TEXT BYTES (loop 2) (hb, lb)	Yes	Yes	-	-	Yes	Yes
21,22	SENSOR TEXT BYTES (loop 3) (hb, lb)	Yes	Yes	-	-	Yes	Yes
23,24	SENSOR TEXT BYTES (loop 4) (hb, lb)	Yes	Yes	-	-	Yes	Yes
25,26	SENSOR TEXT BYTES (loop 5) (hb, lb)	Yes	Yes	-	-	Yes	Yes
27,28	SENSOR TEXT BYTES (loop 6) (hb, lb)	Yes	Yes	-	-	Yes	Yes
29,30	SENSOR TEXT BYTES (loop 7) (hb, lb)	Yes	Yes	-	-	Yes	Yes
31,32	SENSOR TEXT BYTES (loop 8) (hb, lb)	Yes	Yes	-	-	Yes	Yes
33,34	INPUT TEXT BYTES (hb, lb)	Yes	Yes	-	-	Yes	Yes
35,36	OUTPUT TEXT BYTES (hb, lb)	Yes	Yes	-	-	Yes	Yes
37,38	ZONE TEXT BYTES (hb, lb)	Yes	Yes	-	-	Yes	Yes
39,40	AREA TEXT BYTES (hb, lb)	Yes	Yes	-	-	Yes	Yes
41	STORE CONFIGURATION	Yes	Yes	-	-	-	-
42	ZONES	Yes	Yes	-	-	Yes	Yes
43	LOOPS	Yes	Yes	-	-	Yes	Yes
44	START ZONE	Yes	Yes	-	-	Yes	Yes
45	END ZONE	Yes	Yes	-	-	Yes	Yes
46	AREAS	Yes	Yes	-	-	Yes	Yes
47	LON DEVICES	-	Yes	-	-	Yes	Yes
48	PAGER DEVICES	-	Yes	-	-	Yes	Yes
49,50	TEXTS (hb, lb)	Yes	Yes	-	-	Yes	Yes
51,52	INPUT EQUIPMENT START (hb, lb)	-	Yes	-	-	-	Yes
53,54	OUTPUT EQUIPMENT START (hb, lb)	-	Yes	-	-	-	Yes
55	KEYS FOR SELECTIVE ACCESS	-	-	-	-	Yes	-
56	PANEL SELECTIONS	Yes	-	-	-	Yes	-
57,58	CONFIG. VERSION NUMBER (hb, lb)	Yes	-	-	-	Yes	-
59	UPDATE YEAR	-	-	-	-	Yes	-

60	UPDATE MONTH	-	-	-	-	Yes	-
61	UPDATE DAY	-	-	-	-	Yes	-

SENSORS

Length: Byte

Range: Apollo: 0...126

Sentrol: 0...128

Description: Highest address of fire detection devices (sensors) on a loop. “0” means that the loop is not installed.

LOGIC LINES

Length: 2 bytes

Range: 0...1999

Description: Number of logic lines.

INPUTS

Length: 2 bytes

Range: 0...999

Description: Number of inputs available in the logic.

OUTPUTS

Length: 2 bytes

Range: 0...999

Description: Number of outputs available in the logic.

EVENTS

Length: 2 bytes

Range: 0...1999

Description: Number of events in the event buffer.

SENSOR TEXT BYTES

Length: 2 bytes

Range: 0...80

Description: Number of text bytes per device.

INPUT TEXT BYTES

Length: 2 bytes

Range: 0…40

Description: Number of input text bytes per input.

OUTPUT TEXT BYTES

Length: 2 bytes

Range: 0…40

Description: Number of output text bytes per output.

ZONE TEXT BYTES

Length: 2 bytes

Range: 0…40

Description: Number of zone text bytes per zone.

AREA TEXT BYTES

Length: 2 bytes

Range: 0…40

Description: Number of area text bytes per area.

STORE CONFIGURATION

Length: Byte

Range: 0…1

Description: Determines operation when this message is received:

0 - Check configuration

1 - Store configuration

ZONES

Length: Byte

Range: 0...255

Description: Number of zones.

LOOPS

Length: Byte

Range: 0...8

Description: Number of loops.

START ZONE

Length: Byte

Range: 0…255

Description: Start of zone range.

END ZONE

Length: Byte

Range: START ZONE...255

Description: End of zone range.

AREAS

Length: Byte

Range: FP2000: 0...99

FP780: 0…128

Description: Number of areas.

LON DEVICES

Length: Byte

Range: 0...32

Description: Number of Ion device.

PAGER DEVICES

Length: Byte

Range: 0...32

Description: Number of pager (ESPA) device.

TEXTS

Length: 2 bytes

Range: 0…1500

Description: Number of text lines.

INPUT EQUIPMENT START

Length: 2 bytes

Range: n...INPUTS

Description: Start of equipment inputs in input table, n is the first equipment input.

OUTPUT EQUIPMENT START

Length: 2 bytes

Range: n...OUTPUTS

Description: Start of equipment outputs in output table, n is the first equipment output.

KEY

Length: Byte

Range: 0…255

Description: Indicates installed software keys.

Bit	Functionality	FP2000	FP780
0	ESPA	0: disabled 1: enabled	-
1	Network	0: disabled 1: enabled	-
2-7	-	-	-

PANEL SELECTIONS

Length: byte

Range: 0…255

Description: Selects panel modes.

Bit	Functionality	FP2000	FP780
0	EN54 screens	0: disabled 1: enabled	-
1	Global Panel (from V10)	0: disabled 1: enabled	-
2-7	-	-	-

CONFIG.VERSION NUMBER

Length: 2 bytes

Range: 0...9999

Description: Updated when configuration data changes. 0=not configured.

UPDATE YEAR

Length: Byte

Range: 0…255

Description: Update Date stamp, 0=not configured.

UPDATE MONTH

Length: Byte

Range: 0…12

Description: Update Date stamp, 0=not configured.

UPDATE DAY

Length: Byte

Range: 0…31

Description: Update Date stamp, 0=not configured.

5.3.1.8 Non-volatile Sensor Data (7, 07h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	7	7	-	135	-	7	-
1	LOOP	Yes	-	Yes	-	Yes	-
2	SENSOR	Yes	-	Yes	-	Yes	-
3	SENSOR STATUS 0	Yes	-	-	-	Yes	-
4	SENSOR TYPE	Yes	-	-	-	Yes	-
5	SENSOR ZONE	Yes	-	-	-	Yes	-
6	SENSOR FAULT	Yes	-	-	-	Yes	-
7...88	SENSOR TEXT	Yes	-	-	-	Yes	-
+1	SENSOR INPUT CONFIGURATION	Yes	-	-	-	Yes	-
+2	SENSOR STATUS 1	Yes	-	-	-	Yes	-
+3	VIRTUAL SENSOR ADDRESS	Yes	-	-	-	Yes	-

LOOP

Length: Byte

Range: 1...8

Description: Loop number that is addressed.

SENSOR

Length: Byte

Range: Apollo: 1...126

Sentrol: 1...128

Description: Fire detection device address.

Protocol	Device	FP2000	FP780
Apollo	All	1…126	-
Sentrol	All	1…128	-

SENSOR STATUS 0

Length: Byte

Description: Sensor status.

Lower nibble:

Bit	Functionality	FP2000	FP780
0	Sensor enable	0: disabled	-
		1: enabled	-
1	Soak Test	0: disabled	-
		1: enabled	-
2	Alarm Storage (EAS)	0: disabled	-
		1: enabled	-
3		0 (not used)	-

Higher nibble: Sensor Day Level

Protocol		FP2000	FP780
Sentrol		1…5	-
Apollo	Sensors	1…5	-
	Sounder tone selection	1…15 (0=not defined)	

SENSOR TYPE

Length: Byte

Range: See table

Description: Type of sensor (device):

Nibble		Apollo Device		Sentrol Device	
H	L				
0	0	None		None	
0	1	MCP	Manual Call Point	MCP	MCP
1		-	-	ADD	Aspiration Disable Device
2		MCPM	Manual Call Point Monitor	-	-
3		GCU2	Gas Unit (MCP)	-	-
4		SMI	Switch Monitor Unit with Interrupt	-	-
0	2	OPT	Optical Detector	OPT	Optical Detector
0	3	ION	Ionisation Detector	ION	Ionisation Detector
1		CO	Carbon Monoxide Detector	-	-
0	4	TEMP	Temperature Detector	TEMP	Temperature Detector
0	5	SND	Sounder	ICC	Indicating Circuit Controller
1		LPB	Loop powered beacon	-	-
2		DSB	Discovery Sounder Beacon	-	-
0	6	-	-	4IO	Four Channel I/O
1		1I/O	Single Channel I/O	ASP1	Aspiration Device activating 1 zone
2		3I/O	Three Channel I/O	ASP2	Aspiration Device activating 2 zones
3		1I	Switch Monitor	-	-
4		GCU1	Gas Unit (I/O)	-	-
5		1O	Single Channel Output	-	-
6		2I/1O	Two Input/ One Output Channel I/O	-	-
0	7	-	-	2I/O	Two Channel I/O
0	8	-	-	2I/1O	Two Input/ One Output Channel I/O
0	9	-	-	4I	Four Input Channel I/O
0	10	-	-	SIM	Single Input Module
0	11	ZMU	Zone Monitor Unit	ZMU	Zone Monitor Unit
1		CUM	Control Unit Monitor	-	-
2		SMU	Switch Monitor Unit	-	-
3		SMU+	Switch Monitor Unit Plus	-	-
0	12	MUL	Multi Sensor	MUL	Multi Sensor
0	13	-	-	LCC	Loop powered LCC with isolator

SENSOR ZONE

Length: Byte

Range: 0…225, (within zone range)

Description: Zone the sensor is assigned to.

SENSOR FAULT

Length: Byte

Range: 0…255

Description: Defines device fault on supervised inputs of input devices. (Sentrol)

Bits	Functionality	FP2000	FP780
1,0	Input 1	00: Normal	-
		01: Abnormal (open/short circuit)	-
		10: Short circuit	-
		11: Open circuit	-
3,2	Input 2	00: Normal	-
		01: Abnormal (open/short circuit)	-
		10: Short circuit	-
		11: Open circuit	-
5,4	Input 3	00: Normal	-
		01: Abnormal (open/short circuit)	-
		10: Short circuit	-
		11: Open circuit	-
7,6	Input 4	00: Normal	-
		01: Abnormal (open/short circuit)	-
		10: Short circuit	-
		11: Open circuit	-

SENSOR TEXT

Length: FP2000: 2…82 Bytes

FP780: N/A

Where: Byte 0: Length of first string (0…n1, n1<40)

Bytes 1…n1: First string (if n1 > 0)

Byte n1+1: Length of second string (0…n2, n2<40)

Bytes (n1+2)…n2: Second string (if n2 > 0)

SENSOR INPUT CONFIGURATION

Length: Byte

Range: 0…255

Description: Defines device input functionality.

Bits	Functionality	FP2000	FP780
2,1,0	Device functionality	000: None	-
		001: Fast (input)	-
		010: Slow (input)	-
		011: MCP (Manual Call Point fire)	-
		100: MCPW (Manual Call Point warning)	-
		101: Auto (Automatic fire)	-
		110: HMO	-
		111: -	-
3	Polarity	0: N/O normally open	-
		1: N/C normally closed	-
4	Protocol (Apollo only)	0: S90/XP95	-
		1: Discovery	-
7,6,5	Aspiration Delay	000: 1h delay	-
		001: 2h delay	-
		010: 4h delay	-
		011: 8h delay	-
		100: 12h delay	-
		101: 24h delay	
		110: -	
		111: -	

Device functionality Apollo

Device Type	Default Setting	Other Settings
MCP	MCP	Fast, mcpw
MCPM	MCP	Fast, mcpw
SMI	Fast	MCP, mcpw, auto
1I/O	Slow	-
3I/O	Slow	-
1I	Slow	-
2I/1O	Slow	-
ZMU	Auto	Slow
CUM	Auto	Slow
SMU	Auto	Slow
SMU+	Auto	Slow

Device functionality Sentrol

Device Type	Default Setting	Other Settings
MCP	MCP	Fast, mcpw, HMO
4I/O	Slow	-
2I/O	Slow	-
2I/1O	Slow	-
4I	Slow	-
SIM	Fast	Slow, mcp, mcpw, auto
ZMU	Auto	Slow

SENSOR STATUS 1

Length: Byte

Description: Sensor status extended.

Lower nibble: Apollo Base selection.

		FP2000		FP780
Bits: 0,1	0	Normal, remote and sensor LEDs are switched together.		-
	1	Remote LED only is switched.		-
	2	Base is used as a single output unit.		-
Bit: 2		Apollo DSB enabled	0: Beacon disabled	-
			1: Beacon enabled	
Bit: 3		0 (not used)		

Higher nibble: Sensor Night Level

Protocol		FP2000	FP780
Sentrol		1…5	-
Apollo	Sensors	1…5	-
	Apollo DSB volume	0…7	

VIRTUAL SENSOR ADDRESS (used for V10 only)

Length: 1…32, (0 = virtual sensor address not used)

Description Used for VdS only.

5.3.1.9 Non-volatile Zone Data (8, 08h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	8	8	8	136	136	8	8
1	ZONE	Yes	Yes	Yes	Yes	Yes	Yes
2	ZONE STATUS 0	Yes	Yes	-	-	Yes	Yes
3	ZONE AREA	Yes	Yes	-	-	Yes	Yes
4...44	ZONE TEXT	Yes	Yes	-	-	Yes	Yes
+1	ZONE STATUS 1	Yes	Yes	-	-	Yes	Yes
+2, +3	SYSTEM ZONE (hb, lb)	Yes	-	-	-	Yes	-
+4, +5	ZONE LED (hb, lb)	Yes	-	-	-	Yes	-

ZONE

Length: Byte

Range: START ZONE … END ZONE (see message 6)

Description: Zone that is addressed.

ZONE STATUS 0

Length: Byte

Description:

Bit	**FP2000**		**FP780**
	Protocol		
0	Sentrol, Apollo	0: Zone disabled	0: Zone disabled
		1: Zone enabled	1: Zone enabled
1	Sentrol, Apollo	0: Zone two device mode disabled	0: Automatic zone
		1: Zone two device mode enabled	1: MCP zone
2	Sentrol, Apollo	0: Zone on/off mode disabled	0: Zone on/off mode disabled
		1: Zone on/off mode enabled	1: Zone on/off mode enabled
3	Sentrol, Apollo	0: Zone night mode disabled	0: Zone night mode disabled
		1: Zone night mode enabled	1: Zone night mode enabled
4	Sentrol, Apollo	0: Zone confirmed mode disabled	0: Zone confirmed mode disabled
		1: Zone confirmed mode enabled	1: Zone confirmed mode enabled
5	Sentrol, Apollo	0: Sounder delay disabled	0: Sounder delay disabled
		1: Sounder delay enabled	1: Sounder delay enabled
6	Sentrol, Apollo	0: Fire brigade delay disabled	0: Fire brigade delay disabled
		1: Fire brigade delay enabled	1: Fire brigade delay enabled
7	Apollo	0: Intrinsically save zone disabled	-
		1: Intrinsically save zone enabled	-
	Sentrol	0: (not used)	-

ZONE AREA

Length: Byte

Range: 0...AREAS (see message 6)

Description: Area that zone is assigned to.

ZONE TEXT

Length: 1...41 Bytes

Where: Byte 0: Length of string (0...n, n<=40)

Bytes 1...n: String (if n > 0)

Description: A text string associated with a zone.

ZONE STATUS 1

Length: Byte

Description:

Bit	**FP2000**	**FP780**
0	0: HMO zone disabled	0: -
	1: HMO zone enabled	1: -
1	0: -Multi-sensor spacing close (heat)	0: -
	1: - Multi-sensor spacing normal (smoke)	1: -
2	0: -Hausalarm disabled	0: -
	1: - Hausalarm enabled	1: -
3	0: -Loeschanlage disabled	0: -
	1: - Loeschanlage enabled	1: -
4	0: -Sprinkler disabled	0: Zone sounder disabled
	1: - Sprinkler enabled	1: Zone sounder enabled
5	0: -	0: EAS disabled
	1: -	1: EAS enabled
6	0: -	0: -
	1: -	1: -
7	0: -	0: -
	1: -	1: -

SYSTEM ZONE

Length: word

Range: 1...65535 (0=system zone not used)

Description: A zone linked to the panel-zone that is seen by all panels.

ZONE LED

Length: word

Range: 0... 65535 (0=no system zone assigned to)

Description: Zone LED (zone field) allocated to a system zone.

5.3.1.10 Non-volatile Area Data (9, 09h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	9	9	9	137	137	9	9
1	AREA	Yes	Yes	Yes	Yes	Yes	Yes
2	AREA STATUS	Yes	Yes	-	-	Yes	Yes
3	AREA ADJ. (1)	Yes	Yes	-	-	Yes	Yes
4	AREA ADJ. (2)	Yes	Yes	-	-	Yes	Yes
5	AREA ADJ. (3)	Yes	Yes	-	-	Yes	Yes
6	AREA ADJ. (4)	Yes	Yes	-	-	Yes	Yes
7	AREA ADJ. (5)	Yes	Yes	-	-	Yes	Yes
8...48	AREA TEXT	Yes	Yes	-	-	Yes	Yes

AREA

Length: Byte

Range: 1...AREAS (see message 6)

Description: Area that is addressed.

AREA STATUS

Length: Byte

Description:

Bit	FP2000	FP780
0	0: Area disabled	0: Area disabled
	1: Area enabled	1: Area enabled
1	0: Area Coincidence un-logged	0: Area Coincidence un-logged
	1: Area Coincidence logged	1: Area Coincidence logged
2	0: -	0: Sounders delay disabled
	1: -	1: Sounders delay enabled
3	0: -	0: Fire brigade delay disabled
	1: -	1: Fire brigade delay enabled
4-7	-	-

AREA ADJ

Length: Byte

Range: 0…AREAS, AREA ADJ cannot be the same value as AREA.

Description: Five areas adjacent to addressed area.

AREA TEXT

Length: 1...41 Bytes

Where: Byte 0: Length of string (0...n, n<40)

Bytes 1...n: String (if n > 0)

5.3.1.11 Non-volatile Loop Data (10, 0Ah)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	10	10	-	138	-	10	-
1	LOOP	Yes	-	Yes	-	Yes	-
2	LOOP STATUS	Yes	-	-	-	Yes	-
3	LOOP LED	Yes	-	-	-	Yes	-

LOOP

Length: Byte

Range: 1...LOOPS (see message 6)

Description: Loop that is addressed.

LOOP STATUS

Length: Byte

Description:

Bit	FP2000	FP780
0	0: Loop disabled	0:
	1: Loop enabled	1:
1-7	-	-

LOOP LED

Length: Byte

Range: Apollo: 0...126

Sentrol: 0...128

Description: The maximum number of LED per loop that can be switched on at any time.

5.3.1.12 Non-volatile Input Data (11, 0Bh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	11	11	11	139	139	11	11
1,2	INPUT (hb, lb)	Yes	Yes	Yes	Yes	Yes	Yes
3	INPUT TYPE	Yes	Yes	-	-	Yes	Yes
4	INPUT TRIGGER	Yes	Yes	-	-	Yes	Yes
5	INPUT ADR. 0	Yes	Yes	-	-	Yes	Yes
6	INPUT ADR. 1	Yes	Yes	-	-	Yes	Yes
7	INPUT ADR. 2	Yes	Yes	-	-	Yes	Yes
8...48	INPUT TEXT	Yes	Yes	-	-	Yes	Yes

In the FP780 the input command is used to for the inputs and the equipment inputs. See command 6 for the relevant input numbers. Inputs can be used by the logic, but not to link equipment. Equipment inputs cannot be used by the logic.

INPUT

Length: 2 bytes

Range: 1...INPUTS (see message 6)

Description: Input that is addressed.

INPUT ADR. (0...3)

Length: Byte

Range: See table

Description: Three bytes that are used to expand the INPUT TYPE by specifying the address, where applicable, and assigning a function to the input. The General Description and table below gives a detailed description of the relation between the INPUT TYPE byte and the INPUT ADR. Bytes as well as the associated trigger options.

INPUT TYPE

Length: Byte

Range: 1...14

Description:

INPUT TYPE	FP2000	FP780
0	None	None
1	General	General
2	Zone	Zone
3	Area	Area
4	Adjacent Area	Adjacent Area
5	Internal	-
6	Time	Time
7	Device Input	-
8	Device	-
9	Network	-
10	Action	Action
11	-	-
12	Date	Date
13	LON Device Input	LON Device Input

14	Supervised LON Device Input	-

INPUT TRIGGER

Length: Byte

Range: See table

Description: A byte that determines an input's operation and depends on the INPUT TYPE and INPUT ADR. Bytes:

Bit	Functionality	FP2000 (except LON)	FP780 and FP2000 LON
Bit 0	Input latching	0: unlatched	0: unlatched
		1: latched	1: latched
Bit 1	Input shape	0: continuous	0: continuous
		1: pulse	1: pulse
Bits 4,3,2	Input state	000: passive	000: passive
		001: active	001: active
		010: open	010: open
		011: short	011: short
		100: active 1	100: -
		101: abnormal (open or short)	101: abnormal (open or short)
		111: -	111: -
Bits 7,6,5	Input logging	000: un-logged	000: un-logged
		001: logged	001: logged
		010: logged as fire	010: logged as fire
		011: logged as fault	011: logged as fault
		100: logged as condition	100: logged as condition
		101: -	101: -
		111: -	111: -

INPUT TEXT

Length: 1...41 Bytes

Where: Byte 0: Length of string (0...n, n<40)

Bytes 1...n: String (if n > 0)

Note that input types that are "un-logged" (see INPUT TRIGGER byte, bits 5 to 7) are not allowed to have text. Text is allowed for the following input types:

INPUT TYPE	FP2000	FP780
5	Internal	-
6	Time	Time
7	Device Input	-
9	Network	-
12	Date	Date
13	LON Device Input	LON Device Input
14	Supervised LON Device Input	-

General Description:

The table below gives a detailed description of the relation between the INPUT TYPE byte and the INPUT ADR. Bytes as well as the associated trigger options. It describes the different types of input with their various functions and options.

Function	Abbreviation	Description
Trigger	Lt	Latched
	Ult	Unlatched
Shape	Cnt	Continuous
	Pls	Pulse
State	P	Passive
	A	Active
	O	Open
	S	Short
	A1	Active 1
	An	Abnormal
Event	Ulg	Un-logged
	Lg	Logged
	Fr	Fire
	Flt	Fault
	Con	Condition
Text	0/40	Number of characters allowed

TYPE	FUNCTION			TRIGGER	MODE		EVENT	TEXT
	ADR 0	ADR 1	ADR 2		Shape	State		
0 None	0	0	0	Ult	Cnt	P	Ulg	0

TYPE	FUNCTION			TRIGGER	MODE			EVENT	TEXT
	ADR 0	ADR 1	ADR 2		Shape	State			
						TRG = Lt	TRG = Ult		
1 General	0 - Common Fire	0	0	Lt	Cnt	A	-	Ulg	0
	1 - Common Fault			Lt, Ult			A, P		
	2 - Supply Fault			Lt, Ult			A, P		
	3 - System Fault			Lt, Ult			A, P		
	4 - Common Condition			Lt, Ult			A, P		
	5 - Disable			Lt, Ult			A, P		
	6 - Test			Lt, Ult			A, P		
	7 - Coincidence			Lt			-		
	8 - Ext. Fire			Lt			-		
	9 - Ext. Fault			Lt, Ult			A, P		
	10 - Sounder Fault			Lt			-		
	11 - Fire Brigade Fault			Lt			-		
	12 - Fault Routing Fault			Lt			-		
	13 - Fire Protection Fault			Lt			-		
	14 - Memory Unlocked			Lt, Ult			A, P		
	15 - Tamper Switch			Lt, Ult			A, P		
	16 - Service Switch			Lt, Ult			A, P		
	17 - Access Fault			Lt			-		
	18 - Printer Disconnected			Lt, Ult			A, P		
	19 - Emulation Disconnected			Lt			-		
	20 - VDU Disconnected			Lt			-		
	21 - G-Repeater Fault (FP2000 only)			Lt, Ult			A, P		
	22 - Panel Fault (FP2000 only)			Lt, Ult			A, P		

TYPE	FUNCTION			TRIGGER	MODE			EVENT	TEXT
	ADR 0	ADR 1	ADR 2		Shape	State			
						TRG = Lt	TRG = Ult		
	23 - L-Repeater Fault (FP2000 only)			Lt, Ult			A, P		
	24 - reserved			-			-		

TYPE	FUNCTION			TRIGGER	MODE			EVENT	TEXT
	ADR 0	ADR 1	ADR 2		Shape	State			
						TRG = Lt	TRG = Ult		
1 General (cont.)	25 - Modem Fault	0	0	Lt	Cnt	A	-	Ulg	0
	26 - Mains Disconnected			Lt, Ult			A, P		
	27 - Battery Disconnected			Lt, Ult			A, P		
	28 - Battery Test Failed			Lt, Ult			A, P		
	29 - Low Battery			Lt, Ult			A, P		
	30 - Charger Fault			Lt, Ult			A, P		
	31 - Earth Fault			Lt, Ult			A, P		
	32 - Ext. supply Fault			Lt, Ult			A, P		
	33 - Hardware Fault			Lt			-		
	34 - Sounder Disabled			Lt, Ult			A, P		
	35 - Fire Brigade Disabled			Lt, Ult			A, P		
	36 - Fault Routing Disabled			Lt, Ult			A, P		
	37 - Fire Protection Disabled			Lt, Ult			A, P		
	38 - Soak Test			Lt, Ult			A, P		
	39 - Zone Test			Lt, Ult			A, P		
	40 - Sounder Test			Lt, Ult			A, P		
	41 - Fire Brigade Test			Lt, Ult			A, P		
	42 - Fault Routing Test			Lt, Ult			A, P		
	43 - Fire Protection Test			Lt, Ult			A, P		
	44 – Maintenance Fault			Lt			-		
	45 – BFS Disable			Lt, Ult			A, P		
	46 – Pre Warning			Lt, Ult			A, P		
	47 – LON Device Fault (FP2000 only)			Lt, Ult			A, P		
	48 – Hausalarm			Lt, Ult			A, P		
	49 – LA alarm			Lt, Ult			A, P		
	50 – Sprinkler al.			Lt, Ult			A, P		

TYPE	FUNCTION			TRIGGER	MODE			EVENT	TEXT
	ADR 0	ADR 1	ADR 2		Shape	State			
						TRG = Lt	TRG = Ult		
	51 – F/B return			Lt, Ult			A, P		
	52 – F/B triggert			Lt, Ult			A, P		
	53 – FSK unlocked			Lt, Ult			A, P		
	54 – FSK security			Lt, Ult			A, P		
	55 – FSK open			Lt, Ult			A, P		
	56 – LA triggert			Lt, Ult			A, P		
	57 – BFS triggert			Lt, Ult			A, P		
	58 – FSE triggert			Lt, Ult			A, P		

TYPE	FUNCTION			TRIGGER	MODE			EVENT	TEXT
	ADR 0	ADR 1	ADR 2		Shape	State			
						TRG = Lt	TRG = Ult		
2 Zone	ZONE	0 - Fire	0	Lt	Cnt	A	-	Ulg	0
		1 - Fault		Lt			-		
		2 - Coinci-dence		Lt			-		
		3 - Condition		Lt, Ult			A, P		
		4 - Disable		Lt, Ult			A, P		
		5 - Pre Warning		Lt, Ult			A, P		
		6 - Hausalalm		Lt, Ult			A,P		
		7 - LA		Lt, Ult			A,P		
		8 - Sprinkler		Lt, Ult			A,P		

TYPE	FUNCTION			TRIGGER	MODE			EVENT	TEXT
	ADR 0	ADR 1	ADR 2		Shape	State			
						TRG = Lt	TRG = Ult		
3 Area	AREA	0 - Fire	0	Lt	Cnt	A	A	Ulg	0
		1 - Fault		Lt			A		
		2 - Coinci-dence		Lt			A		
		3 - Condition		Lt, Ult			A, P		
		4 - Disable		Lt, Ult			A, P		
		5 - Pre Warning		Lt, Ult			A, P		
		6 - Hausalalm		Lt, Ult			A,P		
		7 - LA		Lt, Ult			A,P		
		8 - Sprinkler		Lt, Ult			A,P		

TYPE	FUNCTION			TRIGGER	MODE			EVENT	TEXT
	ADR 0	ADR 1	ADR 2		Shape	State			
						TRG = Lt	TRG = Ult		
4 Adj. Area	AREA	0 - Fire	0	Lt	Cnt	A	A	Ulg	0
		1 - Fault		Lt			A		
		2 - Coinci-dence		Lt			A		
		3 - Condition		Lt, Ult			A, P		
		4 - Disable		Lt, Ult			A, P		
		5 - Pre Warning		Lt, Ult			A, P		

TYPE	FUNCTION			TRIGGER		MODE		EVENT	TEXT
	ADR 0	ADR 1	ADR 2	EVENT = Fr	EVENT = Ulg, Lg Flt, Con	Shape	State		
5 Internal	BOARD	BOARD INPUT CHANNEL	0	Lt	Lt, Ult	Cnt, Pls	A, P, A1, O, S An	Ulg, Lg, Fr, Flt, Con	40

TYPE	FUNCTION			TRIGGER		MODE		EVENT	TEXT
	ADR 0	ADR 1	ADR 2	EVENT = Fr	EVENT = Ulg, Lg Flt, Con	Shape	State		
6 Time	HOUR	MINUTE	TRIGGER DAY	Lt	Lt, Ult	Cnt, Pls	A, P	Ulg, Lg, Fr, Flt, Con	40

TYPE	FUNCTION			TRIGGER		MODE		EVENT	TEXT
	ADR 0	ADR 1	ADR 2	EVENT = Fr	EVENT = Ulg, Lg Flt, Con	Shape	State		
7 Device Input	LOOP	SENSOR	DEVICE INPUT CHANNEL	Lt	Lt, Ult	Cnt, Pls	A, P, O, S, A2, An	Ulg, Lg, Fr, Flt, Con	40

TYPE	FUNCTION			TRIGGER	MODE			EVENT	TEXT
	ADR 0	ADR 1	ADR 2		Shape	State			
						TRG = Lt	TRG = Ult		
8 Device	LOOP	SENSOR	0 - Fire	Lt	Cnt	A	-	Ulg	40
			1 - Fault	Lt			-		
			2 - Condition	Lt, Ult			A		

TYPE	FUNCTION			TRIGGER		MODE		EVENT	TEXT
	ADR 0	ADR 1	ADR 2	EVENT = Fr	EVENT = Ulg, Lg Flt, Con	Shape	State		
9 Network	High byte of OUTPUT	Low byte of OUTPUT	NODE ID	Lt	Lt, Ult	Cnt	A, P	Ulg, Lg, Fr, Flt, Con	40

TYPE	FUNCTION			TRIGGER	MODE			EVENT	TEXT
	ADR 0	ADR 1	ADR 2		Shape	State			
						TRG = Lt	TRG = Ult		
10 Action	0 - Day Mode	0	0	Lt, Ult	Cnt	A	A, P	Ulg	0
	1 - Zones On			Lt, Ult			A, P		
	2 - School Bells On			Lt, Ult			A, P		
	3 - Silence Buzzer			Lt, Ult			A, P		
	4 - Key Switch Enabled			Lt, Ult			A, P		
	5 - Sounder On			Lt, Ult			A, P		
	6 - Sounder Silenced			Lt, Ult			A, P		
	7 - Sounder Delay On			Lt, Ult			A, P		
	8 - Fire Brigade Signalled			Lt, Ult			A, P		
	9 - Fire Brigade Stopped			Lt, Ult			A, P		
	10 - Fire Brigade Delay On			Lt, Ult			A, P		
	11 - Fault Routing On			Lt, Ult			A, P		
	12 - Fault Routing Delay On			Lt, Ult			A, P		
	13 - Fire Protection On			Lt, Ult			A, P		
	14 - Fire Protection Delay On			Lt, Ult			A, P		
	15 - Restart			Lt			-		
	16 - Reset			Lt			-		
	17 - Access Enabled			Lt, Ult			A, P		
	18 - Event Buffer Full			Lt			-		
	19 - Event Buffer Cleared			Lt			-		
	20 - Maintenance Reminder			Lt			-		

TYPE	FUNCTION			TRIGGER		MODE		EVENT	TEXT
	ADR 0	**ADR 1**	**ADR 2**	EVENT = Fr	EVENT = Ulg, Lg Flt, Con	**Shape**	**State**		
12 Date	DAY	MONTH	YEAR	Lt	Lt, Ult	Cnt, Pls	A, P	Ulg, Lg, Fr, Flt, Con	40

FP2000 and FP780 Logic inputs

TYPE	FUNCTION			TRIGGER		MODE		EVENT	TEXT
	ADR 0	**ADR 1**	**ADR 2**	EVENT = Fr	EVENT = Ulg, Lg Flt, Con	**Shape**	**State**		
13 LON Device Input	LON NR.	LON INPUT NR.	0	Lt	Lt, Ult	Cnt	A, P	Ulg	0

FP780 Equipment inputs

TYPE	FUNCTION			TRIGGER	MODE		EVENT	TEXT
	ADR 0	**ADR 1**	**ADR 2**		**Shape**	**State**		
13 LON Device Input	LON NR.	LON INPUT NR	00h - None 80h - Fault Routing Fault 81h - Fbrig delay disable 82h -	Ult	**Cnt**	**A**	Ulg	0

TYPE	FUNCTION			TRIGGER		MODE		EVENT	TEXT
	ADR 0	**ADR 1**	**ADR 2**	EVENT = Fr	EVENT = Ulg, Lg Flt, Con	**Shape**	**State**		
14 Sup. LON Device Input	LON NR.	LON INPUT NR.	I0	Lt	Lt, Ult	Cnt	A, P	Ulg	0

BOARD

Length: Byte

Range: 0...24

Description: A number that is assigned to a specific board (PCB) in the FP2000 Panel – see also (FP2000 Reference Manual) for a description of the allocation of numbers to the different boards.

BOARD INPUT CHANNEL

Length: Byte

Range: 1...8

Description: The input channel number of a FP2000 Panel board (PCB).

DEVICE INPUT CHANNEL

Length: Byte

Range: Apollo: 1...3

Sentrol: 1...4

Description: The input channel number of a fire detection device. (Addressed by the LOOP and SENSOR bytes).

TRIGGER DAY

Length: Byte

Range: 0...7

Description: The day of trigger for a time input:

TRIGGER DAY	FP2000	FP780
0	Every Day	Every Day
1	Monday	Monday
2	Tuesday	Tuesday
3	Wednesday	Wednesday
4	Thursday	Thursday
5	Friday	Friday
6	Saturday	Saturday
7	Sunday	Sunday

AREA (See message 9)

HOUR (See message 44)

MINUTE (See message 44)

LOOP (See message 7)

SENSOR (See message 7)

NODE ID (See message 14)

OUTPUT (See message 38)

CL DEVICE (See message 63)

ZONE (See message 8)

LON NR. (See message 74)

LON INPUT NR. (See message 74)

5.3.1.13 Non-volatile Output Data (12, 0Ch)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	12	12	12	140	140	12	12
1,2	OUTPUT (hb, lb)	Yes	Yes	Yes	Yes	Yes	Yes
3	OUTPUT TYPE	Yes	Yes	-	-	Yes	Yes
4	OUTPUT TRIGGER	Yes	Yes	-	-	Yes	Yes
5	OUTPUT ADR. 0	Yes	Yes	-	-	Yes	Yes
6	OUTPUT ADR. 1	Yes	Yes	-	-	Yes	Yes
7	OUTPUT ADR. 2	Yes	Yes	-	-	Yes	Yes
8	OUTPUT ADR. 3	Yes	Yes	-	-	Yes	Yes
9...49	OUTPUT TEXT	Yes	Yes			Yes	Yes

The output command is used to for the outputs and the equipment outputs. See command 6 for the relevant output numbers. Outputs can be used by the logic, but not to link equipment. Equipment Outputs cannot be used by the logic.

OUTPUT

Length: 2 bytes

Range: 1…999

Description: Output that is addressed.

OUTPUT TYPE

Length: Byte

Range: 1...14

Description:

OUTPUT TYPE	FP2000	FP780
0	None	None
1	General	General
2	Zone	Zone
3	Area	Area
4	Internal	-
5	Device Output	-
6	Internal supervised	-
7	Device supervised	-
8	Network	-
9	-	-
10	-	-
11	Event	Event
12	Action	Action
13	LON Output	LON Output
14	Supervised LON Output	-

OUTPUT TRIGGER

Length: Byte

Range: See table

Description: A byte that determines an output's operation and depends on the OUTPUT TYPE and OUTPUT ADR.

Bit	Functionality	FP2000	FP780
Bit 0	Output Latching	0: unlatched	0: unlatched
		1: latched	1: latched
Bit 1	Output Shape	0: continuous	0: continuous
		1: pulse	1: pulse
Bit 2	Output Mode	0: normal (not inverted)	0: normal (not inverted)
		1: inverted	1: inverted
Bit 3	Output Shape	0: continuous	0: continuous
		1: pulsing	1: pulsing
Bit 4	Output Shape	0: continuous	0: continuous
		1: two tone	1: two tone
Bits 7,6,5	Output Logging	000: un-logged	000: un-logged
		001: logged	001: logged
		010: logged as fire	010: logged as fire
		011: logged as fault	011: logged as fault
		100: logged as condition	100: logged as condition
		101: -	101: -
		111: -	111: -

OUTPUT ADR. (0...3)

Length: Byte

Range: See table

Description: Three bytes that are used to expand the OUTPUT TYPE by specifying the address, where applicable, and assigning a function to the output. The General Description and table below gives a detailed description of the relation between the OUTPUT TYPE byte and the OUTPUT ADR. Bytes as well as the associated trigger options.

Areas and zones for OUTPUT ADR3 are defined in command 6

OUTPUT TEXT

Length: 1...41 Bytes

Where: Byte 0: Length of string (0...n, n<40)

Bytes 1...n: String (if n > 0)

General Description:

The table below gives a detailed description of the relation between the OUTPUT TYPE byte and the OUTPUT ADR. Bytes as well as the associated trigger options. It describes the different types of input with their various functions and options.

Code Definitions of Table:

Function	Abbreviation	Description
Trigger	Lt	Latched
	Ult	Unlatched
Mode	Nrm	Norma (not inverted)
	Iv	Inverted
Shape	Cnt	Continuous
	Cnts	Continuous synchronised
	Pls	Pulse
	Psg	Pulsing
	Psgf	Pulsing fast (LED)
Event	Ulg	Un-logged
	Lg	Logged
	Fir	Fire
	Flt	Fault
	Con	Condition
Text	0/40	Number of characters allowed
Link	Nlk	Linked to general equipment
	Zlk	Linked to zone equipment
	Alk	Linked to area equipment
	Hn	High nibble
	Ln	Low nibble
Equipment	Logic	Logic
	Snd	Sounder Equipment
	AutoFbrig	Fire Brigade Equipment (Automatic fire, In non-NEN mode any fire)
	Fltrt	Fault Routing Equipment
	Fprot	Fire Protection Equipment
	MCPFbrig	Fire Brigade Equipment (MCP fire)

TYPE	FUNCTION				TRIGGER	MODE		EVENT	TEXT
	ADR0	ADR1	ADR2	ADR3		Mode	Shape		
0 None	0	0	0	0	Ult	Nrm	Cnt	Ulg	0

TYPE	FUNCTION				TRIGGER	MODE		EVENT	TEXT
	ADR0	ADR1	ADR2	ADR3		Mode	Shape		
1 General	0 - Fire	0	0	0	Lt	Nrm	Cnt	Ulg	0
	1 - Fault				Lt, Ult				
	2 - Condition				Lt, Ult				
	3 - Ext. Fire				Lt				
	4 - Ext. Fault				Lt, Ult				
	5 - Ext. Supply Fault				Lt, Ult				
	6 - Tamper Switch				Ult				
	7 - Service Switch On				Ult				
	8 - Sounder Disabled				Ult				
	9 - Fire Brigade Disabled				Ult				
	10 - Fault Routing Disabled				Ult				
	11 - Fire Protection Disabled				Ult				
	12 - Sounder Test				Ult				
	13 - Fire Brigade Test				Ult				
	14 - Fault Routing Test				Ult				
	15 - Fire Protection Test				Ult				
	16 - Hausalarm				Lt, Ult				
	17 - LA				Lt, Ult				
	18 - Sprinkler				Lt, Ult				

TYPE	FUNCTION				TRIGGER	MODE		EVENT	TEXT
	ADR0	ADR1	ADR2	ADR3		Mode	Shape		
2 Zone	ZONE	0 - Fire MCP	0	0	Lt	Nrm	Cnt	Ulg	0
		1 - Fire Auto			Lt				
		2 - Fault			Lt				
		3 - Coinci-dence			Lt				
		4 - Condition			Lt, Ult				
		5 - Disable			Lt, Ult				
		6 - Hausalalm			Lt, Ult				
		7 - LA			Lt, Ult				
		8 - Sprinkler			Lt, Ult				

TYPE	FUNCTION				TRIGGER	MODE		EVENT	TEXT
	ADR0	ADR1	ADR2	ADR3		Mode	Shape		
3 Area	AREA	0 - Fire MCP	0	0	Lt	Nrm	Cnt	Ulg	0
		1 - Fire Auto			Lt				
		2 - Fault			Lt				
		3 - Coinci-dence			Lt				
		4 - Condition			Lt				
		5 - Disable			Lt, Ult				
		6 - Hausalalm			Lt, Ult				
		7 - LA			Lt, Ult				
		8 - Sprinkler			Lt, Ult				

TYPE	FUNCTION					TRIGGER	MODE		EVENT	TEXT
	ADR0	ADR1	ADR2		ADR3		Mode	Shape		
			Hn = Link	Ln = Equip.	(Link)					
4 Internal Output	BOARD	BOARD OUTPUT CHANNEL	0	0 -Logic	0	Lt, Ult	Nrm, Iv	Cnt, Pls, Psg	Ulg, Lg, Flt, Con	40
						Lt			Fir	
			0 - Nlk 1 - Zlk 2 - Alk	1 -Snd 2 -Fbrig 3 -Fltrt 4 -Fprot	0 –0 1 – 1…zones 2 – 1…areas	Lt Ult Lt	Nrm	Cnt	Ulg	0
			0 - Nlk	4 –LA 5 -Hsalm 6 –Sprink 7 - BFS						

TYPE	FUNCTION					TRIGGER	MODE		EVENT	TEXT
	ADR0	ADR1	ADR2		ADR3		Mode	Shape		
			Hn = Link	Ln = Equip.	(Link)					
5 Device Output	Ln = LOOP Hn = OUTPUT CHANNEL	SENSOR	0	0 -Logic	0	Lt, Ult Lt	Nrm, Iv	Cnt, Pls, Psg	Ulg, Lg, Flt, Con Fir	40
			0 - Nlk 1 - Zlk 2 - Alk	1 -Snd 2 -Fbrig 3 -Fltrt 4 -Fprot	0 –0 1 – 1…zones 2 – 1...areas	Lt Lt Ult Lt	Nrm	Cnt	Ulg	0
			0 - Nlk	4 –LA 5 –Hsalm 6 -Sprink 7 - BFS						

TYPE	FUNCTION					TRIGGER	MODE		EVENT	TEXT
	ADR0	ADR1	ADR2		ADR3		Mode	Shape		
			Hn = Link	Ln = Equip.	(Link)					
6 Internal Super-vised Output	BOARD	BOARD OUTPUT CHANNEL	0	0 -Logic	0	Lt, Ult Lt	Nrm, Iv	Cnt, Pls, Psg	Ulg, Lg, Flt, Con Fir	40
			0 - Nlk 1 - Zlk 2 - Alk	1 -Snd 2 -Fbrig 3 -Fltrt 4 -Fprot	0 –0 1 – 1…zones 2 – 1…areas	Lt Ult Lt	Nrm	Cnt	Ulg	0
			0 - Nlk	4 –LA 5 –Hsalm 6 -Sprink 7 - BFS						

TYPE	FUNCTION					TRIGGER	MODE		EVENT	TEXT
	ADR0	ADR1	ADR2		ADR3		Mode	Shape		
			Hn = Link	Ln = Equip.	(Link)					
7 Device Super-vised Output	Ln = LOOP Hn = OUTPUT CHANNEL	SENSOR	0	0 -Logic	0	Lt, Ult Lt	Nrm, Iv	Cnt, Pls, Psg	Ulg, Lg, Flt, Con Fir	40
			0 - Nlk 1 - Zlk 2 - Alk	1 -Snd 2 -Fbrig 3 -Fltrt 4 -Fprot	0 –0 1 – 1…zones 2 – 1…areas	Lt Lt Ult Lt	Nrm	Cnt	Ulg	0
			0 - Nlk	4 –LA 5 –Hsalm 6 Sprink 7 - BFS						

TYPE	FUNCTION				TRIGGER	MODE		EVENT	TEXT
	ADR0	ADR1	ADR2	ADR3		Mode	Shape		
8 Network	High byte of INPUT	Low byte of Input	NODE ID	0	Ult	Nrm, Iv	Cnt	Ulg, Lg	40

TYPE	FUNCTION				TRIGGER	MODE		EVENT	TEXT
	ADR0	ADR1	ADR2	ADR3		Mode	Shape		
11 Event	0	0	0	0	Lt, Ult	Nrm	Cnt	Ulg, Lg, Flt, Con	40
					Lt			Fir	

TYPE	FUNCTION				TRIGGER	MODE		EVENT	TEXT
	ADR0	ADR1	ADR2	ADR3		Mode	Shape		
12 Action	0 - Day Mode	0	0	0	Ult	Nrm	Cnt	Ulg	0
	1 - Zones On								
	2 - School Bells On								
	3 - Silence Buzzer								
	4 - Key Switch Unlocked								
	5 - Sounder On								
	6 - Sounder Silenced								
	7 - Sounder Delay On								
	8 - Fire Brigade Signalled								
	9 - Fire Brigade Stopped								
	10 - Fire Brigade Delay On								
	11 - Fault Routing On								
	12 - Fault Routing Off								
	13 - Fault Routing Delay On								

	14 - Fire Protection On 15 - Fire Protection Off 16 - Fire Protection Delay ON 17 - Restart 18 - Reset 19 - Synchro-nise Time								

TYPE	FUNCTION				TRIGGER	MODE		EVENT	TEXT
	ADR0	ADR1	ADR2	ADR3		Mode	Shape		
12 Action (Cont.)	20 - Call on Line 1 21 - Call on Line 2 22 - Call on Line 3 23 - Call on Line 3	0	0	0	Ult	Nrm	Cnt	Ulg	0

FP2000

TYPE	FUNCTION					TRIGGER	MODE		EVENT	TEXT
	ADR0	ADR1	ADR2		ADR3		Mode	Shape		
			Link	Equip.	(Link)					
13 LON Device Output	LON NR.	LON OUTPUT NR.	0	0 - Logic	0	Lt, Ult Lt	Nrm, Iv	Cnt, Pls, Psg	Ulg, Lg, Flt, Con Fir	40
			0 - Nlk 1 - Zlk 2 - Alk	1 - Snd 2 - Fbrig 3 - Fltrt 4 - Fprot	0 –0 1 – 1…zones 2 – 1…areas	Lt Lt Ult Lt	Nrm	Cnt	Ulg	0

FP780

TYPE	FUNCTION					TRIGGER	MODE		EVENT	TEXT
	ADR0	ADR1	ADR2		ADR3		Mode	Shape		
			Link	Equip.	(Link)					
13 LON Device Output	LON NR.	LON OUTPUT NR.	0	0 - Logic	0	Lt, Ult Lt	Nrm, Iv	Cnt, Pls, Psg	Ulg, Lg, Flt, Con Fir	40
			0 - Nlk 1 - Zlk 2 - Alk	1 - Snd 2 - Auto Fbrig 3 - Fltrt 4 - Fprot 5 - MCP Fbrig	0 –0 1 – 1…zones 2 – 1…areas	Lt Lt Ult Lt Lt	Nrm	Cnt	Ulg	0

TYPE	FUNCTION					TRIGGER	MODE		EVENT	TEXT
	ADR0	ADR1	ADR2		ADR3		Mode	Shape		
			Link	Equip.	(Link)					
14 Super-vised LON Device Output	LON NR.	LON OUTPUT NR.	0	0 - Logic	0	Lt, Ult	Nrm, Iv	Cnt, Pls, Psg	Ulg, Lg, Flt, Con	40
						Lt			Fir	
			0 - Nlk 1 - Zlk 2 - Alk	1 - Snd	0 –0	Lt	Nrm	Cnt	Ulg	0
				2 - Auto Fbrig	1 – 1…zones	Lt				
				3 - Fltrt	2 – 1…areas	Ult				
				4 - Fprot		Lt				

BOARD OUTPUT CHANNEL

Length: Byte

Range: 1...128

Description: The output channel number of a FP2000 Panel board (PCB)

DEVICE OUTPUT CHANNEL

Length: Byte

Range: Apollo: 1...3

Sentrol: 1...4

Description: The output channel number of a fire detection device

BOARD (see message 11)

INPUT (See message 38)

NODE ID (See message 14)

SENSOR (See message 7)

LOOP (See message 7)

ZONE (See message 8)

AREA (See message 9)

CL DEVICE (See message 63)

DAY (See message 44)

HOUR (See message 44)

MINUTE (See message 44)

LON NR. (See message 74)

LON OUTPUT NR. (See message 74)

5.3.1.14 Non-volatile Logic Data (13, 0Dh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	13	13	13	141	141	13	13
1,2	LOGIC LINE (hb, lb)	Yes	Yes	Yes	Yes	Yes	Yes
3	LOGIC OP.	Yes	Yes	-	-	Yes	Yes
4	LOGIC OPR.	Yes	Yes	-	-	Yes	Yes
5	LOGIC PAR. 0	Yes	Yes	-	-	Yes	Yes
6	LOGIC PAR. 1	Yes	Yes	-	-	Yes	Yes
7	LOGIC PAR. 2	Yes	Yes	-	-	Yes	Yes

LOGIC LINE

Length: 2 bytes

Range: 1...1999

Description: Logic line number that is addressed.

LOGIC OP

Length: Byte

Range: 0…17

Description:

LOGIC OP	Operation
0	None (empty line)
1	) =
2	) Set-s
3	) Reset-s
4	) Set-e
5	) Reset-e
6	And
7	And not
8	And (
9	And not (
10	Or
11	Or (
12	Or not (
13	(
14	Not (
15	)
16	End

LOGIC OPR.

Length: Byte

Range: 0…8

Description: Logic operand – the two LOGIC PAR bytes extend the operand by specifying the address or location – see the LOGIC PAR. Bytes' description:

LOGIC OPR.	Operation
0	None (empty line)
1	Input
2	Output
3	Marker
4	Timer
5	Not Input
6	Not Output
7	Not Marker
8	Not Timer

LOGIC PAR. (0,1,2)

Length: Byte

Range: See table

Description: The two LOGIC PAR bytes are an extension of the LOGIC OPR byte and specify the address or location of the operand.

LOGIC OPR.	LOGIC PAR. 0	LOGIC PAR. 1	LOGIC PAR. 2
0 -	-	-	-
1 -	Higher byte of INPUT	Lower byte of INPUT	0
2 -	Higher byte of OUTPUT	Lower byte of OUTPUT	0
3 -	0	MARKER	0
4 -	Higher byte of TIME	TIMER	Lower byte of TIME
5 -	Higher byte of INPUT	Lower byte of INPUT	0
6 -	Higher byte of OUTPUT	Lower byte of OUTPUT	0
7 -	0	MARKER	0
8 -	Higher byte of TIME	TIMER	Lower byte of TIME

INPUT

Length: 2 bytes

Range: FP2000: 1...INPUTS (See message 6)

FP780: 1...INPUT EQUIPMENT START-1 (See message 6)

Description: The assigned input.

OUTPUT

Length: 2 bytes

Range: FP2000: 1...OUTPUTS (See message 6)

FP780: 1...OUTPUT EQUIPMENT START-1 (See message 6)

Description: The assigned output.

TIME

Length: Byte

Range: 0…250

Description: The assigned time in seconds.

TIMER

Length: Byte

Range: 1…250

Description: The assigned timer.

MARKER

Length: Byte

Range: 1...250

Description: The assigned marker.

5.3.1.15 Node Identification (14, 0Eh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	14	14	14	142	142	14	14
1	NODE ID	Yes	Yes	-	-	Yes	Yes
2…83	PANEL TEXT	Yes	Yes	-	-	Yes	Yes

NODE ID (FP2000)

Length: Byte

Range: FP2000: 0…255

FP780: 1

Description: The node identification address of the FP2000 Panel that is addressed.

The following factors influence the value of the node identification address FP2000 fire panel:

1. The FP2000 Panel type. (Fire Panel or a Global Repeater Panel or Local Repeater Panel).
2. The number assigned to the FP2000 Panel.
3. The maximum network configuration (see message 36 and MAX. NET. CONFIG.).

The format that FP2000 Panel number is displayed is:

p/r, where: p – panel number

r – repeater number

The FP2000 Panel type is determined as follows:

1. Fire Panel: (p > 0) and (r = 0)
2. Global Repeater Panel: (p = 0) and (r > 0)
3. Local Repeater Panel: (p > 0) and (r > 0)

If both the panel and repeater numbers are zero the FP2000 Panel does not have a node identification address. The maximum network configuration determines the maximum amount of devices on the network (ARCNET and serial RS232) by specifying the highest allowable panel and repeater numbers.

There are three options, namely:

1. 15/15
2. 31/7

The calculation is done by performing an “or” operation of the repeater number with the bit reversed value of the panel number.

The following description shows how to interpret the NODE ID byte:

Maximum network configuration – 15/15

Binary representation of NODE ID byte:	“n”-	b7	b6	b5	b4	b3	b2	b1	b0
		p0	p1	p2	p3	r3	r2	r1	r0

The lower nibble of the NODE ID byte represents the repeater, the upper nibble the panel number:

Binary representation of repeater number:	“r”-	r3:	r2:	r1:	r0
Binary representation of panel number:	“p”-	p3:	p2:	p1:	p0

Maximum network configuration – 31/7

Binary representation of NODE ID byte:	"n"-	b7	b6	b5	b4	b3	b2	b1	b0
		p0	p1	p2	p3	p4	r2	r1	r0

The lower 3 bits of the NODE ID byte represents the repeater, the upper 5 bits the panel number:

Binary representation of repeater number:	"r" -	r2	r1	r0		
Binary representation of panel number:	"p" -	p4	p3	p2	p1	p0

Maximum network configuration – 7/31

Binary representation of NODE ID byte:	"n"-	b7	b6	b5	b4	b3	b2	b1	b0
		p0	p1	p2	r4	r3	r2	r1	r0

The lower 5 bits of the NODE ID byte represents the repeater, the upper 3 bits the panel number:

Binary representation of repeater number:	"r" -	r4	r3	r2	r1	r0
Binary representation of panel number:	"p" -	p2	p1	p0		

NODE ID (FP780)

Length: Byte

Range: 1

Description: The node identification address of the FP780 Panel that is addressed.

PANEL TEXT

Length 2...82 Bytes

Where:	Byte 0:	Length of first string (0...n1, n1<40)
	Bytes 1...n1:	First string (if n1 > 0)
	Byte n1+1:	Length of second string (0...n2, n2<40)
	Bytes (n1+2)...n2	Second string (if n2 > 0)

5.3.1.16 Access Codes (15, 0fh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	15	15	15	143	143	15	15
1	ACCESS	Yes	Yes	Yes	Yes	Yes	Yes
2,3	ACCESS CODE (hb, lb)	Yes	Yes	-	-	Yes	Yes
4	ACCESS LEVEL	Yes	Yes			Yes	Yes

ACCESS

Length: Byte

Range: 1...6

Description: The access number that is addressed – see General Description below.

ACCESS CODE

Length: 2 bytes

Range: 1...9999

Description: The access code assigned to an access number – see General Description below.

ACCESS LEVEL

Length: Byte

Range: 1...2

Description: The access level assigned to an access number. The meaning is as follows (see also General Description below):

1 – limited access

2 – no limit

General Description:

The access number is used to store the access codes of up to six users. The access codes are used to control access to a FP2000 or FP780 Panel menu system. Each access code is assigned an access level that is used to limit the access of some access codes (users). A user with access level of "2" can view and change the access levels and access codes of all access level "1" and other access level "2" users. To enter certain menus of the FP2000 Panel menu system an access level of "2" is required, however, most menus require an access level of "1" (see message number 16).

5.3.1.17 Field Access (16, 10h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	16	16	16	144	144	16	16
1,2	ACCESS FIELD (hb, lb)	Yes	Yes	Yes	Yes	Yes	Yes
3	ACCESS LEVEL	Yes	Yes	-	-	Yes	Yes

ACCESS FIELD

Length: 2 bytes

Range: 0...255

Description: The access field (menu) number that is addressed. Each menu of the FP2000/FP780 Panel menu system is assigned a (field) number that is used to set the access level required to enter the menu.

The following table gives the field numbers of the FP2000 Panel's menus. Take note that all the menus exist for a FP2000 fire panel but not for the FP1200, UN2011.

Default Access Level			Duplication	Menu Level
0	1	2		1
-	Yes	-	-	0 – System
-	Yes	-	-	10 – Configuration
-	Yes	-	-	50 – Hardware
-	-	Yes	-	51 – Allocation
-	Yes	-	-	52 – ID
-	Yes	-	-	53 – Communication
-	Yes	-	-	110 – Port Setup
-	Yes	-	-	111 – Network
-	Yes	-	-	200 – Panels
-	Yes	-	-	201 – L-Repeaters
-	Yes	-	-	202 – G-Repeaters
-	Yes	-	-	112 – Modem
-	Yes	-	-	210 – Alarm Report
-	Yes	-	-	211 – Maintenance
-	Yes	-	-	212 – Setup
-	Yes	-	-	113 – Pagers
-	Yes	-	-	114 – LON Devices
-	Yes	-	-	54 – System Set-up
-	Yes	-	-	55 – System Info
-	Yes	-	-	220 – Allocation
-	Yes	-	-	221 – Panels
-	Yes	-	-	222 – L-Repeaters
-	Yes	-	-	223 – G-Repeaters
-	Yes	-	-	224 – System
-	Yes	-	-	225 – Stack
-	Yes	-	-	226 – Special Characters
-	Yes	-	-	227 – Text Debugging
-	Yes	-	-	24 – FEP

-	Yes	-	-	24 – SER
-	Yes	-	-	24 – Modem

Default Access Level			Duplication	Menu Level									
0	1	2		1	2	3	4	5	6	7	8	9	10
-	Yes	-	-				24 – ARC 1						
-	Yes	-	-				24 – ARC 2						
-	Yes	-	-				24 – LON						
-	Yes	-	-				24 – LON Characters						
-	Yes	-	-		11 – Access								
-	Yes	-	-			60 – Access Codes							
-	-	Yes	-			61 – Field Access							
-	-	Yes	-		12 – Clear Site Data								
-	-	Yes	-			80 – Devices							
-	-	Yes	-			81- Zones							
-	-	Yes	-			82 – Areas							
-	-	Yes	-			83 – Inputs							
-	-	Yes	-			84 – Outputs							
-	-	Yes	-			85 – System							
-	-	Yes	-			86 – Loops							
-	-	Yes	-			87 – Logic Table							
-	-	Yes	-			230 – Modem							
-	-	Yes	-			231 – Pagers							
-	-	Yes	-			232 – LON Devices							
-	-	Yes	-			233 – All							
-	Yes	-	-		13 – Set Default								
-	Yes	-	-			90 – Devices							
-	Yes	-	-			91 – Zones							
-	Yes	-	-			92 – Areas							
-	Yes	-	-			93 – System							
-	Yes	-	-			94 – Loops							
-	Yes	-	-			95 – Configuration							
-	Yes	-	-			96 – Logic Table							
-	Yes	-	-			97 – Modem							
-	-	Yes	-		14 – Set Times								
-	-	Yes	-			100 – Date & Time							
-	-	Yes	-			101 – Output Delays							
-	-	Yes	-			102 – Fbrig Delay off							
-	-	Yes	-			103 – Sounder Delay off							
-	-	Yes	-			104 – Zones off							
-	-	Yes	-			105 – Zones on							
-	-	Yes	-			106 – Day Mode							
-	-	Yes	-			107 – Night Mode							
-	Yes	-	-		15 – Restart								
-	Yes	-	-	1 – Devices									
-	Yes	-	-		20 – Setup								

-	Yes	-	-	21 – Zones

Default Access Level			Duplication	Menu Level
0	1	2		1 2 3 4 5 6 7 8 9 10
-	Yes	-	-	22 – Areas
-	Yes	-	-	23 – Zone Graphics
-	Yes	-	-	24 – Device Graphics
-	Yes	-	-	25 – Zone Range
-	Yes	-	-	2 – Input/Output
-	Yes	-	-	140 – Inputs
-	Yes	-	-	141 – Outputs
-	Yes	-	-	142 – Logic
-	Yes	-	-	143 – Timers
-	Yes	-	-	144 – Markers
-	Yes	-	-	145 – LON Devices
-	Yes	-	-	3 – Events
-	Yes	-	-	30 – Display Events
-	Yes	-	-	31 – Clear Events
-	Yes	-	-	32 – Clear all Events
-	Yes	-	-	4 – Maintenance
-	Yes	-	-	40 – Reports
-	Yes	-	-	130 – Device Values
-	Yes	-	-	131 – Maintenance Dev.
-	Yes	-	-	41 – Clear Dev. Stat.
-	Yes	-	-	42 – Hardware Test
-	Yes	-	-	43 – Maintenance Times
-	Yes	-	-	44 – Options
-	Yes	-	-	170 – Language
-	Yes	-	-	171 – Operation
-	Yes	-	-	172 – Protocol
-	Yes	-	-	173 – Battery (FP1200)
-	Yes	-	-	174 – Fault Masks (FP1200)
-	Yes	-	-	45 – Loop Test
-	Yes	-	-	46 – Fast Compensation
-	Yes	-	-	47 – Device Memory
Yes	-	-	-	X- Test
Yes	-	-	-	150 – Zone Test
Yes	-	-	-	160 – Zone Test
Yes	-	-	-	161 – Test Report
Yes	-	-	-	162 – Clear Test results
Yes	-	-	-	163 – Exception Report
Yes	-	-	-	151 – Test Devices
Yes	-	-	-	152 – Output Test
Yes	-	-	-	153 – Lamp Test
Yes	-	-	-	154 – Alarm Test

Yes	-	-	-	155 – User Log

Default Access Level			Duplication	Menu Level									
0	1	2		1	2	3	4	5	6	7	8	9	10
Yes	-	-	-	X – Disable									
Yes	-	-	-		120 – Zones								
Yes	-	-	-		121 – Devices								
Yes	-	-	-			180 – Alarm Select							
Yes	-	-	-			181 – Manual Select							
Yes	-	-	-		122 – Areas								
Yes	-	-	-		123 – Reports								
Yes	-	-	-			190 – Zones							
Yes	-	-	-			191 – Devices							
Yes	-	-	-			192 – Areas							
Yes	-	-	-		124 – Outputs								

The following table gives the field numbers of the FP780 Panel's menus.

Default Access Level			Duplication	Menu Level									
0	1	2		1	2	3	4	5	6	7	8	9	10
-	Yes	-	-	0 – System									
-	Yes	-	-		10 – Configuration								
-	Yes	-	-			50 – Version							
-	-	Yes	-			51 – Allocation							
-	Yes	-	-			53 – Communication							
-	Yes	-	-				110 – Port Setup						
-	Yes	-	-				111 – Modem						
-	Yes	-	-					210 – Alarm Report					
-	Yes	-	-					211 – Maintenance					
-	Yes	-	-					212 – Setup					
-	Yes	-	-				112 – LON						
-	Yes	-	Yes					180 – LON Device Setup					
-	Yes	-	Yes					181 – Auto Setup					
-	Yes	-	Yes						190 – Auto Setup				
-	Yes	-	Yes						191 – Auto Setup with Selections				
-	Yes	-	Yes						192 – Auto Configure				
-	Yes	-	Yes						193 – Auto replace				
-	Yes	-	Yes					182 – LON Device Configuration					
-	Yes	-	-					183 – LON Devices					
-	Yes	-	-					184 – LON Status					
-	Yes	-	Yes					185 – Supervised I/O Masks					
-	Yes	-	-					186 – LON Test					
-	Yes	-	-				54 – Options						
-	Yes	-	Yes					170 – Language					
-	Yes	-	-					171 – Operation					
-	Yes	-	-					172 – Fault Masks					
-	Yes	-	-					173 – Panel Type					
-	Yes	-	-					174 – Buzzer					
-	Yes	-	-					175 – ID					
-	Yes	-	-				55 – System Info						
-	Yes	-	-					220 – Allocation					
-	Yes	-	-					221 – System					
-	Yes	-	-					222 – Stack					
-	Yes	-	-					223 – Modem					
-	Yes	-	-					224 – LON					
-	Yes	-	-					225 – Special Characters					
-	Yes	-	-					226 – Text Debugging					
-	Yes	-	-					227 – LON Characters					
-	Yes	-	-					240 – FLASH					
-	Yes	-	-					241 – Network					
-	-	Yes	-		11 – Access								

-	-	Yes	-	60 – Access Codes
-	-	Yes	-	61 – Field Access

Default Access Level			Duplication	Menu Level									
0	1	2		1	2	3	4	5	6	7	8	9	10
-	-	Yes	-		12 – Clear Site Data								
-	-	Yes	-			80 – Zones							
-	-	Yes	-			81 – Areas							
-	-	Yes	-			82 – Inputs							
-	-	Yes	-			83 – Outputs							
-	-	Yes	-			84 – System							
-	-	Yes	-			85 – Logic Table							
-	-	Yes	-			86 – Modem							
-	-	Yes	-			87 – Language							
-	-	Yes	-			233 – All							
-	-	Yes	-		13 – Set Default								
-	-	Yes	-			90 – Zones							
-	-	Yes	-			91 – Areas							
-	-	Yes	-			92 – System							
-	-	Yes	-			93 – Configuration							
-	-	Yes	-			94 – Logic Table							
-	-	Yes	-			95 – Modem							
-	-	Yes	-		14 – Set Times								
-	-	Yes	-			100 – Date & Time							
-	-	Yes	Yes			101 – Output Delays							
-	-	Yes	-			102 – Fbrig Delay off							
-	-	Yes	-			103 – Sounder Delay off							
-	-	Yes	-			104 – Zones off							
-	-	Yes	-			105 – Zones on							
-	Yes	-	-		15 – Restart								
-	Yes	-	-		16 – Update FLASH								
-	Yes	-	-	1 – Devices									
-	Yes	-	Yes		20 – Zones								
-	Yes	-	-		21 – Areas								
-	Yes	-	-	2 – I/O									
-	Yes	-	-		140 – Inputs								
-	Yes	-	-		141 – Outputs								
-	Yes	-	-		142 – Logic								
-	Yes	-	Yes		143 – LON Device Configuration								
-	Yes	-	-		144 – Timers								
-	Yes	-	-		145 – Markers								
-	-	Yes	-		146 – Input Equipment								
-	-	Yes	-		147 – Output Equipment								
-	Yes	-	-	3 – Events									
-	Yes	-	-		30 – Display Events								
-	Yes	-	-		31 – Clear Events								

-	Yes	-	-	4 – Maintenance

Default Access Level			Duplication	Menu Level
0	1	2		1 2 3 4 5 6 7 8 9 10
	Yes	-	-	40 – Reports
-	Yes	-	-	41 – Hardware Test
-	Yes	-	-	42 – Maintenance Times
-	Yes	-	-	5 – Test
-	Yes	-	-	150 – Zone Test
-	Yes	-	-	160 – Zone Test
-	Yes	-	-	161 – Test Report
-	Yes	-	-	162 – Clear Test results
-	Yes	-	-	163 – Exception Report
-	Yes	-	-	151 – Equipment
-	Yes	-	-	152 – Zone Equipment
-	Yes	-	-	153 – Area Equipment
-	Yes	-	-	154 – Alarm Count
-	Yes	-	-	155 – User Log
-	Yes	-	-	6 – Disable
-	Yes	-	-	120 – Zones
-	Yes	-	-	121 – Areas
-	Yes	-	-	122 – Equipment
-	Yes	-	-	123 – Zone Equipment
-	Yes	-	-	124 – Area Equipment
-	Yes	-	-	7 – Quick Setup
-	Yes	-	Yes	70 – Auto Setup
-	Yes	-	Yes	190 – Auto Setup
-	Yes	-	Yes	191 – Auto Setup with Selections
-	Yes	-	Yes	192 – Auto Configure
-	Yes	-	Yes	193 – Auto replace
-	Yes	-	Yes	71 – Lon Device Configuration
-	Yes	-	Yes	72 – Zones
-	Yes	-	Yes	73 – Output Delays
-	Yes	-	Yes	74 – Supervised I/O Masks
-	Yes	-	Yes	75 – LON Device Setup
-	Yes	-	Yes	76 – Language

ACCESS LEVEL

Length: Byte

Range: 0...2

Description: The access level required.

Where: 0: Only key switch required

1: Low level access code

2: High level access code

5.3.1.18 System Times (17, 11h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	17	17	17	145	145	17	17
1	SYSTEM TIME	Yes	Yes	Yes	Yes	Yes	Yes
2	HOUR	Yes	Yes	-	-	Yes	Yes
3	MINUTE						

SYSTEM TIME

Length: Byte

Range: 0…48

Description: A number specifying which function's times is addressed as well as the day of the week. Seven numbers are assigned to each function, with the smallest number assigned to Monday, followed by the rest of the week days up to the highest number assigned to Sunday. The allocation of the functions is as follows:

System Time	Function	FP2000	FP780
0...6	Fire brigade delay off times	Yes	Yes
7...13	Sounder delay off times	Yes	Yes
14...20	Day mode times	Yes	-
21...27	Night mode times	Yes	-
28...34	Zone on times	Yes	Yes
35...41	Zone off times	Yes	Yes
42...48	Maintenance report times	Yes	Yes

HOUR

Length: Byte

Range: 0...23

Description: The hour when the function is executed.

MINUTE

Length: Byte

Range: 0...59

Description: The minute when the function is executed.

5.3.1.19 Maintenance Date (18, 12h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	18	18	18	146	146	18	18
1	YEAR	Yes	Yes	-	-	Yes	Yes
2	MONTH	Yes	Yes	-	-	Yes	Yes
3	DAY	Yes	Yes	-	-	Yes	Yes

MONTH

Length: Byte

Range: 1...12

Description: Month for maintenance reminder.

DAY

Length: Byte

Range: 1...28,29,30,31

Description: Day of the month for maintenance reminder.

YEAR

Length: Byte

Range: 0...99

Description: Year for maintenance reminder.

Where: 94…99: 1994…1999

00…93: 2000…2093

5.3.1.20 Port Set up (19, 13h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	19	19	19	147	147	19	19
1	PORT	Yes	Yes	Yes	Yes	Yes	Yes
2	PORT PAR. 0	Yes	Yes	-	-	Yes	Yes
3	PORT PAR. 1	Yes	Yes	-	-	Yes	Yes
4	PORT ALLOCATION	Yes	Yes	-	-	Yes	Yes
5	PORT INST.	Yes	Yes	-	-	Yes	Yes
6	BOARD TYPE	Yes	Yes	-	-	Yes	Yes

PORT

Length: Byte

Range: 0...14

Description: The number of the addressed port. (Se table below)

PORT PAR. (0,1)

Length: Byte

Description: Two parameters specifying the port protocol parameters of the ports. The table below shows the relation between PORT, PORT ALLOCATION, and PORT PAR. 0,1. A port can be allocated to only one function and vice versa.

FP780:

PORT	Description	PORT PAR. 0	PORT PAR. 1	ALLOCATION
0,1	0	0	0	0
2,3 - SER1&2	RS232	0 - 300 bps 1 - 600 bps 2 - 1200 bps 3 - 2400 bps 4 - 4800 bps 5 - 9600 bps 6 - 19200 bps 7 - 38400 bps	0	0 - None 1 - Net 3 - Event Printer 4 - Report Printer 6 - Emulation 8 - Set-up 10 - Modem
4-12	0	0	0	0
13 - LON	ECHELON	0	0	0 - None 12 - LON
14	0	0	0	0

FP2000:

PORT	Description	PORT PAR. 0	PORT PAR. 1	ALLOCATION
0 - INT	Internal	0 - 9600 bps	0	0 - None 9 - FEP
2,3 - SER1, SER2	RS232	0 - 300 bps 1 - 600 bps 2 - 1200 bps 3 - 2400 bps 4 - 4800 bps 5 - 9600 bps 6 - 19200 bps 7 - 38400 bps	0	0 - None 1 - Net1 2 - Net2
			Printer Type: *Low nibble:* 0 - Normal 1 - Internal 2 - Terminal dump 3 - Thermo *High nibble:* Bit 4: Alarms Bit 5: Faults Bit 6: Conditions Bit 7: Actions Bit set: enabled Bit reset: disabled	3 - Event Printer
			Printer Type: 0 - Normal 1 – Internal 2 – not used 3 – Thermo	4 - Report Printer
			0	5 - VDU 6 - Emulation 8 - Set-up 10 - Modem
			SDI-A: 0...15 (Ln) SDI-B: 0...15 (Hn)	11 – CMSI
			0 - RS232 1 - RS485	14 – Pager
8 - ARC	Arcnet	0 - 2500 kbps 1 - 1250 kbps 2 - 625 kbps 3 - 312.5 kbps 4 - 156.25 kbps 5 - 78.125 kbps	Topology: 0 – Bus 1 – Dual Bus 2 – Ring Half Duplex 3 – Ring H/D Master 4 – Ring Full Duplex	0 - None 1 - Net1 2 - Net2
13 - LON	LON	0	0	0 - None

				12 - LON
14 - COM	Network Printer	Node ID	0	0 - None 4 - Report Printer
1,4-7,9-12	0	0	0	0

PORT ALLOCATION

Length: Byte

Range: 0...14

Description: A byte that allocates a certain communication function to a port – the different options areas follows:

PORT	**FP2000**	**FP780**
0 - None	-	-
1 - Net1	Network	Network
2 - Net2	Network	-
3 - Event Printer	Prints events	Prints events
4 - Report Printer	Prints reports	Prints reports
5 - VDU	Prints event on VDU	-
6 - Emulation	Panel emulation (Use PCE2000)	Panel emulation (Use PCE780)
7 - -	-	-
8 - Set-up	Set-up mode (Use PCC2000)	Set-up mode (Use PCC780)
9 - FEP	FEP communication	-
10 - Modem	Connection to modem	Connection to modem
11 - CMSI	CMSI (French evacuation system)	-
12 - LON	LON communication	LON communication
13 - Trans	-	-
14 - Pager	Connection to pager system	-

PORT INST

Length: Byte

Range: 0...3

Description: Port status byte

Bit	**FP2000**	**FP780**
0	0: Port is installed	0: Port is installed
	1: Port is not installed	1: Port is not installed
1	0: Port access disabled	0: Port access disabled
	1: Port access enabled	1: Port access enabled

BOARD TYPE

Length: Byte

Range: 0...255

Description: Board Id where applicable, else 0.

5.3.1.21 Local Repeater (20, 14h)

A FP2000 Fire Panel can be configured to communicate with Local Repeaters using one or both the network communication functions (Net1/2). A network communication function is assigned to a port (see message 19) as well as to the Local Repeater(s) that are connected to that port.

This message is used for configuration, or reading of the configuration, of a FP2000 Fire Panel's communication set up, with regard to Local Repeaters (repeater number specified with L-REPEATER byte). There is no sense in using this message when sending data to, or requesting data from, Local or Global Repeaters.

A FP2000 Fire Panel can be configured to communicate with any number of other FP2000 Fire Panels, Global Repeaters and Local Repeaters allowed, by the maximum network configuration. A Global Repeater can be configured to communicate with any number of FP2000 Fire Panels and other Global Repeaters, allowed by the maximum network configuration, but not at all with Local Repeaters. A Local Repeater can be configured to communicate with only one FP2000 Fire Panel and not at all with Global Repeaters or other Local Repeaters.

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	20	20	-	148	-	20	-
1	L-REPEATER	Yes	-	Yes	-	Yes	-
2	L-REPEATER SET-UP	Yes	-	-	-	Yes	-

L-REPEATER

Length: Byte

Range: See Description

Description: The number of the Local Repeater, in the FP2000 Fire Panel's communication configuration, that is addressed. The range is dependant on the maximum network configuration (see message 36):

Maximum Network Configuration	L-REPEATER
15/15	1…15
31/7	1…7
7/31	1…31
0/31	0
0/63	0

L-REPEATER SET-UP

Length: Byte

Range: 0...5

Description: A number that allocates one of the network communication functions (Net1/2) to the Local Repeater in the FP2000 Fire Panel's communication configuration as well as specifying the result of communication failure:

L-REPEATER SETUP	Mode	Description
0	None	No Communication
1	Net1 check	Allocated to network Net1, with an error in communication producing a fault
2	Net2 check	Allocated to network Net2, with an error in communication producing a fault
3	Net1 no check	Allocated to network Net1, with an error in communication producing an action
4	Net2 no check	Allocated to network Net2, with an error in communication producing an action

5.3.1.22 Sensor Protocol (21, 15h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	21	21	-	149	-	21	-
1	PROTOCOL	Yes	-	-	-	Yes	-

PROTOCOL

Length: Byte

Range: 0...1

Description: Communication protocol used by the fire detection devices (sensors).

The panel should be restarted after changing the protocol.

0: Sentrol (ARITECH 2000)

1: Apollo (ARITECH 900)

5.3.1.23 Language (22, 16h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	22	22	22	150	150	22	22
1	TEMP. LANGUAGE	Yes	Yes	-	-	Yes	Yes
2	LANGUAGE	Yes	Yes	-	-	Yes	Yes
3	LANGUAGE GROUP	-	-	-	-	Yes	-

LANGUAGE

Length: Byte

Range: FP2000: 0...4

FP780: 0…1

Description: The default language that is used by the panel's menu system. Depending on the LANGUAGE GROUP up to 5 different languages can be selected.

FP2000:

LANGUAGE	Group 0	Group 1	Group 2	Group 3	Group 4	Group 5
0	English	English	English	English	English	English
1	Dutch (Holland)	Polish	Danish	Lithuanian	Italian	Romanian
2	Dutch (Belgium)	Hungarian	Swedish	Estonian	Spanish	Greek
3	French	Czech	Norwegian	Latvian	Portuguese	Luxembourg
4	German	Slovakian	Finnish	Russian	Brazilian	

FP780:

LANGUAGE	
0	Primary language (English)
1	Secondary language (See command 77/2)

TEMP. LANGUAGE

Length: Byte

Range: FP2000: See above. The temporary language will only be set if it is different from the default language.

FP780: 0...8 (see command 77/2)

Description: FP2000: The temporary language is set for 72h. After that the panel reverts back to the default language.

FP780: The second language available.

LANGUAGE GROUP

Length: Byte

Range: FP2000: 0…5

FP780: N/A

Description: FP2000: The language group available.

FP780: N/A

5.3.1.24 Operation (23, 17h)

		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	23	23	23	151	151	23	23
1	TEMP. OPERATION	Yes	Yes	-	-	Yes	Yes
2	OPERATION	Yes	Yes	-	-	Yes	Yes

OPERATION

Length: Byte

Range: FP2000: 0...4

FP780: 0...4

Description: FP2000: Mode of operation of the panel.

FP780: Mode of operation of the panel.

The operations are:

OPERATION	Standard
0	EN
1	NEN
2	VdS
3	EP
4	BS

The panel should be rest after changing the mode of operation.

TEMP. OPERATION

Length: Byte

Range: FP2000: 0...1

FP780: N/A (0)

Description: FP2000: Temporary mode of operation.

FP780: N/A (0)

The options are:

OPERATION	Mode
0	Normal operation
1	Demo mode

5.3.1.25 Volatile Sensor Data (24, 18h)

The Message Data parameters give information about the status of a specific fire detection device (sensor). Apart from the current state of the device, the message also contains information that was collected over a period of time. See also 1.2.3 (FP2000 Reference Manual) as well as sensor manufacturer documentation.

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	24	-	-	152	-	24	-
1	LOOP	-	-	Yes	-	Yes	-
2	SENSOR	-	-	Yes	-	Yes	-
3	SENSOR ALARM COUNT	-	-	-	-	Yes	-
4	SENSOR AVERAGE	-	-	-	-	Yes	-
5	SENSOR COMP.	-	-	-	-	Yes	-
6	SENSOR COMMS	-	-	-	-	Yes	-
7	SENSOR LOWEST	-	-	-	-	Yes	-
8	MONTH (lowest)	-	-	-	-	Yes	-
9	DAY (lowest)	-	-	-	-	Yes	-
10	HOUR (lowest)	-	-	-	-	Yes	-
11	MINUTE (lowest)	-	-	-	-	Yes	-
12	SENSOR DAY LOW	-	-	-	-	Yes	-
13	SENSOR HIGHEST	-	-	-	-	Yes	-
14	MONTH (highest)	-	-	-	-	Yes	-
15	DAY (highest)	-	-	-	-	Yes	-
16	HOUR (highest)	-	-	-	-	Yes	-
17	MINUTE (highest)	-	-	-	-	Yes	-
18	SENSOR DAY HIGH	-	-	-	-	Yes	-
19,20	SENSOR ALARM (hb, lb)	-	-	-	-	Yes	-
21	SENSOR TEST	-	-	-	-	Yes	-
22	TWO TRY DELAY	-	-	-	-	Yes	-
23	INPUT STATE	-	-	-	-	Yes	-
24	OUTPUT STATE	-	-	-	-	Yes	-
25,26	ASP DELAY (hb, lb)	-	-	-	-	Yes	-
27	CONTAMINATION	-	-	-	-	Yes	-
28	SENSOR VALUE	-	-	-	-	Yes	-
29	SENSOR STATUS BITS	-	-	-	-	Yes	-
30	SENSOR FIELD TYPE	-	-	-	-	Yes	-
31	SENSOR OUTPUT BITS	-	-	-	-	Yes	-
32	SENSOR TEST VALUE	-	-	-	-	Yes	-
33	COMPENSATED SENSOR VALUE	-	-	-	-	Yes	-
34	Reserved	-	-	-	-	Yes	-

SENSOR ALARM COUNT

Length: Byte

Range: 0...255

Description: Number of alarm states.

SENSOR AVERAGE

Length: Byte

Range: 0...255

Description: Running average value over 20 minutes.

SENSOR COMP.

Length: Byte

Range: 0…30

Description: Sensor compensation (in counts) since clearing statistics.

SENSOR COMMS

Length: Byte

Range: 0…100

Description: Sensor communication quality (in %) over 20 minutes.

SENSOR LOWEST

Length: Byte

Range: 0...255

Description: Lowest sensor reading since clearing the device statistics.

DAY (highest/lowest)

Length: Byte

Range: 1...28,29,30,31

Description: The day of the month of the highest/lowest value since clearing of statistics.

HOUR (highest/lowest)

Length: Byte

Range: 0…23

Description: The hour of the highest/lowest value since clearing of statistics.

MINUTE (highest/lowest)

Length: Byte

Range: 0...59

Description: The minute of the highest/lowest value since clearing of statistics.

MONTH (highest/lowest)

Length: Byte

Range: 1...12

Description: The month of test on/off state since clearing of statistics.

SENSOR DAY LOW

Length: Byte

Range: 0...255

Description: Lowest sensor reading for the day.

SENSOR HIGHEST

Length: Byte

Range: 0…255

Description: Highest sensor reading since clearing the device statistics.

SENSOR DAY HIGH

Length: Byte

Range: 0…255

Description: Highest sensor reading for the day.

SENSOR ALARM

Length: 2 bytes

Description: Each bit represents a different alarm:

Bit	FP2000	FP780
0	Fire	-
1	No communication	-
2	Fault	-
3	Disabled	-
4	Wrong type	-
5	Double address	-
6	Pre condition	-
7	Maintenance	-
8	No type	-
9	Enabled	-
10	Two set	-
11	7 Segment	-
12	LED	-
13	7 Segment continuous	-
14	Flag	-
15	Alarm pending	-

SENSOR TEST

Length: Byte

Range: 0...255

Description: Each bit represents a different test:

Bits	FP2000	FP780
0	Test on	-
1	Test off	-
5,4,3,2	Number of soak test alarms since last reset	-
6	Disabled	-
7	Wrong type	-

TWO TRY DELAY

Length: Byte

Range: 0…255

Description: Time delay for two try detection (confirmed mode, two detector dependence).

INPUT STATE

Length: Byte

Range: 0...255

Description: Shows the states of the different inputs on an I/O module. Not affected by disablement or zone mode.

Bits	Functionality	FP2000	FP780
1,0	Input 1	00: Normal	-
		01: Abnormal (open/short circuit)	-
		10: Short circuit	-
		11: Open circuit	-
3,2	Input 2	00: Normal	-
		01: Abnormal (open/short circuit)	-
		10: Short circuit	-
		11: Open circuit	-
5,4	Input 3	00: Normal	-
		01: Abnormal (open/short circuit)	-
		10: Short circuit	-
		11: Open circuit	-
7,6	Input 4	00: Normal	-
		01: Abnormal (open/short circuit)	-
		10: Short circuit	-
		11: Open circuit	-

OUTPUT STATE

Length: Byte

Range: 0...255

Description: Shows the states of the different outputs on an I/O module. Not affected by disablement or zone mode.

Bit	Functionality	FP2000	FP780
0	Output 1	0: Passive	-
		1: Active	-
1	Output 2	0: Passive	-
		1: Active	-
2	Output 3	0: Passive	-
		1: Active	-
3	Output 4	0: Passive	-
		1: Active	-
4	Output 5	0: Passive	-
		1: Active	-
5	Output 6	0: Passive	-
		1: Active	-
6	Output 7	0: Passive	-
		1: Active	-
7	Output 8	0: Passive	-
		1: Active	-

ASP DELAY

Length: 2 bytes

Range: 0…1440 minutes

Description: ASP disabling delay.

CONTAMINATION

Length: Byte

Range: 0…100

Description: % contamination for optical and ionisation detectors.

SENSOR VALUE

Length: Byte

Range: 0…255

Description: The analogue value read from the device.

SENSOR STATUS BITS

Length: Byte

Range: 0…255

Description: The bits received from the device.

SENSOR FIELD TYPE

Length: Byte

Description: The type information returned from the field:

SENSOR FIELD TYPE	Apollo		Sentrol	
0	-	None	-	None
1	MCP	Manual Call Point	MCP	Manual Call Point
2	OPT	Optical	OPT	Optical
3	ION	Ionisation	ION	Ionisation
4	TEMP	Heat	TEMP	Heat
5	SND	Sounder	ICC	Indicating Circuit Controller
6	1I/O	1-Channel I/O	4I/O	4-Channel I/O
7	-	None	2I/O	2-Channel I/O
8	-	None	2I/1O	2-Input/1-Output Channel I/O
9	-	None	4I	4-Input Channel I/O
10	-	None	SIM	Single I/P mon.
11	ZMU	Zone Monitor Unit	ZMU	Zone Monitor Unit
12	MUL	Multi Sensors	-	None
13	-	None	LCC	Loop Powered ICC with isolator

SENSOR OUTPUT BITS

Length: Byte

Range: 0...255

Description: The current download value for the device.

SENSOR TEST VALUE

Length: Byte

Range: 0...255

Description: Self test value.

COMPENSATED SENSOR VALUE

Length: Byte

Range: 0...255

Description: The compensated analogue value (Only different from SENSOR VALUE for optical and ionisation devices).

LOOP (see message 7)

SENSOR (see message 7)

5.3.1.26 Volatile Zone Data (25, 19h)

FP2000:

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	25	-	-	153	-	25	-
1	ZONE	-	-	Yes	-	Yes	-
2,3	ZONE ALARM (hb, lb)	-	-	-	-	Yes	-
4,5	ALARM COUNT (hb, lb)	-	-	-	-	Yes	-
6,7	FAULT COUNT (hb, lb)	-	-	-	-	Yes	-
8,9	CONDITION COUNT (hb, lb)	-	-	-	-	Yes	-
10,11	COINCIDENCE COUNT (hb, lb)	-	-	-	-	Yes	-
12,13	ISOLATED COUNT (hb, lb)	-	-	-	-	Yes	-
14	MONTH (test on)	-	-	-	-	Yes	-
15	DAY (test on)	-	-	-	-	Yes	-
16	HOUR (test on)	-	-	-	-	Yes	-
17	MINUTE (test on)	-	-	-	-	Yes	-
18	MONTH (test off)	-	-	-	-	Yes	-
19	DAY (test off)	-	-	-	-	Yes	-
20	HOUR (test off)	-	-	-	-	Yes	-
21	MINUTE (test off)	-	-	-	-	Yes	-
22,23	ZONE STATE (hb, lb)	-	-	-	-	Yes	-
24,25	ZONE TWO COUNT (hb, lb)	-	-	-	-	Yes	-
26	ZONE TWO	-	-	-	-	Yes	-
27	ZONE LEDs	-	-	-	-	Yes	-
28	ZONE EQUIPMENT SND	-	-	-	-	Yes	-
29	ZONE EQUIPMENT FBRIG	-	-	-	-	Yes	-
30	ZONE EQUIPMENT FLTRT	-	-	-	-	Yes	-
31	ZONE EQUIPMENT FPROT	-	-	-	-	Yes	-
32	ZONE LED STATUS	-	-	-	-	Yes	-
33,34	PRE WARNING COUNT (hb, lb)	-	-	-	-	Yes	-

FP780:

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	25	-	-	-	152	-	23
1	ZONE	-	-	-	Yes	-	Yes
2,3	ZONE ALARM (hb, lb)	-	-	-	-	-	Yes
4	ALARM COUNT	-	-	-	-	-	Yes
5	FAULT COUNT	-	-	-	-	-	Yes
6	CONDITION COUNT	-	-	-	-	-	Yes
7	ISOLATED COUNT	-	-	-	-	-	Yes
8	SECURITY ALARM COUNT	-	-	-	-	-	Yes
9	TEST COUNT	-	-	-	-	-	Yes
10	PRE WARNING COUNT	-	-	-	-	-	Yes
11	MAINTENANCE FAULT COUNT	-	-	-	-	-	Yes
12	MONTH (test on)	-	-	-	-	-	Yes
13	DAY (test on)	-	-	-	-	-	Yes
14	HOUR (test on)	-	-	-	-	-	Yes
15	MINUTE (test on)	-	-	-	-	-	Yes
16	MONTH (test off)	-	-	-	-	-	Yes
17	DAY (test off)	-	-	-	-	-	Yes
18	HOUR (test off)	-	-	-	-	-	Yes
19	MINUTE (test off)	-	-	-	-	-	Yes
20,21	ZONE STATE (hb, lb)	-	-	-	-	-	Yes
22	ZONE COUNT	-	-	-	-	-	Yes
23	ZONE NODE	-	-	-	-	-	Yes
24	ZONE INPUT	-	-	-	-	-	Yes
25	ZONE EQUIPMENT SND	-	-	-	-	-	Yes
26	ZONE EQUIPMENT FBRIG AUTO	-	-	-	-	-	Yes
27	ZONE EQUIPMENT FLTRT	-	-	-	-	-	Yes
28	ZONE EQUIPMENT FPROT	-	-	-	-	-	Yes
29	ZONE EQUIPMENT FBRIG MCP	-	-	-	-	-	Yes

ZONE

Length:	Byte	
Range:	1...ZONES, (within zone range)	(See command 6)
Description:	The zone that is addressed.	

ZONE ALARM

Length: Byte

Description: Each bit represents a different alarm.

Bit	FP2000	FP780
0	MCP fire	MCP fire
1	Fault	Fault
2	Coincidence	Coincidence
3	Isolated	Isolated
4	Test	Test
5	Condition	Condition
6	Enabled	Auto fire
7	Auto fire	Security alarm
8	Zone Action (for a description of the actions see message 27)	Zone Action (for a description of the actions see message 27)
9	-	Maintenance
10	-	Fire test
11	-	Sounder test
12	-	Sounder disabled
13	Pre warning	Pre warning
14	-	-
15	-	-

ALARM COUNT

Length: FP2000: 2 bytes
FP780: Byte

Range: FP2000: 0...65535
FP780: 0…255

Description: Counts the number of alarms in the selected zone.

FAULT COUNT

Length: FP2000: 2 bytes
FP780: Byte

Range: FP2000: 0...65535
FP780: 0…255

Description: Counts the number of faults in the selected zone.

CONDITION COUNT

Length: FP2000: 2 bytes
FP780: Byte

Range: FP2000: 0...65535
FP780: 0…255

Description: Counts the number of conditions in the selected zone.

COINCIDENCE COUNT (FP2000 only)

Length: 2 bytes

Range: 0...65535

Description: Counts the number of coincidence alarms in the selected zone.

ISOLATE COUNT

Length: FP2000: 2 bytes
FP780: Byte

Range: FP2000: 0...65535
FP780: 0…255

Description: Counts the number of isolations in the selected zone.

SECURITY ALARM COUNT

Length: FP2000: 2 bytes
FP780: Byte

Range: FP2000: 0...65535
FP780: 0…255

Description: Counts the number of security alarms in the selected zone.

SECURITY ALARM COUNT (FP780 only)

Length: Byte

Range: 0…255

Description: Counts the number of security alarms in the selected zone.

TEST COUNT (FP780 only)

Length: Byte

Range: 0…255

Description: Counts the number of test in the selected zone.

MAINTENANCE FAULT COUNT (FP780 only)

Length: Byte

Range: 0…255

Description: Counts the number of maintenance faults in the selected zone.

MONTH (test on/off)

Length: Byte

Range: 1...12

Description: The Month of test on/off state.

DAY (test on/off)

Length: Byte

Range: 1...28,29,30,31

Description: The day of the month of test on/off state.

HOUR (test on/off)

Length: Byte

Range: 0...23

Description: The hour of test on/off state.

MINUTE (test on/off)

Length: Byte

Range: 0...59

Description: Minute of test on/off state.

ZONE STATE

Length: 2 bytes

Description: Each bit represents a different state that is active in the zone:

Bit	FP2000	FP780
0	MCP Fire in zone	MCP fire in zone
1	Fault in zone	Fault in zone
2	Coincidence in zone	Coincidence in zone
3	Isolation in zone	Isolation in zone
4	Zone in test	Zone in test
5	Condition in zone	Condition in zone
6	-	Auto fire in zone
7	Auto fire in zone	Security alarm in zone
8	-	-
9	-	Maintenance alarm in zone
10	-	Fire test in zone
11	Zone night mode on	Sounder test in zone
12	Zone security mode on	Sounder test in zone
13	-	Pre warning in zone
14	-	-
15	-	-

ZONE LED STATUS (FP2000 only)

Length: Byte

Range: 0...3

Description: Indicates the status of the zone led.

ZONE LED STATUS	MODE
0	Off
1	On
2	Blinking

ZONE TWO COUNT (FP2000 only)

Length: Word (2 bytes)

Range: 0...65535 (FFFFh)

Description: Counts the number of detectors in fire in the zone.

ZONE TWO (FP2000 only)

Length: Byte

Range: 0...255

Description: A 60s delay.

ZONE LEDs (FP2000 only)

Length: Byte

Range: 0...255

Description: Indicates the number of detector LED illuminated in the zone.

ZONE EQUIPMENT SND, FLTRT, FPROT, FBRIG AUTO, FBRIG MCP

Length: Byte

Range: 0...255

Description: State of the equipment:

Bits	Functionality	FP2000	FP780
5…0	ZONE EQUIPMENT	0: Off	0: Off
		1: On	1: On
		2: Test	2: Test
		3: Silenced	3: Silenced
		4: Evacuated	4: Evacuated
6	-	-	-
7	-	-	-

PRE WARNING COUNT

Length: FP2000: Word

FP780: Byte

Range: FP2000: 0...65535 (FFFFh)

FP780: 0…255 (FFh)

Description: Counts the number of pre warnings in the selected zone.

ZONE COUNT, NODE, INPUT (FP780 only)

Length: Byte

Range: 0...255

Description: Internal use only.

5.3.1.27 Volatile Area Data (26, 1Ah)

FP2000:

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	26	-	-	-	154	26	-
1	AREA	-	-	-	Yes	Yes	-
2	AREA ALARM	-	-	-	-	Yes	-
3,4	ALARM COUNT (hb, lb)	-	-	-	-	Yes	-
5,6	FAULT COUNT (hb, lb)	-	-	-	-	Yes	-
7,8	CONDITION COUNT (hb, lb)	-	-	-	-	Yes	-
9,10	COINCIDENCE COUNT (hb, lb)	-	-	-	-	Yes	-
11,12	ISOLATED COUNT (hb, lb)	-	-	-	-	Yes	-
13	AREA STATE (lower byte)	-	-	-	-	Yes	-
14	AREA EQUIPMENT SND	-	-	-	-	Yes	-
15	AREA EQUIPMENT FBRIG	-	-	-	-	Yes	-
16	AREA EQUIPMENT FLTRT	-	-	-	-	Yes	-
17	AREA EQUIPMENT FPROT	-	-	-	-	Yes	-
18	AREA STATE (higher byte)	-	-	-	-	Yes	-
19,20	PRE WARNING COUNT (hb, lb)	-	-	-	-	Yes	-

FP780:

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	26	-	-	152	-	-	26
1	AREA	-	-	Yes	-	-	Yes
2,3	AREA ALARM (hb, lb)	-	-	-	-	-	Yes
4	ALARM COUNT	-	-	-	-	-	Yes
5	FAULT COUNT	-	-	-	-	-	Yes
6	CONDITION COUNT	-	-	-	-	-	Yes
7	COINCIDENCE COUNT	-	-	-	-	-	Yes
8	ISOLATED COUNT	-	-	-	-	-	Yes
9	PRE WARNING COUNT	-	-	-	-	-	Yes
10	SECURITY ALARM COUNT	-	-	-	-	-	Yes
11	TEST COUNT	-	-	-	-	-	Yes
12	MAINTENANCE COUNT	-	-	-	-	-	Yes
13,14	AREA STATE (hb, lb)	-	-	-	-	-	Yes
15	AREA EQUIPMENT SND	-	-	-	-	-	Yes
16	AREA EQUIPMENT FBRIG AUTO	-	-	-	-	-	Yes
17	AREA EQUIPMENT FLTRT	-	-	-	-	-	Yes
18	AREA EQUIPMENT FPROT	-	-	-	-	-	Yes
19	AREA EQUIPMENT FBRIG MCP	-	-	-	-	-	Yes

AREA

Length: Byte

Range: 1...AREAS (See command 6)

Description: The Area that is selected.

AREA ALARM

Length: FP2000: Byte

FP780: Word

Description: Each bit represents a different alarm.

Bit	FP2000	FP780
0	Fire	MCP fire
1	Fault	Fault
2	Coincidence	Coincidence
3	Isolated	Isolated
4	Condition	Condition
5	Enabled	Automatic fire
6	Area Action (for a description of the actions see message 27)	Area Action (for a description of the actions see message 27)
7	-	Test
8	-	Pre warning
9	-	Sounder Test
10	-	Sounder Evacuation
11	-	Security alarm
12	-	Sounder disable
13	-	-
14	-	-
15	-	-

ALARM COUNT

Length: FP2000: 2 bytes

FP780: Byte

Range: FP2000: 0...65535 (FFFFh)

FP780: 0...255 (FFh)

Description: Counts the number of alarms in the selected area.

FAULT COUNT

Length: FP2000: 2 bytes

FP780: Byte

Range: FP2000: 0...65535 (FFFFh)

FP780: 0...255 (FFh)

Description: Counts the number of faults in the selected area.

CONDITION COUNT

Length: FP2000: 2 bytes
FP780: Byte

Range: FP2000: 0...65535 (FFFFh)
FP780: 0...255 (FFh)

Description: Counts the number of conditions in the selected area.

COINCIDENCE COUNT

Length: FP2000: 2 bytes
FP780: Byte

Range: FP2000: 0...65535 (FFFFh)
FP780: 0...255 (FFh)

Description: Counts the number of coincidence alarms in the selected area.

ISOLATE COUNT

Length: FP2000: 2 bytes
FP780: Byte

Range: FP2000: 0...65535 (FFFFh)
FP780: 0...255 (FFh)

Description: Counts the number of isolations in the selected area.

PRE WARNING COUNT

Length: Byte

Range: 0...255 (FFh)

Description: Counts the number of isolations in the selected area.

SECURITY ALARM COUNT

Length: Byte

Range: 0...255 (FFh)

Description: Counts the number of isolations in the selected area.

TEST COUNT

Length: Byte

Range: 0...255 (FFh)

Description: Counts the number of isolations in the selected area.

MAINTENANCE COUNT

Length: Byte

Range: 0...255 (FFh)

Description: Counts the number of isolations in the selected area.

AREA STATE

Length: 2 bytes

Description: Each bit represents a different state that is active in the area; a "1" means that the state is active:

Bit	FP2000	FP780
0	Fire in area	Fire in area
1	Fault in area	Fault in area
2	Coincidence in area	Coincidence in area
3	Isolation in area	Isolation in area
4	-	Condition in area
5	-	-
6	-	Automatic fire in area
7	-	Test in area
8	Pre warning	Pre warning in area
9	-	Sounder Test in area
10	-	Sounder Evacuation in area
11	-	Security alarm in area
12	-	Sounder disable in area
13	-	-
14	-	-
15	-	-

AREA EQUIPMENT SND, FLTRT, FPROT, FBRIG AUTO, FBRIG MCP

Length: Byte

Range: 0…255

Description: State of the equipment:

Bits	Functionality	FP2000	FP780
5…0	AREA EQUIPMENT	0: Off	0: Off
		1: On	1: On
		2: Test	2: Test
		3: Silenced	3: Silenced
		4: Evacuated	4: Evacuated
6	-	-	-
7	-	-	-

PRE WARNING COUNT

Length: FP2000: 2 bytes
FP780: Byte

Range: FP2000: 0...65535 (FFFFh)
FP780: 0...255 (FFh)

Description: Counts the number of pre warnings in the selected area.

5.3.1.28 Volatile Event Data (27, 1Bh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	27	27	27	155	155	27	27
1,2	EVENT NO. (hb, lb)	Yes	Yes	Yes	Yes	Yes	Yes
3	EVENT CLASS	Yes	Yes	Yes	Yes	Yes	Yes
4	EVENT TYPE	Yes	Yes	Yes	Yes	Yes	Yes
5	EVENT STATUS	Yes	Yes	Yes	Yes	Yes	Yes
6	EMS or EVENT YEAR	EVENT YEAR	EVENT YEAR	EMS	EMS	EVENT YEAR	EVENT YEAR
7	EVENT MONTH	Yes	Yes	-	-	Yes	Yes
8	EVENT DAY	Yes	Yes	-	-	Yes	Yes
9	EVENT HOUR	Yes	Yes	-	-	Yes	Yes
10	EVENT MINUTE	Yes	Yes	-	-	Yes	Yes
11	EVENT SECOND	Yes	Yes	-	-	Yes	Yes
12,13	EVENT COUNT (hb, lb)	Yes	Yes	-	-	Yes	Yes
14,15	EVENT CLASS COUNT (hb, lb)	Yes	Yes	-	-	Yes	Yes
16,17	EVENT PAR 1 (hb, lb)	Yes	Yes	-	-	Yes	Yes
18	EVENT PAR 2	Yes	Yes	-	-	Yes	Yes
19	EVENT PAR 3	Yes	Yes	-	-	Yes	Yes
20	EVENT PAR 4	Yes	Yes	-	-	Yes	Yes
21	EVENT PAR 5	Yes	Yes	-	-	Yes	Yes
22	EVENT PAR 6	Yes	Yes	-	-	Yes	Yes
23	EVENT ID	Yes	Yes	-	-	Yes	Yes
24...105	EVENT TEXT	Yes	Yes	-	-	Yes	Yes
+1	VIRTUAL SENSOR ADDRESS	Yes	Yes	-	-	Yes	Yes
+2, +3	SYSTEM ZONE (hb, lb)	Yes	Yes	-	-	Yes	Yes

EVENT NO.

Length: 2 bytes

Range: 0...1999

Description: The number that is allocated to the event.

EVENT CLASS:

Length: Byte

Range: 0...4

Description: The event class:

EVENT CLASS	FP2000	FP780
0	Action	Action
1	Fire	Fire
2	Fault	Fault
3	Condition	Condition
4	All (request only)	All (request only)

5	Fire, Fault and Condition (request only)	-

EVENT TYPE

Length: Byte

Range: FP2000: 0...10

FP780: 0...11

Description: The event type (see also in table below):

EVENT TYPE	FP2000	FP780
0	Sensor Soak	-
1	Area	Area
2	Zone	Zone
3	Sensor	-
4	General	General
5	Output	Output
6	Input	Input
7	Action	Action
8	Loop	-
9	Input/Output (request only)	Input/Output (request only)
10	All (request only)	LON
11	-	All (request only)

EVENT STATUS

Length: Byte

Range: 0…5

Description: The status of the event:

EVENT TYPE	FP2000	FP780
0	Passive (data not valid)	Passive (data not valid)
1	Active	Active
2	Accepted	Accepted
3	Logged	Logged
4	Active and accepted (request only)	Active and accepted (request only)
5	Active and accepted and logged (request only)	Active and accepted and logged (request only)

EMS

Length: Byte

Range: 0...3

Description: The event mode search, that is used when requesting the message:

EVENT TYPE	FP2000	FP780
0	Most recent event	Most recent event
1	Next event forward (wrap around)	Next event forward (wrap around)
2	Previous event backward (wrap around)	Previous event backward (wrap around)
3	Event specified by EVENT NO.	Event specified by EVENT NO.
4	Highest priority event	Highest priority event

EVENT YEAR

Length: Byte

Range: 0...99

Description: The year when the event occurred.

Where: 94…99: 1994…1999

00…93: 2000…2093

EVENT MONTH

Length: Byte

Range: 1...12

Description: The month when the event occurred.

EVENT DAY

Length: Byte

Range: 1...28,29,30,31

Description: The day of the month when the event occurred.

EVENT HOUR

Length: Byte

Range: 0…23

Description: The hour when the event occurred.

EVENT MINUTE

Length: Byte

Range: 0…59

Description: The minute when the event occurred.

EVENT SECOND

Length: Byte

Range: 0...59

Description: The second when the event occurred.

EVENT COUNT

Length: 2 bytes

Range: 0...65535 (FFFFh)

Description: The number of events.

EVENT CLASS COUNT

Length: 2 bytes

Range: 0...65535 (FFFFh)

Description: The number of events in the same class.

EVENT PAR (1...6)

Length: 2 bytes

Description: The event parameters are an expansion of the event type (EVENT TYPE byte) and their relation is shown with the table below. The table describes the relation between the EVENT TYPE byte and the EVENT PAR. Bytes.

EVENT TYPE		**PAR 1** (2 bytes, hb, lb)	**PAR 2** (Byte)	**PAR 3** (Byte)	**PAR 4** (Byte)	**PAR 5** (Byte)	**PAR 6** (Byte)
0	Sensor	SENSOR ALARM	LOOP	SENSOR	SENSOR TYPE	ZONE	AREA
1	Area	AREA ALARM	AREA	AREA ACTION	0	0	0
2	Zone	ZONE ALARM	ZONE	ZONE ACTION	0	0	AREA
3	Sensor	SENSOR ALARM	LOOP	SENSOR	SENSOR TYPE	ZONE	AREA
4	General	GENERAL ALARM	High byte GENERAL ALARM NO.	Low byte GENERAL ALARM NO.	0	0	0
5	Output	OUTPUT STATUS	High byte OUTPUT	Low byte OUTPUT	0	0	0
6	Input	INPUT STATUS	High byte INPUT	Low byte INPUT	0	0	0
7	Action	ACTION	High byte ACTION NO.	Low byte ACTION NO.	0	0	0
8	Loop	0	LOOP	LOOP ALARM	0	0	0
9	Input/ Output	-	-	-	-	-	-
10	All	-	-	-	-	-	-
11	LON	LON ALARM	LON NR.	LON ALARM NR.	0	0	0

EVENT ID

Length: Byte

Range: 1...255

Description: The node identification address of the panel that generates the message – (see also message 14 NODE ID).

EVENT TEXT

Length: 2…82 Bytes

Where:

Byte 0:	Length of first string (0...n1, n1<40)
Bytes 1...n1:	First string (if n1 > 0)
Byte n1+1:	Length of second string (0...n2, n2<40)
Bytes (n1+2)...n2	Second string (if n2 > 0)

ACTION

Length: Byte

Range: FP2000: 100...200

FP780: 100...224

Description: Action as described below:

ACTION		FP2000	FP780
100	Restart	Used	Used
101	Reset	Used	Used
102	Silence buzzer	Used	Used
103	Sounder on	Used	Used
104	Sounder silenced	Used	Used
105	Sounder delay on	Used	Used
106	Sounder delay off	Used	Used
107	Sounder enabled	Used	Used
108	Fire brigade delay on	Used	Used
109	Fire brigade delay off	Used	Used
110	Fire brigade enabled	Used	Used
111	Fire brigade stop	Used	Used
112	Event buffer cleared	Used	Used
113	Memory locked	Used	Used
114	Service mode off	Used	Used
115	Tamper switch off	Used	Used
116	Key lock disabled	Used	Used
117	Mains on	Used	Used
118	Day mode	Used	Used
119	Night mode	Used	Used
120	School bells on	Used	Used
121	School bells off	Used	Used
122	Sounder test off	Used	Used
123	Fire brigade test off	Used	Used
124	Soak test off	Used	-
125	Zone test off	Used	Used
126	Maintenance reminder	Used	Used
127	Access enabled	Used	Used
128	Access disabled	Used	Used
129	Battery connected	Used	-
130	Battery detected	Used	-
131	Local Repeater OK	Used	-
132	Logic enabled	Used	Used
133	External fault OK	Used	Used
134	Modem OK	Used	Used
135	Time changed	Used	Used
136	Synchronise time	Used	Used
137	Fire Panel OK	Used	-
138	Global Repeater OK	Used	Used

139	Fire brigade signal	Used	Used

ACTION		FP2000	FP780
140	Low battery OK	Used	-
141	Charger OK	Used	-
142	Earth OK	Used	-
143	Zones on	Used	Used
144	Zones off	Used	Used
145	Event buffer full	Used	Used
146	External supply OK	Used	Used
147	Fault OK	Used	Used
148	Condition OK	Used	Used
149	Key lock enabled	Used	Used
150	Hardware test start	Used	Used
151	Hardware test end	Used	Used
152	Fire Panel disconnected	Used	-
153	Local Repeater disconnected	Used	-
154	Global Repeater disconnected	Used	Used
155	Reserved	-	-
156	Fault routing on	Used	Used
157	Fault routing silenced	Used	Used
158	Fault routing delay on	Used	Used
159	Fault routing delay off	Used	Used
160	Fault routing enabled	Used	Used
161	Fire protection on	Used	Used
162	Fire protection silenced	Used	Used
163	Fire protection delay on	Used	Used
164	Fire protection delay off	Used	Used
165	Fire protection enabled	Used	Used
166	Fault routing test off	Used	Used
167	Fire protection test off	Used	Used
168	User log	Used	Used
169	Loop test off	Used	-
170	Modem test	Used	Used
171	Printer on	Used	Used
172	Network Line OK	Used	Used
173	Auxiliary supply ok	Used	-
174	Third source ok	Used	-
175	Fire brigade feedback	Used	Used
176	Clear all event buffers	Used	-
177	Call on line 1	Used	Used
178	Call on line 2	Used	Used
179	Call on line 3	Used	Used
180	Call on line 4	Used	Used
181	End of call line 1	Used	Used
182	End of call line 2	Used	Used

183	End of call line 3	Used	Used
184	End of call line 4	Used	Used
185	BFS enabled	Used	-
186	FSK locked from EMZ	Used	-
187	FSK door closed	Used	-
188	FSK locked	Used	-
189	Communication with CMSI (SDI A) ok	Used	-
190	LON device communication ok	Used	-
191	LON device fault ok	Used	-
192	LON controller fault ok	Used	-
193	Communication with CMSI (SDI B) ok	Used	-
194	Lon device enabled	Used	-
195	LA reset	Used	-
196	MCP FB test off (NEN)	Used	Used
197	MCP FB on (NEN)	Used	Used
198	MCP FB enable (NEN)	Used	Used
199	Fault O/P to FB (Finland)	Used	-
200	Pager communication ok	Used	-
201	Access enabled (ext)	Used	Used
202	Access disabled (ext)	Used	Used
203	-	-	-
204	-	-	-
205	-	-	-
206	-	-	-
207	-	-	-
208	-	-	-
209	-	-	-
210	-	-	-
211	-	-	-
212	-	-	-
213	-	-	-
214	-	-	-
215	-	-	-
216	-	-	-
217	-	-	-
218	-	-	-
219	-	-	-
220	Automatic Evacuation	-	Used
221	Manual Evacuation	-	Used
222	-	-	-
223	-	-	-
224	Evacuation Reset	-	Used

ACTION NO.

Length: 2 bytes

Range: 0…65535 (FFFFh)

Description: The number allocated to an action as described below:

ACTION		ACTION NO.	FP2000	FP780	Message
127	Access enabled	ACCESS	Used	Used	15
131	Local Repeater OK	L-REPEATER	Used	-	20
137	Fire Panel OK	FIRE PANEL	Used	-	48
138	Global Repeater OK	G-REPEATER	Used	Used	49
152	Fire Panel disconnected	FIRE PANEL	Used	-	48
153	Local Repeater disconnected	L-REPEATER	Used	-	20
154	Global Repeater disconnected	G-REPEATER	Used	Used	49
168	User log	ACCESS CODE	Used	Used	15
171	Printer on	PORT	Used	Used	19
190	Lon device Communication ok	LON NR	Used	-	74
192	Lon device fault ok	LON NR	Used	-	74
194	Lon device enabled	LON NR	Used	-	74

GENERAL ALARM

Length: Byte

Range: FP2000: 0…109

FP780: 0…121

Description: General Alarm as described below:

GENERAL ALARM		FP2000	FP780
0	Common fire	Used	Used
1	External fire	Used	Used
2	LA triggered	Used	-
3	Zone allocation fault	Used	-
4	-	-	-
5	Common condition	Used	Used
6	Common coincidence	Used	Used
7	Maintenance condition	Used	-
8	Pre Warning condition	Used	-
9	-	-	-
10	Common fault	Used	Used
11	Watchdog time-out	Used	Used
12	Service mode on	Used	Used
13	Memory unlocked	Used	Used
14	-	-	-
15	-	-	-
16	Tamper switch on	Used	Used
17	Mains off	Used	-
18	Battery disconnected	Used	-
19	Low battery	Used	-
20	Charger fault	Used	-

21	Earth fault	Used	-

GENERAL ALARM		FP2000	FP780
22	Incomplete NET1 set-up	Used	Used
23	Printer disconnected	Used	Used
24	Wrong time/date	Used	Used
25	Configuration fault	Used	Used
26	Sounder disabled	Used	Used
27	Fire brigade disabled	Used	Used
28	Sounder fault	Used	Used
29	Fire brigade fault	Used	Used
30	External fault	Used	Used
31	External supply fault	Used	Used
32	Sounder test	Used	Used
33	Fire brigade test	Used	Used
34	Checksum fault for non-volatile memory	Used	Used
35	Local repeater fault	Used	-
36	Access fault	Used	Used
37	Battery failed	Used	-
38	Emulation disconnected	Used	-
39	Logic disabled	Used	Used
40	Logic error	Used	Used
41	Hardware test failed	Used	Used
42	Checksum fault for protected memory	Used	Used
43	Fire panel fault	Used	-
44	Global repeater fault	Used	Used
45	No checksums calculated	Used	Used
46	Input fault	Used	Used
47	Output fault	Used	Used
48	Fault routing fault	Used	Used
49	Fire protection fault	Used	Used
50	No fire brigade feedback	Used	-
51	Fault routing disabled	Used	Used
52	Soak test	Used	-
53	Zone test	Used	-
54	Fire protection disabled	Used	Used
55	Fault routing test	Used	Used
56	Fire protection test	Used	Used
57	Fault routing return fault	Used	Used
58	Fire protection return fault	Used	Used
59	Fire brigade return fault	Used	Used
60	Modem fault	Used	Used
61	VDU disconnected	Used	-
62	Loop test	Used	-
63	Modem report fault	Used	Used
64	Fire protection equipment fault	Used	Used

65	Fault routing equipment fault	Used	Used
66	Port fault	Used	Used
67	Incomplete NET2 set-up	Used	-
68	Network Line faulty	Used	Used
69	Duplicate Node ID	Used	Used
70	Auxiliary supply fault	Used	-
71	Third source fault	Used	-
72	-	-	-
73	FSK release	Used	-
74	FSE input fault	Used	-
75	FSE input active	Used	-
76	EMZ FSK door release input fault	Used	-
77	EMZ FSK door release request	Used	-
78	-	-	-
79	FSK door open	Used	-
80	FSK security fault	Used	-
81	-	-	-
82	FSK heater fault	Used	-
83	BFS disabled	Used	-
84	External alarm (Hauptmelder)	Used	-
85	Fire brigade trigger from FBF	Used	-
86	No communication with CMSI (SDI A)	Used	-
87	LON device communication fault	Used	-
88	LON controller fault	Used	-
89	LON device fault	Used	-
90	No communication with CMSI (SDI B)	Used	-
91	LON device disabled	Used	-
92	2nd Sounder fault	Used	-
93	MCP FB fault (NEN)	Used	Used
94	MCP FB disable (NEN)	Used	Used
95	MCP FB Test (NEN)	Used	Used
96	DIP Switch setting error	Used	-
97	LA input return	Used	-
98	LA fault	Used	-
99	LA fault return	Used	-
100	Pager communication fault	Used	-
101	Unknown pager address	Used	-
102	No pager dongle	Used	-
103	LON redundancy fault	Used	-
104	-	-	-
105	-	-	-
106	-	-	-
107	-	-	-
108	-	-	-
109	-	-	-

110	-	-	-
111	-	-	-
112	-	-	-
113	-	-	-
114	-	-	-
115	-	-	-
116	-	-	-
117	-	-	-
118	-	-	-
119	-	-	-
120	Flash memory modified	-	Used
121	Missing Equipment	-	Used
122	Invalid LON controller HW revision	-	Used
123	Invalid LON controller OEM	-	Used
124	Invalid LON controller PC	-	Used
125	Invalid LON controller CFG	-	Used
126	Invalid LON controller SW revision	-	Used
127	Missing Output Equipment	-	Used
128	Missing Input Equipment	-	Used
129		-	-

GENERAL ALARM NO.

Length: Byte

Range: 0...65535 (FFFFh)

Description: The number allocated to a general alarm as described below:

GENERAL ALARM		GENERAL ALARM NO.	FP2000	FP780	Message
11	Watchdog time-out				15
	0	Host watchdog time-out	Used	Used	
	1	FEP fault input	Used	-	
	2	Divide error exception	Used	Used	
	3	Array bounds exception	Used	Used	
	4	Unused opcode exception	Used	Used	
	5	Escape opcode exception	Used	Used	
	6	Numeric opcode exception	Used	Used	
	7	Restart	Used	Used	
	8	FEP communication	Used	-	
	9	FEP reply time-out	Used	-	
	10	FEP excessive replies	Used	-	
	11	LON handshake error	Used	Used	
	12	FEP error 1	Used	-	
	13	FEP error 2	Used	-	
	14	FEP error 3	Used	-	
	15	Save memory overflow	Used	Used	
	16	Queue overflow	Used	Used	
	17	Semaphore overflow	Used	Used	
	18	Volatile data access 0	Used	Used	
	19	Non-volatile data access 0	Used	Used	
	20	Protected data access 0	Used	Used	
	21	Text data access 0	Used	Used	
	22	Volatile data access 1	Used	Used	
	23	Non-volatile data access 1	Used	Used	
	24	Protected data access 1	Used	Used	
	25	Text data access 1	Used	Used	
	26	Block access 0	-	Used	
	27	Block access 1	-	Used	
	28	Block type	Used	Used	
	29	Volatile data access 2	Used	Used	
	30	Non-volatile data access 2	Used	Used	
	31	Protected data access 2	Used	Used	
	32	Text data access 2	Used	Used	
	33	Restart with forced LON update	-	Used	
	34	Restart with new configuration	-	Used	
	35	Cold start	Used	-	
	36	Volatile data access 2	Used	-	
	37	Non-volatile data access 2	Used	-	
	38	Protected data access 2	Used	-	

GENERAL ALARM		GENERAL ALARM NO.	FP2000	FP780	Message
11	39	Text data access 2	Used	-	15
	40	Volatile data access 3	Used	-	
	41	Non-volatile data access 3	Used	-	
	42	Protected data access 3	Used	-	
	43	Text data access 3	Used	-	
	44	Volatile data access 4	Used	-	
	45	Non-volatile data access 4	Used	-	
	46	Protected data access 4	Used	-	
	47	Text data access 4	Used	-	
15	Printer disconnected	PORT	Used	Used	19
23	Checksum fault for non-volatile memory	BLOCK	Used	Used	3
35	Local repeater fault	L-REPEATER	Used	-	20
36	Access fault	ACCESS CODE	Used	Used	15
40	Logic error	LOGIC LINE	Used	Used	13

GENERAL ALARM		GENERAL ALARM NO.	FP2000	FP780	Message
	Hardware test failed				3
41	100	Host EPROM error	Used	-	
	101	FLASH error	-	Used	
	102	FLASH error (Default boot loader)	-	Used	
	103	FLASH error (Backup boot loader)	-	Used	
	2XX	Non-volatile block error (XX = BLOCK, see below)	Used	Used	
	3XX	Protected volatile block error (XX = BLOCK, see below)	Used	Used	
	4XX	Save memory error (XX = MODULE NO, see below)	Used	Used	
	5XX	Configuration error XX = board Position Host 0…15 FEP 16…24	Used	-	
	600	-	-	-	
	700	FEP EPROM error	Used	-	
	800	FEP RAM error	Used	-	
	900	Faulty Modem	Used	Used	
43	Fire panel fault	FIRE PANEL	Used	-	48
44	Global repeater fault	G-REPEATER	Used	Used	49
46	Input fault	INPUT	Used	Used	11
47	Output fault	OUTPUT	Used	Used	12
63	Modem report fault	1…4	Used	Used	-
66	Port fault	PORT	Used	Used	19
87	Lon device communica-tion fault	LON NR	Used	-	74
89	Lon device fault	LON NR	Used	-	74
91	Lon device disabled	LON NR	Used	-	74

ZONE ACTION

Length: Byte

Range: FP2000: 0...21

FP780: 0...19

Description: Action (when ZONE ALARM = Zone Action) as described below:

ZONE ACTION		FP2000	FP780
0	Sounder off	Used	Used
1	Sounder on	Used	Used
2	Sounder Test on	Used	Used
3	Sounder silenced	Used	Used
4	Sounder Test off	Used	Used
5	Fire brigade off	Used	Used
6	Fire brigade on	Used	Used
7	Fire brigade Test on	Used	Used
8	Fire brigade stopped	Used	Used
9	Fire brigade Test off	Used	Used
10	Fault Routing off	Used	Used
11	Fault Routing on	Used	Used
12	Fault Routing Test on	Used	Used
13	Fault Routing stopped	Used	Used
14	Fault Routing Test off	Used	Used
15	Fire Protection off	Used	Used
16	Fire Protection on	Used	Used
17	Fire Protection Test on	Used	Used
18	Fire Protection stopped	Used	Used
19	Fire Protection Test off	Used	Used
20	Two fire on	Used	-
21	Two fire off	Used	-

AREA ACTION

Length: Byte

Range: FP2000: 0

FP780: 0...19

Description: Action (when AREA ALARM = Area Action) as described below:

AREA ACTION		FP2000	FP780
0	Sounder off	-	Used
1	Sounder on	-	Used
2	Sounder Test on	-	Used
3	Sounder silenced	-	Used
4	Sounder Test off	-	Used
5	Fire brigade off	-	Used
6	Fire brigade on	-	Used
7	Fire brigade Test on	-	Used
8	Fire brigade stopped	-	Used
9	Fire brigade Test off	-	Used
10	Fault Routing off	-	Used
11	Fault Routing on	-	Used
12	Fault Routing Test on	-	Used
13	Fault Routing stopped	-	Used
14	Fault Routing Test off	-	Used
15	Fire Protection off	-	Used
16	Fire Protection on	-	Used
17	Fire Protection Test on	-	Used
18	Fire Protection stopped	-	Used
19	Fire Protection Test off	-	Used

LON ALARM

Length: Byte

Range: FP2000: 0

FP780: 0...25

Description: LON device alarm as described below:

LON ALARM		FP2000	FP780
0	Sounder fault	-	Used
1	Automatic Fire Brigade fault	-	Used
2	Fire Protection fault	-	Used
3	Fault Routing fault	-	Used
4	Earth fault	-	Used
5	Low Battery fault	-	Used
6	Mains fault	-	Used
7	Communication fault	-	Used
8	Disabled	-	Used
9	Charger fault	-	Used
10	Supply fault	-	Used
11	Fault	-	Used
12	MCP Fire Brigade fault	-	Used
13	Output fault	-	Used
14	Input fault	-	Used
15	Auxiliary fault	-	Used
16	3rd Source fault	-	Used
17	Battery Test fault	-	Used
18	Local Evacuation	-	Used
19	Open Network Ring A	-	Used
20	Open Network Ring B	-	Used
21	Invalid Hardware Revision	-	Used
22	Invalid OEM Code	-	Used
23	Invalid Product Code	-	Used
24	Invalid Configuration	-	Used
25	Invalid Software Revision	-	Used

LON ALARM NO.

Length: Byte

Description: LON device alarm as described below:

LON ALARM		**LON ALARM NO.**
0	Sounder fault	Output No.
1	Automatic Fire Brigade fault	Output No.
2	Fire Protection fault	Output No.
3	Fault Routing fault	Output No.
4	Earth fault	-
5	Low Battery fault	-
6	Mains fault	-
7	Communication fault	-
8	Disabled	-
9	Charger fault	-
10	Supply fault	-
11	Fault	-
12	MCP Fire Brigade fault	-
13	Output fault	Output No.
14	Input fault	Input No.
15	Auxiliary fault	-
16	3rd Source fault	-
17	Battery Test fault	-
18	Local Evacuation	-
19	Open Network Ring A	-
20	Open Network Ring B	-
21	Invalid Hardware Revision	-
22	Invalid OEM Code	-
23	Invalid Product Code	-
24	Invalid Configuration	-
25	Invalid Software Revision	-

MODULE NO

Length: Byte

Range: FP2000: 0

FP780: 0...25

Description: Indicates the module where the hardware test fault occurred:

MODULE NO	FP2000	FP780
0	Boo.plm	Nuc0.plm
1	Nuc0.plm	Nuc1.plm
2	Sys.plm	Tim.plm
3	Dis.plm	Sys.plm
4	Lcd.plm	Ser.plm
5	Tim.plm	Txt.plm
6	Rtc.plm	Net.plm
7	Cio.plm	Pri.plm
8	Tol.plm	Men.plm
9	Ser.plm	Dtm.plm
10	Vdu.plm	Lnk.plm
11	Pri.plm	Dia.plm
12	Lip.plm	Alm.plm
13	Lop.plm	Lon.plm
14	Txt.plm	Neu.plm
15	Txteng.plm	Vdu.plm
16	Txtfre.plm	Fdi.plm
17	Txtita.plm	-
18	Txtspa.plm	-
19	Txtger.plm	-
20	Txtpor.plm	-
21	Txtbel.plm	-
22	Txtdut.plm	-
23	Txtdan.plm	-
24	Txtswe.plm	-
25	Txtnor.plm	-
26	Men.plm	-
27	Dtm.plm	-
28	Alm.plm	-
29	Lnk.plm	-
30	Sup.plm	-
31	Cfg.plm	-
32	Fep.plm	-
33	Dia.plm	-
34	Rel.plm	-
35	Inp.plm	-
36	Net.plm	-
37	Arc.plm	-
38	Zon.plm	-

39	-	-
40	Mdm.plm	-

MODULE NO	FP2000	FP780
41	Nuc1.plm	-
42	Trm.plm	-
43	Txtczr.plm	-
44	Txtpol.plm	-
45	Txtslo.plm	-
46	Txtlit.plm	-
47	Cms.plm	-
48	Txtfin.plm	-
49	Txtest.plm	-
50	Txtlat.plm	-
51	Txtheb.plm	-
52	Neu.plm	-
53	Lon.plm	-
54	Dtx.plm	-

VIRTUAL SENSOR ADDRESS

Length: Byte

Range: 1…32, (0=virtual sensor address not used)

Description: VdS only.

SYSTEM ZONE

Length: Word

Range: 1…65535, (0=system zone not used)

Description: VdS only.

LON NODE (see message 74)

AREA (see message 9)

AREA ALARM (see message 26)

INPUT (see message 11)

INPUT STATUS (see message 31)

LOOP (see message 10)

LOOP ALARM (see message 30)

OUTPUT (see message 12)

OUTPUT STATUS (see message 34)

SENSOR (see message 7)

SENSOR ALARM (see message 24)

SENSOR TYPE (see message 7)

ZONE (see message 8)

ZONE ALARM (see message 25)

BLOCK (see message 3)

5.3.1.29 Status Event (28, 1Ch)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	28	28	28	-	-	-	-
1,2	NO EVENT COUNT (hb, lb)	Yes	Yes	-	-	-	-
3,4	ALARM COUNT (hb, lb)	Yes	Yes	-	-	-	-
5,6	FAULT COUNT (hb, lb)	Yes	Yes	-	-	-	-
7,8	CONDITION COUNT (hb, lb)	Yes	Yes	-	-	-	-
9,10	COINCIDENCE COUNT (hb, lb)	Yes	Yes	-	-	-	-
11,12	ISOLATED COUNT (hb, lb)	Yes	Yes	-	-	-	-
13,14	DETECTOR COUNT (hb, lb)	Yes	Yes	-	-	-	-
15…46	LED STATUS	Yes	Yes	-	-	-	-
47,48	EVENT NO. (hb, lb) (see message 27)	Yes	Yes	-	-	-	-
49	EVENT CLASS (see message 27)	Yes	Yes	-	-	-	-
50	EVENT TYPE (see message 27)	Yes	Yes	-	-	-	-
51	EVENT STATUS (see message 27)	Yes	Yes	-	-	-	-
52	EVENT YEAR (see message 27)	Yes	Yes	-	-	-	-
53	EVENT MONTH (see message 27)	Yes	Yes	-	-	-	-
54	EVENT DAY (see message 27)	Yes	Yes	-	-	-	-
55	EVENT HOUR (see message 27)	Yes	Yes	-	-	-	-
56	EVENT MINUTE (see message 27)	Yes	Yes	-	-	-	-
57	EVENT SECOND (see message 27)	Yes	Yes	-	-	-	-
58,59	EVENT COUNT (see message 27)	Yes	Yes	-	-	-	-
60,61	EVENT CLASS COUNT (hb, lb) (see message 27)	Yes	Yes	-	-	-	-
62,63	EVENT PAR 1 (hb, lb) (see message 27)	Yes	Yes	-	-	-	-
64	EVENT PAR 2 (see message 27)	Yes	Yes	-	-	-	-
65	EVENT PAR .3 (see message 27)	Yes	Yes	-	-	-	-
66	EVENT PAR 4 (see message 27)	Yes	Yes	-	-	-	-
67	EVENT PAR 5 (see message 27)	Yes	Yes	-	-	-	-
68	EVENT PAR 6 (see message 27)	Yes	Yes	-	-	-	-
69	EVENT ID (see message 27)	Yes	Yes	-	-	-	-
70…151	EVENT TEXT (see message 27)	Yes	Yes	-	-	-	-
+1	EQUIPMENT STATUS SND	Yes	-	-	-	-	-
+2	EQUIPMENT STATUS FBRIG	Yes	-	-	-	-	-
+3	EQUIPMENT STATUS FLTRT	Yes	-	-	-	-	-
+4	EQUIPMENT STATUS FPROT	Yes	-	-	-	-	-
+5	EQUIPMENT FAULT SND	Yes	-	-	-	-	-
+6	EQUIPMENT FAULT FBRIG	Yes	-	-	-	-	-
+7	EQUIPMENT FAULT FLTRT	Yes	-	-	-	-	-
+8	EQUIPMENT FAULT FPROT	Yes	-	-	-	-	-
+9	ZONE LED STATUS	Yes	-	-	-	-	-
+10	FLAGS	Yes	-	-	-	-	-

+11	VIRTUAL SENSOR ADDRESS	Yes	-	-	-	-	-
+12, +13	SYSTEM ZONE (hb, lb)	Yes	-	-	-	-	-

NO EVENT COUNT

Length: 2 bytes

Range: 0...9999

Description: Counts all events other then fire, fault or condition.

ALARM COUNT

Length: 2 bytes

Range: 0…9999

Description: Counts all fires.

FAULT COUNT

Length: 2 bytes

Range: 0…9999

Description: Counts all faults.

CONDITION COUNT

Length: 2 bytes

Range: 0...9999

Description: Counts all conditions.

COINCIDENCE COUNT

Length: 2 bytes

Range: 0...9999

Description: Reserved.

ISOLATED COUNT

Length: 2 bytes

Range: 0...9999

Description: Reserved.

DETECTOR COUNT

Length: 2 bytes

Range: 0…9999

Description: Reserved.

LED STATUS

Length: Byte

Range: FP2000: 0...2

FP780: 0

Description: The status of a common LED. The options are:

LED STATUS	FP2000	FP780
0	Off	-
1	On	-
2	Blinking	-

The LED's are in the following order:

Position	FP2000	FP780
15	Fire 1	-
16	Fire 2	-
17	Processor running	-
18	Supply fault	-
19	Disabled	-
20	Fault	-
21	Supply on	-
22	-	-
23	-	-
24	-	-
25	Fire Brigade delay off	-
26	Fire Brigade delay on	-
27	Fire Brigade stop	-
28	Fire Brigade fault	-
29	-	-
30	Fire Brigade signal	-
31	Sounder delay on	-
32	All	-
33	Panel	-
34	-	-
35	Sounder silence	-
36	Sounder fault	-
37	-	-
38	Sounder sounded	-
39	Sounder delay off	-
40	System fault test	-
41	-	-
42	-	-
43	Test	-
44	Disable	-
45	-	-
46	Silence buzzer	-

EQUIPMENT STATUS SND, FBRIG, FLTRT, FPROT

Length: Byte

Range: FP2000: 0...4

FP780: 0

Description: State of the equipment:

EQUIPMENT STATUS	FP2000	FP780
0	Off	-
1	On	-
2	Test	-
3	Silenced	-
4	Evacuation	-

EQUIPMENT FAULT SND, FBRIG, FLTRT, FPROT

Length: Byte

Range: FP2000: 0...2

FP780: 0

Description: Equipment fault status:

EQUIPMENT FAULT	FP2000	FP780
0	Enabled	-
1	Fault	-
2	Disabled	-

ZONE LED STATUS

Length: Byte

Range: FP2000: 0...2

FP780: 0

Description: Zone LED status:

ZONE LED STATUS	FP2000	FP780
0	Off	-
1	On	-
2	Blinking	-

FLAGS

Length: Byte

Range: FP2000: 0...255

FP780: 0

Description: Flags

Bit	FP2000	FP780
0	0: EAS delay off	-
	1: EAS delay on	-
1	0: Sounder delay off	-
	1: Sounder delay on	-
2	0: Fbrig delay off	-
	1: Fbrig delay on	-
3	0: Sounder enable	-
	1: Sounder disable	-
4	0: Fbrig enable	-
	1: Fbrig disable	-
5	-	-
	-	-
6	-	-
	-	-
7	-	-
	-	-

VIRTUAL SENSOR ADDRESS

Length: Byte

Range: 1…32, (0=virtual sensor address not used)

Description: VdS only.

SYSTEM ZONE

Length: Word

Range: 1…65535, (0=system zone not used)

Description: VdS only.

PROTOCOL

Length: Byte

Range: 0…2

Description: Global Panel only.

5.3.1.30 Volatile General Block Data (29, 1Dh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	29	-	-	157	157	29	29
1	INDEX	-	-	Yes	Yes	Yes	Yes
2...101	DATA	-	-	-	-	Yes	Yes

INDEX

Length: Byte

Range: 0...4

Description: A number indicating the required general alarm/sub-alarm memory bank:

INDEX	FP2000	FP780
0	Bank 0 (General Alarms)	Bank 0 (General Alarms)
1	Bank 1 (Actions)	Bank 1 (Actions)
2	Bank 2 (Sub-alarms)	Bank 2 (Sub-alarms)
3	Bank 3 (Sub-alarms)	Bank 3 (Sub-alarms)
4	Bank 4 (Sub-alarms)	Bank 4 (Sub-alarms)
5	Bank 5 (Sub-alarms)	-

DATA

Length: 100 bytes

Description: The data associated with the memory bank specified by the INDEX byte.

The following is a description of the general alarms and sub-alarms that can be requested using this message as well as being part of the FP2000 Panel overall status information:

The number allocated to a general alarm is an indication of the position where the alarm (byte) is located in memory bank and also where it is packed in the message structure, starting with the first byte (number 0) in position 2 of the message structure. The sub-alarms are shown with the starting position with the amount shown in square brackets.

INDEX	FP2000	FP780
0	Bank 0 (General Alarms) (See Message 27, GENERAL ALARM)	Bank 0 (General Alarms) (See Message 27, GENERAL ALARM)
1	Bank 1 (Actions) (See Message 27, ACTION) Note that actions range from 100...199, index 0...99 of bank 1.	Bank 1 (Actions) (See Message 27, ACTION) Note that actions range from 100...199, index 0...99 of bank 1.
2	Bank 2 (Sub-alarms) 0 - Non-volatile memory check-sum faults (Block see message 3) 25 - Protected memory checksum fault (Block see message 3) 50 - Hardware test failed [Test 0...8] 60 - Emulation failed [VDU 0...13]	Bank 2 (Sub-alarms) 0 - Non-volatile memory check-sum faults (Block see message 3) 30 - Protected memory checksum fault (Block see message 3) 60 - Hardware test failed [Test 0...9] 70 - Printer faults start [Printer 0...19]

	75 - Printer faults start [Printer 0...13] 90 - Modem faults [Modem 0...13] 95 - FEP faults [Fault 0...5]	90 - Modem faults [Line 0...3]
3	Bank 3 (Sub-alarms) 0 - Local repeater faults [L-Repeater 0...31] 33 - Panel faults [Panel 0...31] 66 - Global repeater faults [G-Repeater 0...31]	Bank 3 (Sub-alarms) 0 - Controller faults [L-Repeater 0...19] 20 - Watchdog faults [0...39] 60 - Port initialisation fault [Port 0...19]
4	Bank 4 (Sub-alarms) 0 - CL-Device faults [CL-Device 0...15] 40 - Watchdog faults [0...9] 80 - Port initialisation fault [Port 0...13]	Bank 4 (Actions) (See Message 27, ACTION) Note that actions range from 200...299, index 0...99 of bank 4.
5	Bank 5 (Sub-alarms) 0 - LON-Device faults [LON-Device 1...32] 40 - LON-Communication faults [LON-Device 1...32] 80 - LON-Device disable [LON-Device 1…32]	Bank 5 (Actions) (See Message 27, GENERAL ALARM) Note that actions range from 100...199, index 0...99 of bank 5.

5.3.1.31 Volatile Loop Data (30, 1Eh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	30	-	-	158	-	30	-
1	LOOP	-	-	Yes	-	Yes	-
2	LOOP ALARM	-	-	-	-	Yes	-
3	LOOP SEGMENTS	-	-	-	-	Yes	-
4	LOOP LEDs	-	-	-	-	Yes	-

LOOP

Length: Byte

Range: 1...8

Description: Loop number that is addressed.

LOOP ALARM

Length: Byte

Description: Each bit represents a different state that is active on the loop; a "1" means that the state is active:

Bit	FP2000	FP780
0	Overload A	-
1	Overload B	-
2	Open loop	-
3	Loop partially isolated	-
4	Isolated	-
5, 6, 7	-	-

LOOP SEGMENTS

Length: Byte

Range: Sentrol: 0...128

Apollo: 0

Description: Counts the number of 7-segment displays permanently switched on.

(Limited by protocol setting.)

LOOP LEDs

Length: Byte

Range: Sentrol: 0...128

Apollo: 0…126

Description: Counts the number of detector LED switched on.

(LED + Remote LED = 1 LED, Limited by protocol setting.)

5.3.1.32 Volatile Input Data (31, 1Fh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	31	-	-	159	159	31	31
1,2	INPUT (hb, lb)	-	-	Yes	Yes	Yes	Yes
3	INPUT STATUS	-	-	-	-	Yes	Yes

INPUT

Length: 2 bytes

Range: 1...999

Description: Input that is addressed.

INPUT STATUS

Length: Byte

Description: Used to indicate the status of the input:

Bit	FP2000	FP780
0	0: Input not switched	0: Input not switched
	1: Input Switched	1: Input Switched
1…7	-	-

5.3.1.33 System Delay Times (32, 20h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	32	32	32	160	160	32	32
1,2	SOUNDER DELAY (hb, lb)	Yes	Yes	-	-	Yes	Yes
3,4	FBRIG DELAY (hb, lb)	Yes	Yes	-	-	Yes	Yes
5,6	FLTRT DELAY (hb, lb)	Yes	Yes	-	-	Yes	Yes
7,8	FPROT DELAY (hb, lb)	Yes	Yes	-	-	Yes	Yes
9,10	INVESTIGATION TIME (hb, lb)	Yes	Yes	-	-	Yes	Yes

FBRIG DELAY

Length: 2 bytes

Range: 0...600

Description: The delay, in seconds, before the fire brigade output is activated.

FLTRT DELAY

Length: 2 bytes

Range: 0

Description: The delay, in seconds, before the fault routing output is activated.

FPROT DELAY

Length: 2 bytes

Range: 0

Description: The delay, in seconds, before the fire protection output is activated.

SOUNDER DELAY

Length: 2 bytes

Range: 0...600

Description: The delay, in seconds, before the sounder output is activated.

INVESTIGATION TIME

Length: 2 bytes

Range: VdS: 0…600

NEN: 0…600

Others: 180...600

Description: The delay, in seconds, which will extend Fire Brigade delay depending on the fire panel mode.

VdS: In this mode the INVESTIGATION TIME is used to prolong the fire brigade delay by the pre-set time.

NEN: In this mode the INVESTIGATION TIME is used as a time-out, within which the buzzer must be silenced. If the buzzer is not silenced the delay for the automatic fire brigade is overridden.

Others: In this mode the INVESTIGATION TIME is used to prolong the fire brigade delay by the pre-set time in conjunction with the FRD700 panel.

5.3.1.34 System Data (33, 21h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	33	33	33	161	161	33	33
1	SYSTEM DATA TYPE	Yes	Yes	Yes	Yes	Yes	Yes
2	SYSTEM DATA	Yes	Yes	-	-	Yes	Yes

SYSTEM DATA TYPE

Length: Byte

Range: 0...255

Description: The table below lists the different SYSTEM DATA TYPE values.

SYSTEM DATA

Length: Byte

Range: The table below lists the different SYSTEM DATA values.

SYSTEM DATA TYPE		FP2000	FP780
1	Zones on link	0: No link	0: No link
		1: Linked to external source	1: Linked to external source
3	Product type	-	0: FP780
			1: FEP780
			2: FP780VDS
			3: EP780
6	LON controller OEM	-	Read only
7	LON controller PC	-	Read only
8	LON controller HW	-	Read only
12	Zones per area	-	0…8
19	Day mode link	0: No link	-
		1: Linked to fire brigade	
		2: Linked to external source	
20	Sounder delay off link	0: No link	0: No link
		1: Linked to fire brigade	1: Linked to fire brigade
27	Maintenance Report	0: Disabled	0: Disabled
		1: Enabled	1: Enabled
28	Sensor seven segment display (Sentrol only)	0: Off	-
		1: On	
		2: Blinking	
30	FSK Feedback	0: Disabled	-
		1: Enabled (direct)	

SYSTEM DATA TYPE		FP2000	FP780
31	Buzzer mask	Bit 0: Buzzer for fire	Bit 0: Buzzer for fire
		Bit 1: Buzzer for fault	Bit 1: Buzzer for fault
		Bit 2: Buzzer for condition	Bit 2: Buzzer for condition
		0: Disabled	0: Disabled
		1: Enabled	1: Enabled
61	Time synchronisation	0: Disabled	-
		1: Enabled	
63	LON controller node (re-served)	-	1
64	LON controller branding	-	Read only
65	LON controller sw (minor)	-	Read only
66	LON controller sw (major)	-	Read only
208	Discovery noise pollution	Bit0: loop1, Bit1: loop 2, …	
209	Non-EAS fire		
210	Discovery blink flag	Bit0: loop1, Bit1: loop 2, …	-
213	Zone maintenance mask	-	0: Disabled
			1: Enabled
214	BFS disable by alarm	0: Disabled	-
		1: Enabled	
215	RTC correction	-	Bit 0…4:
			Bit 7: 0: pos. adj., 1: neg. adj.
216	Global panel mask	Bit 0: Fire mask	-
		Bit 1: Fault mask	
		Bit 2: Condition mask	
		Bit 3: Buzzer mask	
218	Sounder allocation	0: Fire sounder only	-
		1: Hausalarm sounder only	
		2: Fire and Hausalarm sounders	
219	EN-54 screens select	0: Disabled	-
		1: Enabled	
220	Mains status (prod. test)	Bit 0: Mains disconnected Bit 1: Earth fault Bit 2: Battery disconnected Bit 3: Low battery voltage	-
221	Compilation	0…255	-
222	Tamper switch mask	0: Disabled	-
		1: Enabled	

SYSTEM DATA TYPE		FP2000	FP780
223	Finnish fault	0: Disabled	

		1: Enabled	
233	FSK opens on return signal only (VdS)	0: Disabled 1: Enabled	-
234	FSK opens as long as return signal is present (VdS)	0: Disabled 1: Enabled	-
239	EAS mode	0: Disabled 1: Enabled	0: Disabled 1: Enabled
240	Equipment check mask	-	0: Disabled 1: Enabled
241	Earth fault mask	0: Disabled 1: Enabled	0: Disabled 1: Enabled
242	Battery check mask	0: Disabled 1: Enabled	0: Disabled 1: Enabled
243	Universal Node ID for setup/NET1/NET2	0: All id's accepted 1…31: Only selected id is accepted	-
246	Universal Node ID for Modem	0: All id's accepted 1…31: Only selected id is accepted	-
248	Zone range start	0…255 Zone range end >= Zone range start	-
249	Zone range end	0…255 Zone range end >= Zone range start	-
250	Hauptmelder return timeout (VdS)	10s…180s	-
251	Bedienfeld (VdS)	0: Disabled 1: Enabled	-
252	Global repeater mode	0: Global panel repeater 1: Global zone repeater	-
253	FSK heater mode (VdS)	0: Off 1: On	-
254	Hauptmelder mode	0: Continuous 1: Pulse	0: Continuous 1: Pulse
255	Display I/O conditions	0: Disabled 1: Enabled	

5.3.1.35 Volatile Output Data (34, 22h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	34	-	-	162	162	34	34
1,2	OUTPUT (hb, lb)	-	-	Yes	Yes	Yes	Yes
3	OUTPUT STATUS	-	-	-	-	Yes	Yes

OUTPUT

Length: 2 bytes

Range: 1...999

Description: Output that is addressed.

OUTPUT STATUS

Length: Byte

Description: Used to indicate the status of the output:

Bit	FP2000	FP780
0	0: Output not switched	0: Output not switched
	1: Output Switched	1: Output Switched
1…7	-	-

5.3.1.36 Set up Reply (35, 23h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	35	-	-	-	-	35	35
1	SET-UP REPLY	-	-	-	-	Yes	Yes

SET-UP REPLY

Length: Byte

Range: 0...99

Description: When a panel receives a message, other than a valid request message, it will respond with this message, that indicates whether the message was successfully received or not. The following is a list of the different options. The panel can initiate this message.

SET-UP REPLY	FP2000	FP780
0	OK	OK
1	Changed	Changed
2	Acknowledge	Acknowledge
3	Invalid key	Invalid key
4	Buzzer silenced	Buzzer silenced
5	Turn key	Turn key
6	Sounder disabled	Sounder disabled
7	Linked to fire brigade	Linked to fire brigade
8	Sounder active	Sounder active
9	Sounder faulty	Sounder faulty
10	Fire brigade active	Fire brigade active
11	Fire brigade faulty	Fire brigade faulty
12	Linked to external source	Linked to external source
13	Open memory lock	Open memory lock
14	Memory lock locked	Memory lock locked
15	No printer	No printer
16	Invalid entry	Invalid entry
17	No access	No access
18	No (invalid) command	No (invalid) command
19	Out of range	Out of range
20	Memory lock unlocked	Memory lock unlocked
21	Zone abnormal	Zone abnormal
22	Nothing found	Nothing found
23	Not enough memory	Not enough memory
24	System abnormal	System abnormal
25	Service switch off	Service switch off
26	-	-
27	No device in zone	-
28	Device disabled	-
29	No option	-
30	Busy with auto set-up	-
31	No port	No port

32	No access to port	No access to port

SET-UP REPLY	FP2000	FP780
33	Language not supported	Language not supported
34	Printer busy	Printer busy
35	Invalid type	Invalid type
36	Fire Panel already assigned	-
37	Fire Panel not on network	-
38	Local Repeater already as-signed	-
39	Global Repeater already as-signed	-
40	Node down	-
41	Use dedicated keys for test and disable	-
42	Fire brigade disabled	Fire brigade disabled
43	Busy with upload	Busy with upload
44	End of upload	End of upload
45	Time could not be set	Time could not be set
46	Busy with hardware test	Busy with hardware test
47	Port allocation in use	Port allocation in use
48	Sounder in test	Sounder in test
49	Fire brigade in test	Fire brigade in test
50	Fire Panel already emulated	Fire Panel already emulated
51	Function not supported	Function not supported
52	Link down	-
53	Fault routing active	Fault routing active
54	Fault routing faulty	Fault routing faulty
55	Fault routing disabled	Fault routing disabled
56	Fault routing in test	Fault routing in test
57	No LON device	No LON device
58	Fire protection active	Fire protection active
59	Fire protection faulty	Fire protection faulty
60	Fire protection disabled	Fire protection disabled
61	Fire protection in test	Fire protection in test
62	BFS active	BFS active
63	Fire protection not silenced	Fire protection not silenced
64	Fault routing not silenced	Fault routing not silenced
65	Sounder not silenced	Sounder not silenced
66	Fire brigade not silenced	Fire brigade not silenced
67	Only one level 2	Only one level 2
68	-	-
69	Wait	-
70	Hardware test ok	Hardware test ok
71	Busy with fast compensation	-
72	Function locked on FBF	-
73	Zone is allocated	Zone is allocated

74	Disabled on panel	Disabled on panel

SET-UP REPLY	FP2000	FP780
75	Disabled by key switch	Disabled by key switch
76	Incompatible zone range	-
77	End of fast compensation	-
78	End of auto set-up	-
79	Invalid zone	Invalid zone
80	-	Flash write error
81	-	Flash modified
82	-	Press LON configuration switches
83	No pager access	-
84	-	In service mode
85	-	No LON nodes available
86	-	Invalid module hardware rev.
87	-	Invalid module OEM code
88	-	Invalid module program code
89	-	Invalid module configuration
90	-	Invalid module software rev.
92	-	Text too long
93	-	Insufficient text memory
94	-	Invalid text sequence
95	-	-
96	-	-
97	-	-
98	-	-
99	-	No alarm

5.3.1.37 Maximum Network Configuration (36, 24h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	36	36	-	164	-	36	-
1	MAX. NET. CONFIG.	Yes	-	-	-	Yes	-

MAX. NET. CONFIG.

Length: Byte

Range: FP2000: 0...4

FP780: 0

Description: The maximum network configuration determines the maximum amount of FP2000 Panels allowed to communicate with each other and how many of those FP2000 Panels are allowed to be FP2000 Fire Panels, FP2000 Global – or FP2000 Local Repeater Panels – (see also messages 20, 48 and 49).

Note that it is the maximum limits for a FP2000 Panel and not for only one of its communication functions or ports. For example, for a FP2000 Panel that communicates via serial port SER1, assigned to network communication function NET1, as well as via ARCNET port ARC1, assigned to network communication function NET2, to other FP2000 Panels, this maximum network configuration parameter limits the total amount of devices communicating on the two networks, including the FP2000 Panel itself. Configuration 3 and 4 are used for the global-panel only.

The options are:

Maximum network configuration	0	1	2	3	4
Maximum amount of FP2000:	15/15	7/31	31/7	0/31	0/63
Fire Panels:	15	7	31	0	0
Global Repeaters:	15	31	7	31	63
Local Repeaters:	15	7	31	0	0

Note that although the maximum of FP2000 Panels allowed on one network is 255, there are other limitations. The serial ports accommodate only two devices and the RS485 line drivers limit the ARCNET network – the current drivers used can handle only a max of 32 devices. Configuration 4 is not possible in a bus-topology where the individual drops are physically connected together; otherwise it will again exceed the max of 32 devices.

5.3.1.38 Version (37, 25h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	37	-	-	165	165	37	37
1	VERSION TYPE	-	-	Yes	Yes	Yes	Yes
2	BLOCK	-	-	Yes	Yes	Yes	Yes
2/3...31	VERSION DATA	-	-	-	-	Yes	Yes

VERSION TYPE

Length: Byte

Range: FP2000: 0…5

Fp780: 0…7

Description: The version requested:

VERSION TYPE	FP2000	FP780
0	Host software version	Software version
1	FEP software version	-
2	Host memory configuration	Memory configuration
3	PCC2000 version	PCC700 version
4	Site version	Site version
5	Block version	Block version
6	-	Default boot loader version
7	-	Backup boot loader version

BLOCK

Length: Byte

Range: (see message 3)

Description: The block number for the block version requested:

VERSION TYPE	FP2000	FP780
0	-	-
1	-	-
2	-	-
3	-	-
4	-	-
5	(See message 3)	(See message 3)
6	-	-
7	-	-

VERSION DATA

Length: 1...30 Bytes

Where: Byte 0: Length of string (0...n)

Bytes 1...n: String (if n > 0)

VERSION TYPE	FP2000 [n =]	FP780 [n =]
0	27	29
1	27 FEP is present 0 FEP is not present	-
2	1	1
3	1	1
4	29	29
5	29	29
6	-	10
7	-	10

Description: A string defining the requested version:

Host & FEP software versions	XX.XX PPPP-CC DD.MM.YY SSSSS		Byte 0 = 28
	XX.XX	Version	Bytes 1…5
	PPPP	Product	Bytes 7…10
	CC	Customer	Bytes 12…13
		00 = ARITECH	
		77 = FALCK	
		FF = ARITECH France	
		MP = Tyco	
		ES = ELOTEC	
	DD	Day	Bytes 15...16
	MM	Month	Bytes 18…19
	YY	Year	Bytes 21…22
	SSSSS	Checksum (Hex) + H	Bytes 24…28
Software Version	XX.XX PPPP-CC DD.MM.YYYY SSSS		Byte 0 = 29
	XX.XX	Version	Bytes 1…5
	PPPP	Product	Bytes 7…10
		0000 = FC700L (4MB RAM)	
		0001 = FC700 (1MB RAM)	
	CC	Customer	Bytes 12…13
		00 = ARITECH	
	DD	Day	Bytes 15...16
	MM	Month	Bytes 18…19
	YYYY	Year	Bytes 21…24
	SSSS	Checksum (Hex)	Bytes 26…29
FP2000 Host memory configuration	CC		Byte 0 = 1
	CC	Configuration	Byte 1
		72: Ver. 8.36, 80: Ver. 10.00	

FP780 memory configuration	CC		Byte 0 = 1
	CC	Configuration	Byte 1
		33: Ver. 2.01	
PCC2000 version	CC	Byte 0 = 1	
	CC	Configuration	Byte 1
		4: Ver. 8.00 5: Ver. 9.00 6: Ver. 10.00	
PCC700 version	CC	Byte 0 = 1	
	CC	Configuration	Byte 1
		1: Ver. 2.01	
Site/Block versions	VVVVV DD.MM.YY HH.NN.SS CCCCC		Byte 0 = 29
	VVVVV	Version	Bytes 1…5
	DD	Day	Bytes 7…8
	MM	Month	Bytes 10…11
	YY	Year	Bytes 13...14
	HH	Hour	Bytes 16...17
	NN	Minute	Bytes 19…20
	SS	Second	Bytes 22…23
	CCCCC	Checksum (Hex) + H	Bytes 25…29
Boot loader versions	XX.XX CCCC		Byte 0 = 10
	XX.XX	Version	Bytes 1…5
	CCCC	Checksum (Hex)	Bytes 7…10

5.3.1.39 Network I/O (38, 26h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	38	38	38	-	-	-	-
1,2	NETWORK OUTPUT (hb, lb)	Yes	Yes	-	-	-	-
3,4	NETWORK INPUT (hb, lb)	Yes	Yes	-	-	-	-
5	NETWORK STATE	Yes	Yes	-	-	-	-

NETWORK INPUT

Length: 2 bytes

Range: 1...999

Description: The number of an input of the receiving device.

NETWORK OUTPUT

Length: 2 bytes

Range: 1...999

Description: The number of an output of the transmitting device.

NETWORK STATE

Length: Byte

Range: 0…1

Description: The state of the network output, the options are:

Bit	FP2000	FP780
0	0: passive	0: passive
	1: active	1: active
1…7	-	-

5.3.1.40 Emulation Command (39, 27h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	39	39	39	-	-	-	-
1	EMULATION CMD	Yes	Yes	-	-	-	-
2...n	EMULATION DATA (n: see below)	Yes	Yes	-	-	-	-

EMULATION CMD:

Length: Byte

Range: 0...5

Description: The emulation command, the options are:

EMULATION CMD		ASSOCIATED DATA
0	Start emulation	No data
1	Stop emulation	No data
2	Start acknowledge	No data
3	Emulation key	See EMULATION DATA
4	Emulation data	See EMULATION DATA
5	Disconnect emulation	No data

See also the General Description and the EMULATION DATA description for the data associated with the different commands.

EMULATION DATA (for EMULATION CMD 3)

Length: Word

Range: See Description

Description: Emulation key

Higher byte: 0 Key is valid

>0 Time-out (Key is not valid.)

Lower byte 0 Reserved ctrl @

Higher Byte	Lower Byte	Control Code	FP2000	FP780
>0	X	-	Time-out (invalid key)	Time-out (invalid key)
0	0	Ctrl @	-	-
0	1	Ctrl A	Scroll	Scroll
0	2	Ctrl B	Display Alarm	Display Alarm
0	3	Ctrl C	-	-
0	4	Ctrl D	Print Screen	-
0	5	Ctrl E	Alpha Numeric	Alpha Numeric
0	6	Ctrl F	Right Arrow	Right Arrow
0	7	Ctrl G	-	-
0	8	Ctrl H	Left Arrow	Left Arrow
0	9	Ctrl I	Silence Buzzer	Silence Buzzer
0	10	Ctrl J	Down Arrow	Down Arrow
0	11	Ctrl K	Reset	Reset
0	12	Ctrl L	Disable	-
0	13	Ctrl M	Enter	Enter
0	14	Ctrl N	Test	-
0	15	Ctrl O	Sound Sounder	Sound Sounder
0	16	Ctrl P	Sounder Delay	Sounder Delay
0	17	Ctrl Q	Sounder Disable	Sounder Disable
0	18	Ctrl R	Silence Sounder	Silence Sounder
0	19	Ctrl S	Fire Brigade Disable	Fire Brigade Disable
0	20	Ctrl T	Fire Brigade Delay	Fire Brigade Delay
0	21	Ctrl U	-	-
0	22	Ctrl V	Fire Brigade Stop	Fire Brigade Stop
0	23	Ctrl W	-	-
0	24	Ctrl X	-	-
0	25	Ctrl Y	-	-
0	26	Ctrl Z	Up Arrow	Up Arrow
0	27	Ctrl [	Exit	Exit
0	28	Ctrl \	-	-
0	29	Ctrl]	Panel	-
0	30	Ctrl ^	All	-
0	31	Ctrl _	Fire Brigade Signal	Fire Brigade Signal

Special Keys (not on keyboard):

Higher Byte	Lower Byte	Control Code	FP2000	FP780
>0	X	-	Time-out (invalid key)	Time-out (invalid key)
0	239	-	External Reset (from Re-peater)	External Reset (from Re-peater)
0	238	-	Sounder Delay on	Sounder Delay on
0	237	-	Sounder Delay off	Sounder Delay off
0	236	-	Sounder Disable	Sounder Disable
0	235	-	Sounder Enable	Sounder Enable
0	234	-	Sounder Test	Sounder Test
0	233	-	Fire Brigade Delay on	Fire Brigade Delay on
0	232	-	Fire Brigade Delay off	Fire Brigade Delay off
0	231	-	Fire Brigade Disabled	Fire Brigade Disabled
0	230	-	Fire Brigade Enabled	Fire Brigade Enabled
0	229	-	Fire Brigade Test	Fire Brigade Test
0	228	-	Fault Routing Delay	Fault Routing Delay
0	227	-	Fault Routing Delay on	Fault Routing Delay on
0	226	-	Fault Routing Delay off	Fault Routing Delay off
0	225	-	Fault Routing Disable	Fault Routing Disable
0	224	-	Fault Routing Disabled	Fault Routing Disabled
0	223	-	Fault Routing Enabled	Fault Routing Enabled
0	222	-	Fault Routing Test	Fault Routing Test
0	221	-	Fault Routing Silenced	Fault Routing Silenced
0	220	-	Fault Routing on	Fault Routing on
0	219	-	Fire Protection Delay	Fire Protection Delay
0	218	-	Fire Protection Delay on	Fire Protection Delay on
0	217	-	Fire Protection Delay off	Fire Protection Delay off
0	216	-	Fire Protection Disable	Fire Protection Disable
0	215	-	Fire Protection Disabled	Fire Protection Disabled
0	214	-	Fire Protection Enabled	Fire Protection Enabled
0	213	-	Fire Protection Test	Fire Protection Test
0	212	-	Fire Protection Silenced	Fire Protection Silenced
0	211	-	Fire Protection on	Fire Protection on

EMULATION CMD 4 (Emulation data)

Length: Byte array

Description: The data strings consist of the following parameters:

Always starts with an escape character (27), represented by “ESC” (without the inverted commas). Fixed characters, displayed as characters in inverted commas or as decimal values. Parameters, which define the position on the display. A data string can be a sequence of several packed strings! Each string is starting with an escape character. The range for the (position) parameters is also given in the table. The display size is as follows:

Normal (text) mode: 40 x 8; the co-ordinates ranging from (0, 0) to (39, 7).

Graphic mode: 240 x 64; the co-ordinates ranging from (0,0) to (239, 63).

For the graphic mode two bytes are needed for the x-co-ordinate. The way it is done is as follows: one byte will represent the hundreds, ranging from 0 to 2, and one byte the tens and the ones, ranging from 0 to 99.

The identifiers for the position parameters are named as follows:

Normal mode:			
Row		range: 0…7	
Column		range: 0. .39	
Graphic mode:			
xl:	x-co-ordinate tens and ones byte	range: 0...99	
xh:	x-co-ordinate hundreds byte	range: 0...2	
xls:	start x-co-ordinate tens and ones byte	range: 0…99	(absolute)
xhs:	start x-co-ordinate hundreds byte	range: 0...2	(absolute)
xle:	end x-co-ordinate tens and ones byte	range: 0...99	(relative)
xhe:	end x-co-ordinate hundreds byte	range: 0…2	(relative)
y:	y-co-ordinate byte	range: 0…63	
ys:	start y-co-ordinate byte	range: 0…63	(absolute)
ye:	end y-co-ordinate byte	range: 0…63	(relative)

Note: The values for these position parameters, both for the normal an graphic modes, are offset by 32 (space character – “ “) and therefore 32 must be subtracted from the position values when this emulation data is received from a FP2000 Panel or added when this emulation data is sent to a FP2000 Panel (as shown in the table).

In the table below the different parameters are separated by commas.

Description	Length	Parameters
Set cursor absolute	4	ESC, ”Y”, row, column Where: Row: [0+32]...[39+32] Column: [0+32]...[7+32]
Acknowledge bleep	2	ESC, 128
Request test	2	ESC, ”|”
Clear to end-of-line	2	ESC, ”K”
Clear screen	2	ESC, ”+”
Clear graphic screen	2	ESC, ”?”
Set mode: A Graphic - Normal	3	ESC, ”~”, ”0” ”1”
Draw dot: B Off - On	6	ESC, ”^”, y, xh, xl, ”0” ”8” Where: y: [0+32]…[63+32] xh: [0+32]…[2+32] xl: [0+32]…[99+32]
Draw line: C Off - On	9	ESC, ”%”, ys, xhs, xls, ye, xhe, xle, ”0” ”8” Where: ys: [0+32]...[63+32] xhs: [0+32]...[2+32] xls: [0+32]...[99+32] ye: [0+32]...[63+32] xhe: [0+32]...[2+32] xle: [0+32]...[99+32]
Draw rectangle: D Off, empty E On, empty F Off, filled - On, filled	9	ESC, ”&”, ys, xhs, xls, ye, xhe, xle, ”0” ”8” ”1” ”9” Where: ys: [0+32]...[63+32] xhs: [0+32]...[2+32] xls: [0+32]...[99+32] ye: [0+32]...[63+32] xhe: [0+32]...[2+32] xle: [0+32]...[99+32]

Description	Length	Parameters
Set attribute: G Normal H Reverse I Blinking - Blinking reverse	3	ESC, ”G”, ”0” ”4” ”2” ”6”
Set cursor: J Off K On L Steady block M Blinking line N Steady line - Blinking block	3	ESC, ”`”, ”0” ”1” ”2” ”3” ”4” ”5”
Set backlight (FBP700 only) O Off - On	3	ESC, “@”, “0” “1”
Set cg-character (FBP700 only)	10	ESC, nh, nl, b0, b1, b2, b3, b4, b5, b6, b7 Where: nh: character no [0+32]...[99+32] nl: character no [0+32]…[2+32] b0...b7 : byte of character map [0..255]

5.3.1.41 Equipment Control (40, 28h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	40	40	-	-	-	-	-
1	EQUIPMENT	Yes	-	-	-	-	-
2	OUTPUT LINK	Yes	-	-	-	-	-
3	OUTPUT LINK NO.	Yes	-	-	-	-	-
4	MODE	Yes	-	-	-	-	-
5	OVERRIDE	Yes	-	-	-	-	-

EQUIPMENT

Length: Byte

Range: FP2000: 0...4

FP780: 0

Description: The equipment to be switched:

EQUIPMENT	FP2000	FP780
0	Sounder	-
1	Automatic Fire Brigade	-
2	Fault Routing	-
3	Fire Protection	-
4	MCP Fire Brigade	-

OUTPUT LINK

Length: Byte

Range: FP2000: 0...2

FP780: 0

Description: The corresponding link in the output set-up.

OUTPUT LINK	FP2000	FP780
0	None (Equipment only)	-
1	Zone	-
2	Area	-

OUTPUT LINK NO

Length: Byte

Range: FP2000: 0…255

FP780: 0

Description: The corresponding number of the OUTPUT LINK in the output set-up.

OUTPUT LINK NO	FP2000	FP780
0	0	-
1	1…255	-
2	1…99	-

MODE

Length: Byte

Range: FP2000: 0...4

FP780: 0

Description: The mode of operation:

OUTPUT LINK NO	FP2000	FP780
0	Off	-
1	On	-
2	Test	-
3	Silence	-
4	Evacuate	-

OVERRIDE

Length: Byte

Range: FP2000: 0...1

FP780: 0

Description: A control to select an operation determined by the settings in the panel or to override any checks.

OVERRIDE	FP2000	FP780
0	Operation determined by panel	-
1	Override	-

5.3.1.42 Volatile Zone Block Data (41, 29h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	41	-	-	169	169	41	41
1	INDEX	-	-	Yes	Yes	Yes	Yes
2...113	DATA	-	-	-	-	Yes	Yes
114	ZONES LOW-LIMIT	-	-	-	-	Yes	Yes
115	ZONES HIGH-LIMIT	-	-	-	-	Yes	Yes

INDEX

Length: Byte

Range: 0…2

Description: The zone block index, the options are: (see message 25)

INDEX Bits 6…7	FP2000	FP780
0	Zones 1…112	Zones 1…99
1	Zones 100…199	Zones 100…199
2	Zones 200…255	Zones 200…255

Range: FP2000: 0…34

FP780: 0…27

Description: The zone block index, the options are: (see message 25)

INDEX Bits 0…5	FP2000	FP780
0	ZONE ALARM (hb)	ZONE ALARM (hb)
1	ZONE ALARM (lb)	ZONE ALARM (lb)
2	ALARM COUNT (hb)	ALARM COUNT
3	ALARM COUNT (lb)	FAULT COUNT
4	FAULT COUNT (hb)	CONDITION COUNT
5	FAULT COUNT (lb)	ISOLATED COUNT
6	CONDITION COUNT (hb)	SECURITY ALARM COUNT
7	CONDITION COUNT (lb)	TEST COUNT
8	COINCIDENCE COUNT (hb)	PRE WARNING COUNT
9	COINCIDENCE COUNT (lb)	MAINTENANCE FAULT COUNT
10	ISOLATED COUNT (hb)	MONTH (test on)
11	ISOLATED COUNT (lb)	DAY (test on)
12	MONTH (test on)	HOUR (test on)
13	DAY (test on)	MINUTE (test on)
14	HOUR (test on)	MONTH (test off)
15	MINUTE (test on)	DAY (test off)
16	MONTH (test off)	HOUR (test off)
17	DAY (test off)	MINUTE (test off)
18	HOUR (test off)	ZONE STATE (hb)
19	MINUTE (test off)	ZONE STATE (lb)
20	ZONE STATE (hb)	ZONE COUNT
21	ZONE STATE (lb)	ZONE NODE
22	ZONE TWO COUNT (hb)	ZONE INPUT
23	ZONE TWO COUNT (lb)	ZONE EQUIPMENT SND
24	ZONE TWO	ZONE EQUIPMENT FBRIG AUTO
25	ZONE LEDs	ZONE EQUIPMENT FLTRT
26	ZONE EQUIPMENT SND	ZONE EQUIPMENT FPROT
27	ZONE EQUIPMENT FBRIG	ZONE EQUIPMENT FBRIG MCP
28	ZONE EQUIPMENT FLTRT	-
29	ZONE EQUIPMENT FPROT	-
30	ZONE LED STATUS	-
31	PRE WARNING COUNT (hb)	-
32	PRE WARNING COUNT (lb)	-
33	SYSTEM ZONE (hb)	-
34	SYSTEM ZONE (lb)	-

DATA

Length: Byte array

Description: The specified data (see INDEX) for each zone.

5.3.1.43 Volatile Area Block Data (42, 2Ah)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	42	-	-	170	170	42	42
1	INDEX	-	-	Yes	Yes	Yes	Yes
2...100	DATA	-	-	-	-	Yes	Yes

INDEX

Length: Byte

Range: FP2000: 0…18

FP780: 0…17

Description: The area block index, the options are: (see message 26)

INDEX	FP2000	FP780
0	AREA ALARM	AREA ALARM (hb)
1	ALARM COUNT (hb)	AREA ALARM (lb)
2	ALARM COUNT (lb)	ALARM COUNT
3	FAULT COUNT (hb)	FAULT COUNT
4	FAULT COUNT (lb)	CONDITION COUNT
5	CONDITION COUNT (hb)	COINCIDENCE COUNT
6	CONDITION COUNT (lb)	ISOLATED COUNT
7	COINCIDENCE COUNT (hb)	PRE WARNING COUNT
8	COINCIDENCE COUNT (lb)	SECURITY ALARM COUNT
9	ISOLATED COUNT (hb)	TEST COUNT
10	ISOLATED COUNT (lb)	MAINTENANCE COUNT
11	AREA STATE (lb)	AREA STATE (hb)
12	ZONE EQUIPMENT SND	AREA STATE (lb)
13	ZONE EQUIPMENT FBRIG	AREA EQUIPMENT SND
14	ZONE EQUIPMENT FLTRT	AREA EQUIPMENT FBRIG AUTO
15	ZONE EQUIPMENT FPROT	AREA EQUIPMENT FLTRT
16	AREA STATE (hb)	AREA EQUIPMENT FPROT
17	PRE WARNING COUNT (hb)	AREA EQUIPMENT FBRIG MCP
18	PRE WARNING COUNT (lb)	-

DATA

Length: AREAS (see command 6)

Byte array (byte 0 = 1st area, byte AREAS-1 = last area)

Description: The specified data (see INDEX) for each area.

5.3.1.44 Control Command (43, 2Bh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	43	43	43	-	-	-	-
1	CONTROL	Yes	Yes	-	-	-	-

CONTROL

Length: Byte

Range: FP2000: 0...10

FP780: 4...10

Description: The options are:

CONTROL	FP2000	FP780
0	FP2000 Fire Panel down	-
1	FP2000 Fire Panel up	-
2	Local Repeater down	-
3	Local Repeater up	-
4	Global Repeater down	Node down
5	Global Repeater up	Node up
6	Network line faulty	Network line faulty
7	Network line OK	Network line OK
8	Duplicate Node ID	Duplicate Node ID
9	Modem Initialisation	Modem Initialisation
10	Two try fire	Two try fire

5.3.1.45 Set Time (44, 2Ch)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	44	44	44	172	172	44	44
1	YEAR	Yes	Yes	-	-	Yes	Yes
2	MONTH	Yes	Yes	-	-	Yes	Yes
3	DAY	Yes	Yes	-	-	Yes	Yes
4	HOUR	Yes	Yes	-	-	Yes	Yes
5	MINUTE	Yes	Yes	-	-	Yes	Yes
6	SECOND	Yes	Yes	-	-	Yes	Yes

YEAR

Length: Byte

Range: 0...99

Description: Year. Values of 94 to 99 indicate the twentieth century (19--) and values less than 94 the twenty-first century (20--).

MONTH

Length: Byte

Range: 1…12

Description: Month.

DAY

Length: Byte

Range: 1...28, 29, 30, 31

Description: The day of the month.

HOUR

Length: Byte

Range: 0...23

Description: Hour.

MINUTE

Length: Byte

Range: 0…59

Description: Minute.

SECOND

Length: Byte

Range: 0…59

Description: Second.

5.3.1.46 Synchronise Time (45, 2Dh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	45	45	45	-	-	-	-

This command synchronises the times of Panels, Local Repeaters and Global Repeaters.

5.3.1.47 Volatile Sensor Block Data (46, 2Eh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	46	-	-	174	-	46	-
1	LOOP	-	-	Yes	-	Yes	-
2	INDEX	-	-	Yes	-	Yes	-
3-131	SENSOR BLOCK DATA	-	-	-	-	Yes	-

LOOP (see message 24)

INDEX

Length: Byte

Range: 0...31

Description: The sensor (fire detection device) block index, the options are: (see message 24)

INDEX	FP2000	FP780
0	SENSOR ALARM COUNT	-
1	SENSOR AVERAGE	-
2	SENSOR COMP	-
3	SENSOR COMMS	-
4	SENSOR LOWEST	-
5	MONTH (lowest)	-
7	HOUR (lowest)	-
8	MINUTE (lowest)	-
9	SENSOR DAY LOW	-
10	SENSOR HIGHEST	-
11	MONTH (highest)	-
12	DAY (highest)	-
13	HOUR (highest)	-
14	MINUTE (highest)	-
15	SENSOR DAY HIGH	-
16	SENSOR ALARM (higher byte)	-
17	SENSOR ALARM (lower byte)	-
18	SENSOR TEST	-
19	TWO TRY DELAY	-
20	INPUT STATE	-
21	OUTPUT STATE	-
22	ASP DELAY (hb)	-
23	ASP DELAY (lb)	-
24	CONTAMINATION	-
25	SENSOR VALUE	-
26	SENSOR STATUS BITS	-
27	SENSOR FIELD TYPE	-
28	SENSOR OUTPUT BITS	-
29	SENSOR TEST VALUE	-

30	COMPENSATED SENSOR VALUE	-
31	Reserved	-

SENSOR BLOCK DATA

Length: See table above (PAGE)

Description: The specified data (see INDEX) for each fire detection device (sensor) of the specified loop.

5.3.1.48 Network Watchdog (47, 2Fh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	47	47	47	-	-	-	-

The Watchdog message is a Control message that is used to ensure the prompt notification of loss of communication between communicating devices.

Whenever two or more devices are configured to communicate with one another, using one of the network functions (NET1/2 – see message 19), Watchdog messages must be transferred between these devices. The panels transmit Watchdog messages every 13s and check for reception of Watchdog messages every 30s.

5.3.1.49 Panel (48, 30h)

A FP2000 Panel can be configured to communicate with FP2000 Fire Panels using one or both the network communication functions (Net1/2). A network communication function is assigned to a port (see message 19) as well as to the FP2000 Panel(s) that are connected to that port.

This message is used for configuration, or reading of the configuration, of a FP2000 Panel's communication set up, with regard to FP2000 Fire Panels (panel number specified with PANEL byte).

A FP2000 Fire Panel, a Global Repeater or a Local Repeater can be configured to communicate with any number of other FP2000 Fire Panels allowed by the maximum network configuration.

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	48	48	-	176	-	48	-
1	FIRE PANEL	Yes	-	Yes	-	Yes	-
2	FIRE PANEL SET-UP	Yes	-	-	-	Yes	-

FIRE PANEL

Length: Byte

Range: See Description

Description: The number of a FP2000 Fire Panel, in the FP2000 Panel's communication set up, that is addressed. The range is dependant on the maximum network configuration (see message 36):

FIRE PANEL	FP2000	FP780
15/15	1…15	-
31/7	1…31	-
7/31	1…7	-
0/31	0	-
0/63	0	-

FIRE PANEL SET-UP

Length: Byte

Range: 0...4

Description: A number that allocates one of the network communication functions (Net1/2) to the FP2000 Fire Panel in the FP2000 Panel's communication configuration as well as specifying the result of communication failure:

FIRE PANEL SET-UP	FP2000	FP780
0	None No Communication	-
1	Net1 check Allocated to network Net1, with an error in communication producing an alarm.	-
2	Net2 check Allocated to network Net2, with an error in communication producing an alarm.	-
3	Net1 no check Allocated to network Net1, with an error in communication producing an action.	-
4	Net2 no check Allocated to network Net2, with an error in communication producing an action.	-

5.3.1.50 Global Repeater (49, 31h)

A FP2000 Panel can be configured to communicate with Global Repeaters using one or both the network communication functions (Net1/2). A network communication function is assigned to a port (see message 19) as well as to the Global Repeater(s) that are connected to that port. This message is used for configuration, or reading of the configuration, of a FP2000 Panel's communication set up, with regard to Global Repeaters (repeater number specified with G-REPEATER byte).

A FP2000 Fire Panel or a Global Repeater can be configured to communicate with any number of other FP2000 Global Repeaters allowed by the maximum network configuration.

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	49	49	-	177	-	49	-
1	G-REPEATER	Yes	-	Yes	-	Yes	-
2	G-REPEATER SET-UP	Yes	-	-	-	Yes	-

G-REPEATER

Length: Byte

Range: See Description

Description: The number of the Global Repeater, in the FP2000 Fire Panel's or Global Repeater's communication configuration, that is addressed. The range is dependant on the maximum network configuration (see message 36):

FIRE PANEL	FP2000	FP780
15/15	1…15	-
31/7	1…31	-
7/31	1…7	-
0/31	1…31	-
0/63	1…63	-

G-REPEATER SET-UP

Length: Byte

Range: 0...4

Description: A number that allocates one of the network communication functions (Net1/2) to the Global Repeater in the FP2000 Fire Panel's or Global Repeater's communication configuration as well as specifying the result of communication failure:

FIRE PANEL SET-UP	FP2000	FP780
0	None No Communication	-
1	Net1 check Allocated to network Net1, with an error in communication producing an alarm.	-
2	Net2 check Allocated to network Net2, with an error in communication producing an alarm.	-
3	Net1 no check Allocated to network Net1, with an error in communication producing an action.	-
4	Net2 no check Allocated to network Net2, with an error in communication producing an action.	-

5.3.1.51 Network Keys (50, 32h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	50	50	50	-	-	-	-
1	KEY	Yes	Yes	-	-	-	-

KEY

Length: Byte

Description: Keys accepted by the panel.

KEY	FP2000	FP780
0	-	-
1	Scroll	Scroll
2	Display Alarm	Display Alarm
3	-	-
4	Print Screen	-
5	Alpha Numeric	Alpha Numeric
6	Right Arrow	Right Arrow
7	-	-
8	Left Arrow	Left Arrow
9	Silence buzzer	Silence buzzer
10	Down Arrow	Down Arrow
11	Reset	Reset
12	Disable	Disable
13	Enter	Enter
14	Test	Test
15	Sounder on	Sounder on
16	Sounder delay toggle	Sounder delay toggle
17	Sounder disable toggle	Sounder disable toggle
18	Sounder off	Sounder off
19	Fire Brigade disable toggle	Automatic Fire Brigade disable toggle
20	Fire Brigade delay toggle	Automatic Fire Brigade delay toggle
21	-	-
22	Fire Brigade stop	Automatic Fire Brigade stop
23	-	-
24	-	-
25	-	-
26	Up Arrow	Up Arrow
27	Exit	Exit
28	-I	-
29	Panel	-
30	All	
31	Fire Brigade start	Automatic Fire Brigade start

KEY	FP2000	FP780
255	Internal use only	Internal use only
254	Internal use only	Internal use only
253	Internal use only	Internal use only
252	Internal use only	Internal use only
252	Internal use only	Internal use only
250	Internal use only	Internal use only
249	Internal use only	Internal use only
248	Internal use only	Internal use only
247	Internal use only	Internal use only
246	Internal use only	Internal use only
245	Internal use only	Internal use only
244	Internal use only	Internal use only
243	Internal use only	Internal use only
242	Internal use only	Internal use only
241	Internal use only	Internal use only
240	Restart	Restart
239	Reset	Reset
238	Sounder delay on	Sounder delay on
237	Sounder delay off	Sounder delay off
236	Sounder disable	Sounder disable
235	Sounder enable	Sounder enable
234	Sounder test toggle	Sounder test toggle
233	Fire Brigade delay on	Automatic Fire Brigade delay on
232	Fire Brigade delay off	Automatic Fire Brigade delay off
231	Fire Brigade disable	Automatic Fire Brigade disable
230	Fire Brigade enable	Automatic Fire Brigade enable
229	Fire Brigade test toggle	Automatic Fire Brigade test toggle
228	Fault Routing delay toggle	Fault Routing delay toggle
227	Fault Routing delay on	Fault Routing delay on
226	Fault Routing delay off	Fault Routing delay off
225	Fault Routing disable toggle	Fault Routing disable toggle
224	Fault Routing disable	Fault Routing disable
223	Fault Routing enable	Fault Routing enable
222	Fault Routing test toggle	Fault Routing test toggle
221	Fault Routing off	Fault Routing off
220	Fault Routing on	Fault Routing on
219	Fire Protection delay toggle	Fire Protection delay toggle
218	Fire Protection delay on	Fire Protection delay on
217	Fire Protection delay off	Fire Protection delay off
216	Fire Protection disable toggle	Fire Protection disable toggle
215	Fire Protection disable	Fire Protection disable
214	Fire Protection enable	Fire Protection enable
213	Fire Protection test toggle	Fire Protection test toggle

212	Fire Protection off	Fire Protection off

KEY	FP2000	FP780
211	Fire Protection on	Fire Protection on
210	Display alarm	Display alarm
209	Reset “All”	Reset “All”
208	Silence Repeater	Silence Repeater
207	Clear all events	Clear all events
206	LON reset	LON reset
205	BFS disable	BFS disable
204	BFS enable	BFS enable
203	-	Automatic
202	-	MCP Fire Brigade delay toggle
201	-	MCP Fire Brigade delay on
200	-	MCP Fire Brigade delay off
199	-	MCP Fire Brigade disable toggle
198	-	MCP Fire Brigade disable
197	-	MCP Fire Brigade enable
196	-	MCP Fire Brigade test toggle
195	-	MCP Fire Brigade stop
194	-	MCP Fire Brigade start
193	-	LON configuration
192	-	Reset with forced flash update
191	FBF Sounder disable	-
190	FBF Sounder enable	-
189	FBF Fire Brigade disable	-
188	FBF Fire Brigade enable	-
187	FBF fire protection disable	-
186	FBF fire protection enable	-

5.3.1.52 Network Time (51, 33h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	51	51	51	-	-	-	-
1	YEAR	Yes	Yes	-	-	-	-
2	MONTH	Yes	Yes	-	-	-	-
3	DAY	Yes	Yes	-	-	-	-
4	HOUR	Yes	Yes	-	-	-	-
5	MINUTE	Yes	Yes	-	-	-	-
6-	SECOND	Yes	Yes	-	-	-	-
7	DAY OF WEEK	Yes	Yes	-	-	-	-

YEAR (see message 45)

MONTH (see message 45)

DAY (see message 45)

HOUR (see message 45)

MINUTE (see message 45)

SECOND (see message 45)

DAY OF WEEK

Length: Byte

Range: 0...6

Description: The current day of the week:

DAY OF WEEK	FP2000	FP780
0	Monday	Monday
1	Tuesday	Tuesday
2	Wednesday	Wednesday
3	Thursday	Thursday
4	Friday	Friday
5	Saturday	Saturday
6	Sunday	Sunday

5.3.1.53 Accept Event (52, 34h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	52	52	52	-	-	-	-
1,2	EVENT NO. (hb, lb)	Yes	Yes	-	-	-	-
3	Reserved	Yes	Yes	-	-	-	-

EVENT NO.

Length: 2 bytes

Range: 0…1999

Description: The number allocated to an event by a panel.

5.3.1.54 Status Request (53, 35h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	53	-	-	181	181	-	-

This message is a request to initialise a repeater/controller. The panel will answer with the most recent highest priority event (message 28) and where network I/O is used with the output status of the network outputs that are relevant (message 56).

5.3.1.55 Status (54, 36h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	54	54	54	182	182	54	54
1,2	NO EVENT COUNT (hb, lb)	Yes	Yes	-	-	Yes	Yes
3,4	ALARM COUNT (hb, lb)	Yes	Yes	-	-	Yes	Yes
5,6	FAULT COUNT (hb, lb)	Yes	Yes	-	-	Yes	Yes
7,8	CONDITION COUNT (hb, lb)	Yes	Yes	-	-	Yes	Yes
9,10	COINCIDENCE COUNT (hb, lb)	Yes	Yes	-	-	Yes	Yes
11,12	ISOLATED COUNT (hb, lb)	Yes	Yes	-	-	Yes	Yes
13,14	DETECTOR COUNT (hb, lb)	Yes	-	-	-	Yes	-
15...46	LED STATUS	Yes	-	-	-	Yes	-

NO EVENT COUNT (see message 28)

ALARM COUNT (see message 28)

FAULT COUNT (see message 28)

CONDITION COUNT (see message 28)

COINCIDENCE COUNT (see message 28)

ISOLATED COUNT (see message 28)

DETECTOR COUNT (see message 28)

LED STATUS (see message 28)

5.3.1.56 Summer Time (55, 37h)

When there is different time base for winter and summer, the time must be “advanced” when entering the summer time. The start of the summer time is specified with the MONTH and DAY “on” parameters and the end of summer time with the MONTH and DAY “off” parameters. The amount of time that the clock must be advanced is specified with the TIME ADVANCE parameter. The time change occurs at 3:00.

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	55	55	55	182	182	55	55
1	MONTH (on)	Yes	Yes	-	-	Yes	Yes
2	DAY (on)	Yes	Yes	-	-	Yes	Yes
3	MONTH (off)	Yes	Yes	-	-	Yes	Yes
4	DAY (off)	Yes	Yes	-	-	Yes	Yes
5	TIME ADVANCE	Yes	Yes	-	-	Yes	Yes

MONTH (on, off)

Length: Byte

Range: 1...12

Description: The month to switch the time to or from summer time.

Day (on, off)

Length: Byte

Range: 1...28, 29, 30, 31

Description: The day to switch the time to or from summer time.

TIME ADVANCE

Length: Byte

Range: 0...1

Description: The amount of time that the FP2000 Panel’s clock must be advanced, in hours, when the time base change from winter to summer time.

5.3.1.57 Volatile Output Block Data (56, 38h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	56	56	56	184	184	56	56
1	INDEX	Yes	Yes	Yes	Yes	Yes	Yes
2	OUTPUT SELECT	Yes	Yes	Yes	Yes	Yes	Yes
3...102	OUTPUT BLOCK DATA	Yes	Yes	-	-	Yes	Yes
103	STATUS	-	-	-	-	Yes	Yes

INDEX

Length: Byte

Range: 0...9

Description: The output block index specifying the output range.

INDEX	FP2000	FP780
0	Outputs 0...99, (Output 0 invalid)	Outputs 0...99, (Output 0 invalid)
1	Outputs 100...199	Outputs 100...199
2	Outputs 200...299	Outputs 200...299
3	Outputs 300...399	Outputs 300...399
4	Outputs 400...499	Outputs 400...499
5	Outputs 500...599	Outputs 500...599
6	Outputs 600...699	Outputs 600...699
7	Outputs 700...799	Outputs 700...799
8	Outputs 800...899	Outputs 800...899
9	Outputs 900...999	Outputs 900...999

OUTPUT SELECT

Length: Byte

Range: 0

Description: The output data selection of the specified outputs.

OUTPUT SELECT	FP2000	FP780
0	Outputs status	Outputs status

OUTPUT BLOCK DATA

Length: 100 bytes

Description: The specified data (see OUTPUT SELECT) for each output of the specified range (see INDEX).

Bits	FP2000	FP780
0	0: Outputs false	0: Outputs false
	1: Output true	1: Output true
1…7	-	-

STATUS

Length: Byte

Range: 0...255

Description: Set to 0 if all outputs are false, set to 255 if one or several outputs are true.

5.3.1.58 Volatile Input Block Data (57, 39h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	57	57	57	185	185	57	57
1	INDEX	Yes	Yes	Yes	Yes	Yes	Yes
2	INPUT SELECT	Yes	Yes	Yes	Yes	Yes	Yes
3...102	INPUT BLOCK DATA	Yes	Yes	-	-	Yes	Yes
103	STATUS	-	-	-	-	Yes	Yes

INDEX

Length: Byte

Range: 0...9

Description: The input block index specifying the input range.

INDEX	FP2000	FP780
0	Inputs 0...99, (Input 0 invalid)	Inputs 0...99, (Input 0 invalid)
1	Inputs 100...199	Inputs 100...199
2	Inputs 200...299	Inputs 200...299
3	Inputs 300...399	Inputs 300...399
4	Inputs 400...499	Inputs 400...499
5	Inputs 500...599	Inputs 500...599
6	Inputs 600...699	Inputs 600...699
7	Inputs 700...799	Inputs 700...799
8	Inputs 800...899	Inputs 800...899
9	Inputs 900...999	Inputs 900...999

INPUT SELECT

Length: Byte

Range: 0

Description: The input data selection.

INPUT SELECT	FP2000	FP780
0	Inputs status	Inputs status

INPUT BLOCK DATA

Length: 100 bytes

Description: The specified data (see INPUT SELECT) for each input of the specified range (see INDEX).

Bits	FP2000	FP780
0	0: Inputs false	0: Inputs false
	1: Input true	1: Input true
1…7	-	-

STATUS

Length: Byte

Range: 0...255

Description: Set to 0 if all inputs are false, set to 255 if one or several inputs are true.

5.3.1.59 Zone LED Status (58, 3Ah)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	58	58	-	186	-	58	-
1	BLOCK	Yes	-	Yes	-	Yes	-
2…133	LED STATUS DATA	Yes	-	-	-	Yes	-

BLOCK

Length: Byte

Range: 0...2

Description: The zone block options are (the index defaults to 30, see message 41):

BLOCK	FP2000	FP780
0	Zones 1…112	Zones 1…99
1	Zones 100…199	Zones 100…199
2	Zones 200…255	Zones 200…255

LED STATUS (0...15)

Length: Byte

Range: 0...2

Description: The status of two LED's are stored in one byte; in the lower nibble the status of LED "n" (zone fire) and in the higher nibble the status of LED "n + 16" (zone fault) (0 <= n <= 15), that is a total of 32 LED's per message.

Nibble (h, l)	FP2000	FP780
0	Off	Off
1	On	On
2	Blinking	Blinking

5.3.1.60 Modem Alarm (59, 3Bh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	59	59	59	187	187	59	59
1	MODEM FIRE	Yes	Yes	-	-	Yes	Yes
2	MODEM FAULT	Yes	Yes	-	-	Yes	Yes
3	MODEM CONDITION	Yes	Yes	-	-	Yes	Yes
4	MODEM DISCONNECTION	Yes	Yes	-	-	Yes	Yes
5,6	MODEM FIRE DELAY (hb, lb)	Yes	Yes	-	-	Yes	Yes
7,8	MODEM FAULT DELAY (hb, lb)	Yes	Yes	-	-	Yes	Yes
9,10	MODEM CONDITION DELAY (hb, lb)	Yes	Yes	-	-	Yes	Yes
11	MODEM ALARM STATUS	Yes	Yes	-	-	Yes	Yes

MODEM FIRE

Length: Byte

Description: Enabling of fire reports via modem.

Bits	FP2000	FP780
0	0: Disable fire report on line 1	0: Disable fire report on line 1
	1: Enable fire report on line 1	1: Enable fire report on line 1
1	0: Disable fire report on line 2	0: Disable fire report on line 2
	1: Enable fire report on line 2	1: Enable fire report on line 2
2	0: Disable fire report on line 3	0: Disable fire report on line 3
	1: Enable fire report on line 3	1: Enable fire report on line 3
3	0: Disable fire report on line 4	0: Disable fire report on line 4
	1: Enable fire report on line 4	1: Enable fire report on line 4
4…7	-	-

MODEM FAULT

Length: Byte

Description: Enabling of fault reports via modem.

Bits	FP2000	FP780
0	0: Disable fault report on line 1	0: Disable fault report on line 1
	1: Enable fault report on line 1	1: Enable fault report on line 1
1	0: Disable fault report on line 2	0: Disable fault report on line 2
	1: Enable fault report on line 2	1: Enable fault report on line 2
2	0: Disable fault report on line 3	0: Disable fault report on line 3
	1: Enable fault report on line 3	1: Enable fault report on line 3
3	0: Disable fault report on line 4	0: Disable fault report on line 4
	1: Enable fault report on line 4	1: Enable fault report on line 4
4…7	-	-

MODEM CONDITION

Length: Byte

Description: Enabling of condition reports via modem.

Bits	FP2000	FP780
0	0: Disable condition report on line 1	0: Disable condition report on line 1
	1: Enable condition report on line 1	1: Enable condition report on line 1
1	0: Disable condition report on line 1	0: Disable condition report on line 1
	1: Enable condition report on line 1	1: Enable condition report on line 1
2	0: Disable condition report on line 1	0: Disable condition report on line 1
	1: Enable condition report on line 1	1: Enable condition report on line 1
3	0: Disable condition report on line 1	0: Disable condition report on line 1
	1: Enable condition report on line 1	1: Enable condition report on line 1
4…7	-	-

MODEM DISCONNECTION

Length: Byte

Description: The way to terminate the modem connection between a panel/global repeater and a remote station.

MODEM DISCONNECTION	FP2000	FP780
0	Disconnect locally after report	Disconnect locally after report
1	Disconnect remotely	Disconnect remotely

MODEM FIRE DELAY

Length: 2 bytes

Range: 0...600

Description: The time delay, in seconds, before reporting a fire via modem.

MODEM FAULT DELAY

Length: 2 bytes

Range: 0...600

Description: The time delay, in seconds, before reporting a fault via modem.

MODEM CONDITION DELAY

Length: 2 bytes

Range: 0...600

Description: The time delay, in seconds, before reporting a condition via modem.

MODEM ALARM STATUS

Length: Byte

Description: The alarm reporting status of the modem.

Bits	FP2000	FP780
0	Alarm reporting disabled	Alarm reporting disabled
	Alarm reporting enabled	Alarm reporting enabled
1	-	-
2	Line test disabled	Line test disabled
	Line Test enabled	Line Test enabled
3	Test call enabled	Test call enabled
	Test call enabled	Test call enabled

5.3.1.61 Modem Maintenance Alarm (60, 3Ch)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	60	60	60	188	188	60	60
1	MAINTENANCE STATUS	Yes	Yes	-	-	Yes	Yes

MAINTENANCE STATUS

Length: Byte

Range: 0...1

Description: The status of remote maintenance via modem.

Bits	FP2000	FP780
0	0: Disable maintenance	0: Disable maintenance
	1: Enable maintenance	1: Enable maintenance
1	0: Disable dial-back	0: Disable dial-back
	1: Enable dial-back	1: Enable dial-back

5.3.1.62 Modem Set up (61, 3Dh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	61	61	61	189	189	61	61
1,2	WAIT (hb, lb)	Yes	Yes	-	-	Yes	Yes
3,4	PAUSE (hb, lb)	Yes	Yes	-	-	Yes	Yes
5	DIALLING ATTEMPTS						

WAIT

Length: 2 bytes

Range: 0…600

Description: The time, in seconds, allowed for the modem to make a connection.

PAUSE

Length: 2 Bytes

Range: 0...600

Description: The time, in seconds, the modem must pause between calls.

DIALLING ATTEMPTS

Length: Byte

Range: 0...99

Description: The amount of dialling attempts for a modem to make a connection.

5.3.1.63 Modem String (62, 3Eh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	62	62	62	190	190	62	62
1	MODEM STRING NO.	Yes	Yes	-	-	Yes	Yes
2...36	MODEM STRING	Yes	Yes	-	-	Yes	Yes

MODEM STRING NO.

Length: Byte

Range: 1...12

Description: A number that indicates the purpose of the particular modem string (MODEM STRING parameter). The following is a list of the different modem string definitions and the numbers allocated to them:

MODEM STRING NO.	FP2000	FP780
1	Modem alarm telephone number 1	Modem alarm telephone number 1
2	Modem alarm telephone number 2	Modem alarm telephone number 2
3	Modem alarm telephone number 3	Modem alarm telephone number 3
4	Modem alarm telephone number 4	Modem alarm telephone number 4
5	Modem initialisation command 1	Modem initialisation command 1
6	Modem initialisation command 2	Modem initialisation command 2
7	Modem dialling command	Modem dialling command
8	Modem escape command	Modem escape command
9	Modem hang-up command	Modem hang-up command
10	Modem test command	Modem test command
11	-	-
12	Modem identification string	Modem identification string

MODEM STRING

Length: MODEM STRING NO: 1...4: 22 Bytes

5…12: 33 Bytes

Where: Byte 0: Length (0...n, n<=Length)

Bytes 1...n: Data

Description: Modem AT-command string.

5.3.1.64 Not Used (63, 3Fh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
-	-	-	-	-	-	-	-

5.3.1.65 Not Used (64, 40h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
-	-	-	-	-	-	-	-

5.3.1.66 Non-volatile Alarm State Count (65, 41h)

An alarm count for the fire brigade that counts how many times the panel enters an alarm state.

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	65	-	-	193	193	65	65
1,2	ALARM STATE COUNT (hb, lb)	-	-	-	-	Yes	Yes

ALARM STATE COUNT

Length: Word

Range: 0...65535 (FFFFh)

Description: Counts alarm states.

5.3.1.67 Modem ID (66, 42h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	66	66	66	194	194	66	66
1…35	MODEM ID	Yes	Yes	-	-	Yes	Yes

String for modem identification. (Same as message 62, string 12)

MODEM ID

Length: 1...35 Bytes

Where: Byte 0: Length (0...n, n<35)

Bytes 1...n: Data

Description: A string that identifies the modem.

5.3.1.68 Dial Back Command (67, 43h)

Sets the dial-back telephone number the panel has to dial after the current modem session.

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	67	66	66	194	194	66	66
1...23	DIAL-BACK NO.	Yes	Yes	-	-	Yes	Yes
24...26	Reserved						

DIAL-BACK NO.

Length: 1...23 Bytes

Where: Byte 0: Length (0...n, n<22)

Bytes 1...n: Data

Description: A string that defines the telephone number.

5.3.1.69 Event Request (68, 44h)

This command is used only by the fire panel to request events. It is identical to the Status Event Data (28) command.

5.3.1.70 Download Mode (69, 45h)

Sets the panel into download mode if the service switch is open. Download mode disables alarm/fault reporting from the FEP.

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	69	69	-	-	-	-	-

5.3.1.71 Node Data (70, 46h)

Defines additional information for network nodes.

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	70	70	-	198	-	70	-
1	NODE TYPE	Yes	-	_	_	Yes	-
2	NODE	Yes	-	_	_	Yes	-
3	NODE START ZONE	Yes	-	_	_	Yes	-
4	NODE END ZONE	Yes	-	_	_	Yes	-

NODE TYPE

Length: Byte

Range: 0...2

Description: Describes the functionality of the node:

NODE TYPE	FP2000	FP780
0	Panel	-
1	Repeater (N/A)	-
2	Global Repeater (N/A)	**-**

NODE

Length: Byte

Range: 1...31

Description: Defines panel or repeater number.

NODE START ZONE

Length: Byte

Range: 0...255

Description: Start zone of defined panel or repeater.

NODE END ZONE

Length: Byte

Range: 0...255, >= NODE START ZONE

Description: End zone of defined panel or repeater.

5.3.1.72 Not used (71, 47h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
-	-	-	-	-	-	-	-

5.3.1.73 Network Printer (72, 48h)

Reserves and releases a network Printer. Prints a string of data on the network printer.

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	72	72	-	-	-	72	-
1	PRINT COMMAND	Yes	-	-	-	Yes	-
2...42	PRINT DATA	Yes	-	-	-	Yes	-

PRINT COMMAND

Length: Byte

Range: 0...2

Description: Printing command:

PRINT COMMAND	FP2000	FP780
0	Release Printer	-
1	Reserve Printer	-
2	Print Data	**-**

PRINT DATA

Length: 1...41 Bytes

Where: Byte 0: Length (0...n)

Bytes 1...n: String (if n > 0)

PRINT COMMAND	FP2000	FP780
0	n = 0	-
1	n = 0	-
2	n = 0…40	-

Description: String to be printed

5.3.1.74 Network Data Exchange (73, 49h)

Reserves and releases a network Printer. Prints a string of data on the network printer.

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	73	73	-	-	-	-	-
1...129	NETWORK EXCHANGE DATA	Yes	-	-	-	-	-

NETWORK EXCHANGE DATA

Length: 1...129 Bytes

Where: Byte 0: Length (0…n, n <= 128)

Bytes 1…n String (if n > 0)

Description: String to be exchanged

5.3.1.75 LON Data (74, 4ah)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	74	74	74	202	202	74	74
1	LON NR	Yes	Yes	Yes	Yes	Yes	Yes
2	LON STATUS	Yes	Yes	-	-	Yes	Yes
3	LON TYPE	Yes	Yes	-	-	Yes	Yes
4	LON ENCLOSURE	Yes	-	-	-	Yes	-
5	LON BUCKET	Yes	-	-	-	Yes	-
6	LON SLOT	Yes	-	-	-	Yes	-
7	LON VERSION MSB	Yes	Yes	-	-	Yes	Yes
8	LON VERSION LSB	Yes	Yes	-	-	Yes	Yes
9	LON NODE ID	Yes	Yes	-	-	Yes	Yes
10…15	LON NEURON ID	Yes	Yes	-	-	Yes	Yes
16	LON OEM	Yes	Yes	-	-	Yes	Yes
17	LON PC	Yes	Yes	-	-	Yes	Yes
18	LON CFG	-	Yes	-	-	-	Yes
19	LON PRODUCT	-	Yes	-	-	-	Yes
20	LON HDW	Yes	Yes	-	-	Yes	Yes
21	LON CONFIG	Yes	Yes	-	-	Yes	Yes
22	LON DEVICE MODE	Yes	Yes	-	-	Yes	Yes
23	LON DEVICE COMMON	Yes	Yes	-	-	Yes	Yes
24	LON DEVICE PAR 1	Yes	Yes	-	-	Yes	Yes
25	LON DEVICE PAR 2	Yes	Yes	-	-	Yes	Yes
26	LON DEVICE PAR 3	Yes	Yes	-	-	Yes	Yes
27	LON DEVICE PAR 4	Yes	Yes	-	-	Yes	Yes
28	LON DEVICE PAR 5	Yes	Yes	-	-	Yes	Yes
29	LON DEVICE PAR 6	Yes	Yes	-	-	Yes	Yes
30	LON DEVICE PAR 7	Yes	Yes	-	-	Yes	Yes
31	LON DEVICE PAR 8	Yes	Yes	-	-	Yes	Yes
32	LON DEVICE PAR 9	Yes	Yes	-	-	Yes	Yes
33	LON DEVICE OUT 1	Yes	Yes	-	-	Yes	Yes
34	LON DEVICE OUT 2	Yes	Yes	-	-	Yes	Yes
35	LON DEVICE OUT 3	Yes	Yes	-	-	Yes	Yes
36	LON DEVICE OUT 4	Yes	Yes	-	-	Yes	Yes
37	LON DEVICE OUT 5	Yes	Yes	-	-	Yes	Yes
38	LON DEVICE PAR 10	Yes	Yes	-	-	Yes	Yes
39	LON DEVICE PAR 11	Yes	Yes	-	-	Yes	Yes
40	LON DEVICE PAR 12	Yes	Yes	-	-	Yes	Yes
41	LON DEVICE PAR 13	Yes	Yes	-	-	Yes	Yes
42	LON INPUT MASK 1	-	Yes	-	-	-	Yes
43	LON INPUT MASK 2	-	Yes	-	-	-	Yes
44	LON INPUT MASK 3	-	Yes	-	-	-	Yes

45	LON OUTPUT MASK 1	-	Yes	-	-	-	Yes
46	LON OUTPUT MASK 2	-	Yes	-	-	-	Yes

Pos.	Message Data	Control		Request		Response	
47	LON OUTPUT MASK 3	-	Yes	-	-	-	Yes
48…69	LON TEXT	-	Yes	-	-	-	Yes

LON NR

Length: Byte

Range: FP2000: 1...32

FP780: 1...64

Description: Defines LON module.

LON STATUS

Length: Byte

Description: Defines LON status.

Bit 0: enable / disable

Bit 1…7: not used

LON TYPE LSB

Length: Byte

Range: 0...19

Description: Defines LON module type.

LON TYPE LSB		FP2000	FP780
0	-	-	-
1	FC700	Used	Used
2	FCD700	Used	Used
3	SD700	Used	Used
4	ZI708	Used	Used
5	PS700	Used	Used
6	SIB716	Used	Used
7	OCB724	Used	Used
8	SOB708	Used	Used
9	FM740	Used	Used
10	FBP700	Used	Used
11	-	-	-
12	-	-	-
13	RB708	Used	Used
14	-	-	-
15	VDS700	-	Used
16	-	-	-
17	ZI708N	Used	Used
18	NC771	Used	Used
19	-	-	-

LON TYPE

Length: Byte

Range: 0

Description: Defines LON module type (FP2000 only, not used in FP780).

LON ENCLOSURE

Length: Byte

Range: 0...99

Description: Defines enclosure number (FP2000 only, not used in FP780).

LON BUCKET

Length: Byte

Range: 0...99

Description: Defines bucket number in the enclosure (FP2000 only, not used in FP780).

LON SLOT

Length: Byte

Range: 0...12

Description: Defines slot number in the bucket (FP2000 only, not used in FP780).

LON VERSION MSB

Length: Byte

Range: 0...99

Description: Mayor Version.

LON VERSION LSB

Length: Byte

Range: 0...99

Description: Minor version.

LON NODE ID

Length: Byte

Range: 1...127

Description: Node identification assigned to the module.

LON NEURON ID

Length: 6 Bytes

Range: 0...255

Description: Module specific neuron identification.

LON OEM

Length: Byte

Range: 0...3 (see tables below)

Description: OEM code.

LON PC

Length: Byte

Range: 0...4 (see tables below)

Description: Product code.

LON HDW

Length: Byte

Range: 0...1 (see tables below)

Description: Hardware revision of LON module.

The following tables describe the relation between the LON TYPE, LON PC and LON OEM:

Generic

Module	Module Code	LON TYPE	LON HDW	LON OEM	LON PC
FC700	FC700	1	0	0	0
FCD700	FCD700	2			
SD700	SD700	3			
ZI708	ZI708	4			
PS700	PS700	5			
SIB716	SIB716	6			
OCB724	OCB724	7			
SOB708	SOB708	8			
FM740	FM740	9			
FBP700	FBP700	10			
RB708	RB708	13			
VDS700	VDS700	15			
ZI708N	ZI708N	17			
NC771	NC771	18			

Aritech

Module	Module Code	LON TYPE	LON HDW	LON OEM	LON PC
FC700	FC700S	1	0	1	1
	LON2000				2
	FC700L		1		1
	FC780		2		1
	FC780RTC		3		1
FCD700	FCD700	2	0		1
	FCD700R				2
SD700	SD700	3			1
ZI708	ZI708	4			1
PS700	PS700	5			1
SIB716	SIB716	6			1
OCB724	OCB724	7			1
SOB708	SOB708	8			1
FM740	FM740	9			1
FBP700	FBP70001	10			1
	FBP7000X				2
	FRL700				3
	FRD7000X				4
RB708	RB708	13			1
VDS700	VDS700	15			1
ZI708N	ZI708N	17			1
NC771	NC771-2	18			1
	NC771-4				2
	LON2000R-2				3
	LON2000R-4				4

FALCK

Module	Module Code	LON TYPE	LON HDW	LON OEM	LON PC
FC700	FC700S77	1	0	2	1
FBP700	FBP700S77	10			2
	FRD700S77				3

ELOTEC

Module	Module Code	LON TYPE	LON HDW	LON OEM	LON PC
FEP700	FBP LE-S	10	0	3	2
	FRD LE-X				3

LON PRODUCT

Length: Byte

Range: FP2000: 0

FP780: FCD700: 0…88

All other modules: 0

Description: Specifies the FCD configuration. (See table below and table “Repeater Configurations” below)

LON CFG

Length: Byte

Range: FP2000: 0

FP780: 0…13

Description: Front module group. (See table below and table “Repeater Configurations” below)

LON CFG		FP2000	FP780
0	-	-	Used
1	FP700	-	Used
2	RP700	-	Used
3	FR7000LED	-	Used
4	RP7000LED	-	Used
5	FEP700	-	Used
6	REP700	-	Used
7	EP700	-	Used
8	FP700VDS	-	Used
9	FR700LED	-	Used
10	FR700	-	Used
11	FER700	-	Used
12	ER700	-	Used
13	FR700VDS	-	Used

LON CONFIG

Length: Byte

Range: FP2000: 0…13

FP780:

NC771

Bit		FP2000	FP780
0	0: Channel A as bus	Used	Used
	1: Channel A as ring	Used	Used
1	0: Channel B as bus	Used	Used
	1: Channel B as ring	Used	Used
2	0: not configured	Used	Used
	1: configured	Used	Used
3…7	-	-	-

FCD700

FP780: 0...44

FeP780: 0...52

FP780VDS: 0...44

EP780: 0...52

Description: FP2000: Indicates the repeater module type. (See table “Repeater Configurations” below)

FP780: NC771: Describes the mode of operation of the bus.

FCD700: Index of the possible combinations of front panels for a product type.

(See table “Repeater Configurations” below)

Repeater Configurations

LON PRODUCT		LON CFG	LON CONFIG					Slot							
			FP-780	FEP-780	FP-780 VdS	EP-780	FP-2000	1	2	3	4	5	6	7	8
0	Invalid FCD	0	-	-	-	-	-	-	-	-	-	-	-	-	-
1	FP700	1	1	-	-	-	-	1	2	3					
2	FP708	1	2	-	-	-	-	1	2	3	4				
3	FP716	1	3	-	-	-	-	1	2	3	4	4			
4	FP724	1	4	-	-	-	-	1	2	3	4	4	4		
5	FP732	1	5	-	-	-	-	1	2	3	4	4	4	4	
6	FP740	1	6	-	-	-	-	1	2	3	4	4	4	4	4
7	FR700	10	7	-	-	-	-	1	2	3					
8	FR708	10	8	-	-	-	0	1	2	3	4				
9	FR716	10	9	-	-	-	-	1	2	3	4	4			
10	FR724	10	10	-	-	-	-	1	2	3	4	4	4		
11	FR732	10	11	-	-	-	-	1	2	3	4	4	4	4	
12	FR740	10	12	-	-	-	1	1	2	3	4	4	4	4	4
13	RP708	2	13	13	13	13	-	4							
14	RP716	2	14	14	14	14	-	4	4						
15	RP724	2	15	15	15	15	4	4	4	4					
16	RP732	2	16	16	16	16	2	4	4	4	4				
17	RP740	2	17	17	17	17	-	4	4	4	4	4			
18	RP748	2	18	18	18	18	-	4	4	4	4	4	4		
19	RP756	2	19	19	19	19	-	4	4	4	4	4	4	4	
20	RP764	2	20	20	20	20	3	4	4	4	4	4	4	4	4
21	FR7000LED	3	21	21	21	21	-	5							
22	FR7024LED	3	22	22	22	22	-	5	10						
23	FR7048LED	3	23	23	23	23	7	5	10	10					
24	FR7072LED	3	24	24	24	24	12	5	10	10	10				
25	FR7096LED	3	25	25	25	25	-	5	10	10	10	10			
26	FR7120LED	3	26	26	26	26	-	5	10	10	10	10	10		
27	FR7144LED	3	27	27	27	27	-	5	10	10	10	10	10	10	
28	FR7168LED	3	28	28	28	28	13	5	10	10	10	10	10	10	10
29	RP7024LED	4	29	29	29	29	-	10							
30	RP7048LED	4	30	30	30	30	-	10	10						
31	RP7072LED	4	31	31	31	31	5	10	10	10					
32	RP7096LED	4	32	32	32	32	8	10	10	10	10				
33	RP7120LED	4	33	33	33	33	-	10	10	10	10	10			
34	RP7144LED	4	34	34	34	34	-	10	10	10	10	10	10		
35	RP7168LED	4	35	35	35	35	-	10	10	10	10	10	10	10	
36	RP7192LED	4	36	36	36	36	9	10	10	10	10	10	10	10	10

Product		LON CFG	LON CONFIG					Slot							
			FP 780	FEP 780	FP-780 VdS	EP-780	FP-2000	1	2	3	4	5	6	7	8
37	FEP700	5	-	1	-	-	-	1	2	7					
38	FEP708	5	-	2	-	-	-	1	2	7	6				
39	FEP716	5	-	3	-	-	-	1	2	7	6	6			
40	FEP724	5	-	4	-	-	-	1	2	7	6	6	6		
41	FEP732	5	-	5	-	-	-	1	2	7	6	6	6	6	
42	FEP740	5	-	6	-	-	-	1	2	7	6	6	6	6	6
43	FER700	11	-	7	-	-	-	1	2	7					
44	FER708	11	-	8	-	-	-	1	2	7	6				
45	FER716	11	-	9	-	-	-	1	2	7	6	6			
46	FER724	11	-	10	-	-	-	1	2	7	6	6	6		
47	FER732	11	-	11	-	-	-	1	2	7	6	6	6	6	
48	FER740	11	-	12	-	-	-	1	2	7	6	6	6	6	6
49	REP708	6	-	45	-	45	-	6							
50	REP716	6	-	46	-	46	-	6	6						
51	REP724	6	-	47	-	47	-	6	6	6					
52	REP732	6	-	48	-	48	-	6	6	6	6				
53	REP740	6	-	49	-	49	-	6	6	6	6	6			
54	REP748	6	-	50	-	50	-	6	6	6	6	6	6		
55	REP756	6	-	51	-	51	-	6	6	6	6	6	6	6	
56	REP764	6	-	52	-	52	-	6	6	6	6	6	6	6	6
57	EP700	7	-	-	-	1	-								
58	EP708	7	-	-	-	2	-								
59	EP716	7	-	-	-	3	-								
60	EP724	7	-	-	-	4	-								
61	EP732	7	-	-	-	5	-								
62	EP740	7	-	-	-	6	-								
63	ER700	12	-	-	-	7	-								
64	ER708	12	-	-	-	8	-								
65	ER716	12	-	-	-	9	-								
66	ER724	12	-	-	-	10	-								
67	ER732	12	-	-	-	11	-								
68	ER740	12	-	-	-	12	-								
69	FP780VDS	8	-	-	1	-	-	9	2	8					
70	FP708VDS	8	-	-	2	-	-	9	2	8	4				
71	FP716VDS	8	-	-	3	-	-	9	2	8	4	4			
72	FP724VDS	8	-	-	4	-	-	9	2	8	4	4	4		
73	FP732VDS	8	-	-	5	-	-	9	2	8	4	4	4	4	
74	FP740VDS	8	-	-	6	-	-	9	2	8	4	4	4	4	4

Product		LON CONFIG	FP 780	FEP 780	FP-780 VdS	EP-780	FP-2000	Slot 1	2	3	4	5	6	7	8
Product		**LON CFG**	**LON CONFIG**					**Slot**							
			FP 780	**FEP 780**	**FP-780 VdS**	**EP-780**	**FP-2000**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
75	FR700VDS	13	-	-	7	-	-	9	2	8					
76	FR708VDS	13	-	-	8	-	-	9	2	8	4				
77	FR716VDS	13	-	-	9	-	-	9	2	8	4	4			
78	FR724VDS	13	-	-	10	-	-	9	2	8	4	4	4		
79	FR732VDS	13	-	-	11	-	-	9	2	8	4	4	4	4	
80	FR740VDS	13	-	-	12	-	-	9	2	8	4	4	4	4	4
81	FR700LED	9	37	37	37	37	-	5							
82	FR708LED	9	38	38	38	38	-	5	4						
83	FR716LED	9	39	39	39	39	6	5	4	4					
84	FR724LED	9	40	40	40	40	10	5	4	4	4				
85	FR732LED	9	41	41	41	41	-	5	4	4	4	4			
86	FR740LED	9	42	42	42	42	-	5	4	4	4	4	4		
87	FR748LED	9	43	43	43	43	-	5	4	4	4	4	4	4	
88	FR756LED	9	44	44	44	44	11	5	4	4	4	4	4	4	4

Where the value in the field **Slot** indicates the front sub-module type:

0	-
1	GI700
2	CIC700 or CI700
3	CB700
4	ZE708
5	CI700LED
6	GE708
7	CB700FEP
8	CB700VDS
9	GI700VDS
10	ZE724

LON DEVICE MODE

Length: Byte

Range: 0...3

Description: A byte that indicates the mode of the LON device.

See also the descriptions of the LON DEVICE PAR and LON DEVICE OUT parameters.

LON DEVICE MODE	FP2000	FP780
0	Input / Output	Input / Output
1	Zone repeater	Zone repeater
2	Device repeater	Area repeater
3	Input / Output	None

FP2000:

Module	Outputs				Inputs		Text Repeater	Common Indication
	Outputs	Zone Repeater	Device Repeater	Area Repeater	Inputs	Zones		
SD700	Yes	-	-	-	Yes	-	-	-
VDS700	Yes	-	-	-	Yes	-	-	-
SOB708	Yes	Yes	Yes	Yes	-	-	-	-
OCB724	Yes	Yes	Yes	Yes	-	-	-	-
RB708	Yes	Yes	Yes	Yes	-	-	-	-
ZI708	-	-	-	-	Yes	Yes	-	-
ZI708N	-	-	-	-	Yes	Yes	-	-
SIB716	-	-	-	-	Yes	-	-	-
FM740	Yes	Yes	Yes	Yes	Yes	-	-	Yes
FBP700	-	-	-	-	-	-	Yes	Yes
FRL700	-	-	-	-	-	-	Yes	Yes
FRD700	-	-	-	-	-	-	Yes	Yes
FP780	-	Yes	-	-	-	-	-	Yes
FR700	-	Yes	-	-	-	-	-	Yes
FEP700	-	Yes	-	-	-	-	-	Yes
FER700	-	Yes	-	-	-	-	-	Yes
EP700	-	Yes	-	-	-	-	-	Yes
ER700	-	Yes	-	-	-	-	-	Yes
FP780VDS	-	Yes	-	-	-	-	-	Yes
FR700VDS	-	Yes	-	-	-	-	-	Yes
FR700LED	-	Yes	-	-	-	-	-	Yes
FR7000LED	-	Yes	-	-	-	-	-	Yes
RP700LED	-	Yes	Yes	Yes	-	-	-	-
RP7000LED	-	Yes	Yes	Yes	-	-	-	-
REP700	-	Yes	-	-	-	-	-	-

FP780:

Module	I/O	Zone repeater	Area repeater	None
FC700	-	-	-	Default
FCD700	-	Default	-	-
SD700	Default	Yes	Yes	-
ZI708	Yes	Default	-	-
PS700	-	-	-	Default
SIB716	Default	-	-	-
OCB724	Default	Yes	Yes	-
SOB708	Default	Yes	Yes	-
FM740	Yes	Default	Yes	-
FBP700	-	Default	-	-
RB708	Default	Yes	Yes	-
VDS700	Default	-	-	-
ZI708N	Yes	Default	-	-
NC771	-	-	-	Default

LON DEVICE COMMON

Length: Byte

Range: 0...1

Description: Enables or disables the common input and outputs where applicable. For LED repeaters it enables the indication of fire/fault information outside the selected zone range.

Bit	Functionality		FP2000	FP780
0	Common I/O	0: disabled	Used	Used
		1: enabled	Used	Used
1	-	-	-	-
2	Fire buzzer	0: disabled	-	Used
		1: enabled	-	Used
3	Fault buzzer	0: disabled	-	Used
		1: enabled	-	Used
4	Condition buzzer	0: disabled	-	Used
		1: enabled	-	Used
5	-		-	-
6	-		-	-
7	-		-	-

Default setting:

Module	Product		FP2000	FP780
FCD700	1	FP700 … FP740	Disabled	Enabled
	2	RP708LED … RP764LED		Disabled
	3	FR7000LED … RP7169LED		Enabled
	4	RP7024LED … RP7192LED		Disabled
	5	FEP700 … FEP740		Enabled
	6	REP708 … REP740		Disabled
	7	EP700 … EP740		Enabled
	8	FP700VDS … FP740VDS		Enabled
	9	FR700LED … FR756LED		Enabled
	10	FR700 … FR740		Enabled
	11	FER700 … FER740		Enabled
	12	ER700 … ER732		Enabled
	13	FR700VDS … FR740VDS		Enabled
FRL700, FBP700, FRD700	-		Disabled	Enabled
FM740	-		Enabled	Enabled

LON DEVICE PAR (1...13)

Length: Byte

Description: Configuration parameters for the LON device. The meaning of the parameters is dependent on the LON DEVICE MODE.

The following table describes the relation between the LON DEVICE MODE and it's configuration parameters:

	Zone repeater or Zone input	**Device Repeater (FP2000 only)**	**Input / Output**	**Area Repeater**
LON DEVICE PAR 1	ZONE START	1st start address LOOP	0	AREA START
LON DEVICE PAR 2	ZONES	1st start address SENSOR	0	AREAS
LON DEVICE PAR 3	ZONE OPERATING MODE	1st number of SENSORS	0	0
LON DEVICE PAR 4	0	2nd start address LOOP	0	0
LON DEVICE PAR 5	0	2nd start address SENSOR	0	0
LON DEVICE PAR 6	0	2nd number of SENSORS	0	0
LON DEVICE PAR 7	0	3rd start address LOOP	0	0
LON DEVICE PAR 8	0	3rd start address SENSOR	0	0
LON DEVICE PAR 9	0	3rd number of SENSORS	0	0
LON DEVICE PAR 10	Start of I/O	Start of I/O	0	Start of I/O
LON DEVICE PAR 11	0	1st PANEL ID (See message 14)	0	0
LON DEVICE PAR 12	0	2nd PANEL ID (See message 14)	0	0
LON DEVICE PAR 13	0	3rd PANEL ID (See message 14)	0	0

The following FP780 modules are supported:

LON TYPE	Common I/O enabled		Common I/O disabled	
	LON INPUTS	LON OUTPUTS	LON INPUTS	LON OUTPUTS
FC700	-	-	-	-
FCD700	-	-	-	-
SD700	1…5: Sup. Prog	1-2: Non-Sup. Prog. 3-5: Sup. Prog.	1…5: Sup. Prog	1-2: Non-Sup. Prog. 3-5: Sup. Prog.
ZI708	1…X: Sup. Zone X+1…8: Sup. Prog	-	1…X: Sup. Zone X+1…8: Sup. Prog	
PS700	-	-	-	-
SIB716	1...16: Sup. Prog.	-	1...16: Sup. Prog.	-
OCB724	-	1…24: Sup. Prog	-	1…24: Sup. Prog
SOB708	-	1…8: Sup. Prog	-	1…8: Sup. Prog
FM740	1...5: Non-Sup. 1: Reset 2: Silence Buzzer 3: LED Test 4: Sounder Start/Stop 5: Key Switch	1…94: Non-Sup. 1…80: Prog. 81: Fire 82: Fault 83: Disable 84: Sounder 85: Comms. Fault 86: Prog. 87: Prog. 88: Running 89: Fault 90: Prog. 91: Prog. 92: Prog. 93: Prog. 94: Buzzer	1...5: Non-Sup. 1: Prog. 2: Prog. 3: Prog. 4: Prog. 5: Prog.	1…94: Non-Sup. 1…80: Prog. 81: Prog. 82: Fault 83: Prog. 84: Prog. 85: Prog. 86: Prog. 87: Prog. 88: Running 89: Fault 90: Prog. 91: Prog. 92: Prog. 93: Prog. 94: Buzzer
FBP700	-	-	-	-
RB708	-	1…8: Non-Sup. Prog.	-	1…8: Non-Sup. Prog.
VDS700	-	-	-	-
ZI708N	1…X: Sup. Zone X+1…8: Sup. Prog	-	1…X: Sup. Zone X+1…8: Sup. Prog	-
NC771	-	-	-	-

ZONE OPERATING MODE

Length: Byte

Range: FP2000: 0...255

FP780: 0

Description: A byte indicating the operating mode for 8 zones. Bit 0 relates to the 1st zone, bit 7 to the 8th zone. This byte is only valid for the FP2000.

Bits	FP2000	FP780
0	0: MCP mode	-
	1: Automatic mode	-
1…7	-	-

LON DEVICE OUT (1...5)

Length: Byte

Range: 1...128

Description: Parameters for mapping the LON device outputs onto the related Panel status (dependant on the LON DEVICE MODE). An output parameter determines the first LON device output assigned to the output parameter's specific status; for example the status of four zones will occupy the first 20 outputs of a zone repeater current loop device if:

OUT		Outputs	Zone	Allocation
OUT 1	1	1…4	1…4	Fire
OUT 2	5	5…8	1…4	Fault
OUT 3	9	9…12	1…4	Condition
OUT 4	13	13…16	1…4	Test
OUT 5	17	17…20	1…4	Isolated

Output parameters containing the same offset, the LON device will "or" the status values of those parameters.

The following table describes the relation between the LON DEVICE MODE and it's output configuration:

	Zone repeater	Device Repeater (FP2000 only)	Input / Output	Area repeater
LON DEVICE OUT 1	Fire	Fire	0	Fire
LON DEVICE OUT 2	Fault	Fault	0	Fault
LON DEVICE OUT 3	Condition	Condition	0	Condition
LON DEVICE OUT 4	Test	Test	0	Test
LON DEVICE OUT 5	Isolated	Isolated	0	Isolated

LON INPUT MASK (1...3)

Length: Byte

Range: 0…255

Description: Mask that enables/disables input fault reporting. If an input is masked the “open circuit” state is interpreted as “passive state” and the “short circuit state” as “active state”. Each bit masks an input. Bit0 of LON INPUT MASK 1 represents input 1.

Bit = 0: Input supervision enabled

Bit = 1: Input supervision disabled

LON TYPE	Maskable Inputs		
	Total	Start	Stop
SD700	5	1	5
ZI708	8	1	8
SIB716	16	1	16
VDS700	?	?	?
ZI708N	8	1	8

LON OUTPUT MASK (1...3)

Length: Byte

Range: 0…255

Description: Mask that enables/disables output fault reporting. If an output is masked the “open circuit” state is interpreted as “passive state” and the “short circuit state” as “active state”. Each bit masks an input. Bit0 of LON OUTPUT MASK 1 represents output 1.

Bit = 0: Output supervision enabled

Bit = 1: Output supervision disabled

LON TYPE	Maskable Outputs		
	Total	Start	Stop
SD700	3	3	5
OCB724	24	1	24
SOB708	8	1	8
VDS700	?	?	?

LON TEXT (FP780 only)

Length: FP780: 1...21 bytes

Where: Byte 0: Length of string (0...n, n<(Length-1))

Bytes 1...n: String (if n > 0)

ZONE START

Length: Byte

Range: 0, START ZONE … END ZONE (see command 6)

Description: Indicates the first zone.

ZONES

Length: Byte

Range: 0…END ZONE-START ZONE + 1 (see command 6)

Description: Number of zones. Has to be within zone range.

AREA START	(see command 6, AREAS)
AREAS	(see command 6, AREAS)
SENSOR	(see command 6, SENSORS)
SENSORS	(see command 6, SENSORS)

5.3.1.76 Loop Test Data (75, 4bh)

Test 0:

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	75	75	-	203	-	75	-
1	LOOP TEST	Yes	-	Yes	-	Yes	-
2	LOOP TEST PARAMETER	Yes	-	-	-	Yes	-
3	LOOP TEST DELAY	Yes	-	-	-	Yes	-
4-51	0	Yes	-	-	-	Yes	-

Tests 1...5:

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	75	75	-	203	-	75	-
1	LOOP TEST	Yes	-	Yes	-	Yes	-
2	LOOP TEST PARAMETER	Yes	-	-	-	Yes	-
3	LOOP TEST DELAY	Yes	-	-	-	Yes	-
4	LOOP (1)	-	-	-	-	Yes	-
5	SENSORS ON A SIDE (1)	-	-	-	-	Yes	
6	SENSORS ON B SIDE (1)	-	-	-	-	Yes	
7	SENSORS ON BOTH SIDES (1)	-	-	-	-	Yes	
8	OVERLOAD ON A SIDE (1)	-	-	-	-	Yes	
9	OVERLOAD ON B SIDE (1)	-	-	-	-	Yes	
10	LOOP (2)	-	-	-	-	Yes	
11	SENSORS ON A SIDE (2)	-	-	-	-	Yes	
12	SENSORS ON B SIDE (2)	-	-	-	-	Yes	
13	SENSORS ON BOTH SIDES (2)	-	-	-	-	Yes	
14	OVERLOAD ON A SIDE (2)	-	-	-	-	Yes	
15	OVERLOAD ON B SIDE (2)	-	-	-	-	Yes	
16	LOOP (3)	-	-	-	-	Yes	
17	SENSORS ON A SIDE (3)	-	-	-	-	Yes	
18	SENSORS ON B SIDE (3)	-	-	-	-	Yes	
19	SENSORS ON BOTH SIDES (3)	-	-	-	-	Yes	
20	OVERLOAD ON A SIDE (3)	-	-	-	-	Yes	
21	OVERLOAD ON B SIDE (3)	-	-	-	-	Yes	
22	LOOP (4)	-	-	-	-	Yes	
23	SENSORS ON A SIDE (4)	-	-	-	-	Yes	
24	SENSORS ON B SIDE (4)	-	-	-	-	Yes	
25	SENSORS ON BOTH SIDES (4)	-	-	-	-	Yes	
26	OVERLOAD ON A SIDE (4)	-	-	-	-	Yes	
27	OVERLOAD ON B SIDE (4)	-	-	-	-	Yes	
28	LOOP (5)	-	-	-	-	Yes	
29	SENSORS ON A SIDE (5)	-	-	-	-	Yes	
30	SENSORS ON B SIDE (5)	-	-	-	-	Yes	

31	SENSORS ON BOTH SIDES (5)	-	-	-	-	Yes	
32	OVERLOAD ON A SIDE (5)	-	-	-	-	Yes	

Tests 1...5 (continued):

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
33	OVERLOAD ON B SIDE (5)	-	-	-	-	Yes	
34	LOOP (6)	-	-	-	-	Yes	
35	SENSORS ON A SIDE (6)	-	-	-	-	Yes	
36	SENSORS ON B SIDE (6)	-	-	-	-	Yes	
37	SENSORS ON BOTH SIDES (6)	-	-	-	-	Yes	
38	OVERLOAD ON A SIDE (6)	-	-	-	-	Yes	
39	OVERLOAD ON B SIDE (6)	-	-	-	-	Yes	
40	LOOP (7)	-	-	-	-	Yes	
41	SENSORS ON A SIDE (7)	-	-	-	-	Yes	
42	SENSORS ON B SIDE (7)	-	-	-	-	Yes	
43	SENSORS ON BOTH SIDES (7)	-	-	-	-	Yes	
44	OVERLOAD ON A SIDE (7)	-	-	-	-	Yes	
45	OVERLOAD ON B SIDE (7)	-	-	-	-	Yes	
46	LOOP (8)	-	-	-	-	Yes	
47	SENSORS ON A SIDE (8)	-	-	-	-	Yes	
48	SENSORS ON B SIDE (8)	-	-	-	-	Yes	
48	SENSORS ON BOTH SIDES (8)	-	-	-	-	Yes	
50	OVERLOAD ON A SIDE (8)	-	-	-	-	Yes	
51	OVERLOAD ON B SIDE (8)	-	-	-	-	Yes	

Tests 6...8:

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	75	75	-	203	-	75	-
1	LOOP TEST	Yes	-	Yes	-	Yes	-
2	LOOP TEST PARAMETER	Yes	-	-	-	Yes	-
3	LOOP TEST DELAY	Yes	-	-	-	Yes	-
4	LOOP (1)	-	-	-	-	Yes	-
5	SENSOR VALUE (1)	-	-	-	-	Yes	
6	SENSOR FIELD TYPE (1)	-	-	-	-	Yes	
7	SENSOR (1)	-	-	-	-	Yes	
8	SENSOR ALARM STATE (1)	-	-	-	-	Yes	
9	SENSOR CHECKSUM (1)	-	-	-	-	Yes	
10	LOOP (2)	-	-	-	-	Yes	
11	SENSOR VALUE (2)	-	-	-	-	Yes	
12	SENSOR FIELD TYPE (2)	-	-	-	-	Yes	
13	SENSOR (2)	-	-	-	-	Yes	
14	SENSOR ALARM STATE (2)	-	-	-	-	Yes	
15	SENSOR CHECKSUM (2)	-	-	-	-	Yes	
16	LOOP (3)	-	-	-	-	Yes	
17	SENSOR VALUE (3)	-	-	-	-	Yes	
18	SENSOR FIELD TYPE (3)	-	-	-	-	Yes	
19	SENSOR (3)	-	-	-	-	Yes	
20	SENSOR ALARM STATE (3)	-	-	-	-	Yes	
21	SENSOR CHECKSUM (3)	-	-	-	-	Yes	
22	LOOP (4)	-	-	-	-	Yes	
23	SENSOR VALUE (4)	-	-	-	-	Yes	
24	SENSOR FIELD TYPE (4)	-	-	-	-	Yes	
25	SENSOR (4)	-	-	-	-	Yes	
26	SENSOR ALARM STATE (4)	-	-	-	-	Yes	
27	SENSOR CHECKSUM (4)	-	-	-	-	Yes	
28	LOOP (5)	-	-	-	-	Yes	
29	SENSOR VALUE (5)	-	-	-	-	Yes	
30	SENSOR FIELD TYPE (5)	-	-	-	-	Yes	
31	SENSOR (5)	-	-	-	-	Yes	
32	SENSOR ALARM STATE (5)	-	-	-	-	Yes	
33	SENSOR CHECKSUM (5)	-	-	-	-	Yes	
34	LOOP (6)	-	-	-	-	Yes	
35	SENSOR VALUE (6)	-	-	-	-	Yes	
36	SENSOR FIELD TYPE (6)	-	-	-	-	Yes	
37	SENSOR (6)	-	-	-	-	Yes	
38	SENSOR ALARM STATE (6)	-	-	-	-	Yes	
39	SENSOR CHECKSUM (6)	-	-	-	-	Yes	
40	LOOP (7)	-	-	-	-	Yes	

41	SENSOR VALUE (7)	-	-	-	-	Yes	

Tests 6...8 (continued):

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
42	SENSOR FIELD TYPE (7)	-	-	-	-	Yes	
43	SENSOR (7)	-	-	-	-	Yes	
44	SENSOR ALARM STATE (7)	-	-	-	-	Yes	
45	SENSOR CHECKSUM (7)	-	-	-	-	Yes	
46	LOOP (8)	-	-	-	-	Yes	
47	SENSOR VALUE (8)	-	-	-	-	Yes	
48	SENSOR FIELD TYPE (8)	-	-	-	-	Yes	
48	SENSOR (8)	-	-	-	-	Yes	
50	SENSOR ALARM STATE (8)	-	-	-	-	Yes	
51	SENSOR CHECKSUM (8)	-	-	-	-	Yes	

Test 9…11:

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	75	75	-	203	-	75	-
1	LOOP TEST	Yes	-	Yes	-	Yes	-
2	LOOP TEST PARAMETER	Yes	-	-	-	Yes	-
3	LOOP TEST DELAY	Yes	-	-	-	Yes	-
4-51	0	Yes	-	-	-	Yes	-

Test 0, 12…23:

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	75	75	-	203	-	75	-
1	PRODUCTION TEST		-	Yes	-	Yes	-
2	TEST PARAMETER 1		-	Yes	-	Yes	-
3	TEST PARAMETER 2		-	Yes	-	-	-
3	RESULT 1		-	-	-	Yes	-
4	RESULT 2			-		Yes	
4…128	TEXT			-		Yes	

LOOP TEST

Length: Byte

Range: 0...11

Description: Loop test:

LOOP TEST	FP2000	FP780
0	Exit loop text	-
1	General loop test	-
2	Overload	-
3	All sensors A side	-
4	All sensors B side	-
5	All sensors A+B side	-
6	Single sensors A side	-
7	Single sensors B side	-
8	Single sensors A+B side	-
9	Power A side	-
10	Power B side	-
11	Power A+B side	-

LOOP TEST PARAMETER

Length: Byte

Range: 0…255

Description: Additional test data depending on test.

LOOP TEST	FP2000	FP780
0	-	
1	-	
2	-	
3	-	
4	-	
5	-	
6	Sensor Address (see command 7)	
7	Sensor Address (see command 7)	
8	Sensor Address (see command 7)	
9	LOOP MASK	
10	LOOP MASK	
11	LOOP MASK	

LOOP MASK

Length: Byte

Range: 0…255

Description: Loop mask:

Bit	FP2000	FP780
0	Loop 1	
1	Loop 2	
2	Loop 3	
3	Loop 4	
4	Loop 5	
5	Loop 6	
6	Loop 7	
7	Loop 8	

LOOP TEST DELAY

Length: Byte

Range: 0...1

Description: Switching delay.

LOOP TEST DELAY	FP2000	FP780
0	No delay	-
1	Standard delay	-

LOOP (1...8)

Length: Byte

Range: 0...8

Description: Indicates loop number.

LOOP	FP2000	FP780
0	Not installed	-
1…8	Loop installed	-

SENSORS ON A/B/BOTH SIDES (1...8)

Length: Byte

Range: (See command 7)

Description: Number of detectors the panel can see on each side of the loop driver.

SENSORS OVERLOAD ON A/B SIDE (1...8)

Length: Byte

Range: 0...1

Description: Indicates overload on each side of the loop driver.

	FP2000	FP780
0	No overload	-
1	Overload	-

SENSOR CHECKSUM

Length: Byte

Range: 0...255

Description: Not implemented

SENSOR VALUE **(see command 24)**

SENSOR FIELD TYPE **(see command 24)**

SENSOR **(see command 24)**

SENSOR ALARM STATE **(see command 24)**

PRODUCTION TEST

Length: Byte

Range: 0, 12...23

Description: Loop test:

PRODUCTION TEST	FP2000	FP780
0	Enter/Exit Prod. Tests	-
12	Panel Lamp Test	-
13	Panel Key Test	-
14	Arc-net status	-
15	Switch Test	-
16	Battery Status	-
17	Mains Status	-
18	FEP Input Status	-
19	Input Status	-
20	Switch Output State	-
21	LCD Display	-
22	Loop Faults	-
23	Module List	-

TEST PARAMETER 1

Length: Byte

Range: 0…255

Description: Additional test data depending on test.

PRODUCTION TEST	FP2000	FP780
0	1=Enter Prod. Tests 0=Exit Prod. Tests	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	Output number (1…8)	-
21	-	-
22	-	-
23	-	-

TEST PARAMETER 2

Length: Byte

Range: 0…255

Description: Additional test data depending on test.

PRODUCTION TEST	FP2000	FP780
0	Pin=222	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	Output State (0...1)	-
21	-	-
22	-	-
23	-	-

RETURN RESULT1

Length: Byte

Range: 0…255

Description: Additional test data depending on test.

PRODUCTION TEST	FP2000	FP780
0	1=Enter Prod. Tests 0=Exit Prod. Tests	-
12	-	-
13	Depressed Key (Text)	-
14	Arc Status	-
15	Switch Status (0=normal) Bit 0: Tamper switch status 1: Memory lock status 2: Service switch status	-
16	Battery Status (0=normal) Bit 0: Battery disconnected 1: Low battery voltage	-
17	Main Status (0=normal) Bit 0: No Mains 1: Earth fault	-
18	FEP input Status (0=passive, 1=active, 2=open, 3=short)	-

	Bits 0,1: Input 1 Bits 2,3: Input 2 Bits 4,5: Input 3 Bits 6,7: Input 4	
19	Input Status (0=passive, 1=active, 2=open, 3=short) Bits 0,1: Input 1 Bits 2,3: Input 2 Bits 4,5: Input 3 Bits 6,7: Input 4	-
20	-	-
21	-	-
22	-	-
23	Module List (Text: 3 chars / module)	-

RETURN RESULT2

Length: Byte

Range: 0…255

Description: Additional test data depending on test.

PRODUCTION TEST	FP2000	FP780
0	1=Enter Prod. Tests 0=Exit Prod. Tests	-
12	-	-
13	Key Text (6 chars max) see table below	-
14	-	-
15	-	-
16	-	-
17		-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	Module List (Text: 3 chars / module) see table below	-

Key values and Texts

48	‘0’	5	‘Alpha’	12	‘Dis’
49	‘1’	4	‘Print’	14	‘Test’
50	‘2’	2	‘Events’	15	Snd’
51	‘3’	1	‘Scroll’	16	SndDel’
52	‘4’	27	‘Delete’	17	‘SndDis’
53	‘5’	13	‘Enter’	18	‘SilSnd’
54	‘6’	26	‘Up’	19	‘FbDis’
55	‘7’	10	‘Down’	20	‘FbDel’
56	‘8’	8	‘Left’	22	‘FbStop’
57	‘9’	6	‘Right’	29	‘Panel’
		9	‘SilBuz’	30	‘All’
		11	‘Reset’	31	‘Fb’

Module Texts

Zone board	ZON
Relay board	REL
Sounder boards	SND, SNB
Input board	INP
Display board	DEN
Loop boards	LPA, LPB
Supply boards	PSH, PSR, CH1, CH2
FEP board	FEP
CPU board	HST
LCD board	LCD
Keyboard	KBD
LED board	LED
ARC board	ARC
VDS board	FSK
LON board	LON
Dongle boards	KEY1, KEY2,…,KEY8

5.3.1.77 Pager Configuration Data (76, 4ch)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	76	76	-	204	-	76	-
1	PAGER	Yes	-	Yes	-	Yes	-
2…9	ADDRESS	Yes	-	-	-	Yes	-
+1	BEEP CODE	Yes	-	-	-	Yes	-
+2	CALL TYPE	Yes	-	-	-	Yes	-
+3	NUMBER OF TRANSITIONS	Yes	-	-	-	Yes	-
+4	PAGER DISPLAY CHARACTERS	Yes	-	-	-	Yes	-
+5	MESSAGE TYPE	Yes	-	-	-	Yes	-
+6…+13	GROUP-ID	Yes	-	-	-	Yes	-

PAGER

Length: Byte

Range: 1...32

Description: Pager number

ADDRESS

Length: 1…8 bytes

Where: Byte 0: Length of string (0...n, n<(Length-1))

Bytes 1...n: String (if n > 0)

Description: A string representing the pager address.

BEEP CODE

Length: Byte

Range: 0…9

Description: A number defining a pager system specific beep code.

CALL TYPE

Length: Byte

Range: 1…4

Description: Call type:

CALL TYPE	FP2000	FP780
1	Reset call	-
2	Speech call	-
3	Standard call	-
4	Alarm call	-

NUMBER OF TRANSMISSIONS

Length: Byte

Range: 0…99

Description: The maximal number a message is transmitted if unacknowledged.

DISPLAY CHARACTERS

Length: Byte

Range: 5…128 (5, 16, 40, 128 default)

Description: The number of characters on the pager display.

MESSAGE TYPE

Length: Byte

Range: 0…2

Description: The type of event to be sent to pager.

MESSAGE TYPE	FP2000	FP780
0	Fire	-
1	Fault	-
2	Fire and fault	-

GROUP ID

Length: 1…8 bytes

Where: Byte 0: Length of string (0...n, n<(Length-1))

Bytes 1...n: String (if n > 0)

Description: A string representing the pager group membership.

Default Settings

Parameter	System 1	System 2	System 3	System 4	System 5	System 6	System 7	System 8
BEEP CODE								
CALL TYPE								
NUMBER OF TRANSMISSIONS								
DISPLAY CHARACTERS								
MESSAGE TYPE								

5.3.1.78 Pager System Address (77/1, 4Dh/01h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	77	77	-	205	-	77	-
1	1	1	-	1	-	1	-
2…9	PAGER SYSTEM ADDRESS	Yes	-	-	-	Yes	-
+1	PANEL MODE	Yes	-	-	-	Yes	-
+2	ZONE/AREA MODE	Yes	-	-	-	Yes	-
+3	DEVICE MODE	Yes	-	-	-	Yes	-

There is no setting for general fire or fault messages. They are always sent in the following format:

Fire – [General Alarm] (General Alarm see message 27)

Fault – [General Alarm] (General Alarm see message 27)

PAGER SYSTEM ADDRESS

Length: 1…8 bytes

Where: Byte 0: Length of string (0...n, n<(Length-1))

Bytes 1...n: String (if n > 0)

Description: A string representing the pager system address.

PANEL MODE

Length: 1 Byte

Range: 0…1

Description: Defines the way the panel identification is sent to the pager system.

Parts of the string are dependant of the language setting.

Panel Mode	Format	Description
0	Disable	No panel information is sent
1	Enabled	Panel information is sent to pager system: Panel: P:xx Global Repeater: G:xx Local Repeater: L:xx Where: xx is the panel number

ZONE/AREA MODE

Length: 1 Byte

Range: 0…3

Description: Defines the way the zone or area identification is sent to the pager system.

Area information is not sent in a device fire/ fault message.

Parts of the string are dependant of the language setting.

Zone Mode	Format	Description
0	Zone:xxx	Zone number is sent to pager system. Xxx is the zone number.
1	Zone text	Zone text is sent to pager system. See command 8 for text definition
2	Text-Z:xxx	Zone text and zone number are sent to pager system. See command 8 for text definition. Xxx is the zone number.
3	Z:xxx	Abbreviated zone is sent to the pager system. Xxx is the zone number.
4	Z:xxx, none	Abbreviated zone is sent to the pager system in case of a zone fire. No information is sent to the pager system in case of a device fire. Xxx is the zone number.

DEVICE MODE

Length: 1 Byte

Range: 0…3

Description: Defines the way the device identification is sent to the pager system.

Parts of the string are dependant of the language setting.

Sensor Mode	Format	FP2000
0	Loop:x-Device:yyy	Loop number and device number are sent to pager system: x is the loop number. Yyy is the device number.
1	Text1-Text2	Device text is sent to pager system. See command 7 for text definition
2	Text1-Text-L:x-D:yyy	Device text, loop number and device number are sent to pager system. See command 8 for text definition x is the loop number. Yyy is the device number.
3	L:x-D:yyy	Abbreviated loop and device is sent to the pager system: x is the loop number. Yyy is the device number.

5.3.1.79 Language Text (77/2, 4Dh/02h)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	77	-	77	-	205	-	77
1	2	-	2	-	2	-	2
2	LANGUAGE SELECTION	-	-	-	Yes	-	Yes
3,4	TEXT NO. (hb, lb)	-	-	-	Yes	-	Yes
5	MAX. TEXT LENGTH	-	-	-	-	-	Yes
6,7	TEXT VERSION (hb, lb)	-	-	-	-	-	Yes
8...49	LANGUAGE TEXT	-	-	-	-	-	Yes

LANGUAGE SELECTION

Length: Byte

Range: 0...8

Description: Specifies the language:

LANGUAGE SELECTION	FP2000	FP780
0	-	English
1	-	Dutch
2	-	German
3	-	Dutch (Belgium)
4	-	French (Belgium)
5	-	Italian
6	-	Portuguese
7	-	Swedish
8	-	Danish

TEXT NO. (See command 6)

MAX. TEXT LENGTH

Length: Byte

Range: 0…40

Description: Specifies the maximal possible length of the word.

TEXT VERSION

Length: Word

Range: 0…FFFFh

Description: Specifies the version of the translation. If the uploaded text version is newer than the version in the library, the text needs to be translated.

LANGUAGE TEXT

Length: 1...41 Bytes

Description: Text string

Where: Byte 0: Length (0...n)

Bytes 1…n: String (if n > 0)

5.3.1.80 System Zone Data (78, 4Ehh)

Pos.	Message Data	Control		Request		Response	
		FP2000	FP780	FP2000	FP780	FP2000	FP780
0	78	78	-	206	-	78	-
1	SUBADR	Yes	-	Yes	-	Yes	-
2, 3	SYSTEM ZONE (hb, lb)	Yes	-	Yes	-	Yes	-
4	PARAM 1	Yes	-	Yes	-	Yes	-
5	PARAM 2	Yes	-	-	-	Yes	-
6	PARAM 3	-	-	-	-	Yes	-

SUBADR

Length: Byte

Range: see table.

Description:

1	Test system for duplicate system zones
2	Find system zone
3	Find system zone and virtual address
4	Control system zone status
5	Control virtual sensor status
6	Get system zone status
7	Get virtual device status
8	Test for sensor fire(s)
9	System zone test status update
10	Clear zone test reports
11	Report isolated / test system zones status
12	Activate Investigation time

SYSTEM ZONE

Length: Word

Range: 1…65535

Description: System zone.

PARAMS

	Param 1	**Param 2**	**Param 3**
Subadr 1	Result		
Subadr 2	Result		
Subadr 3	Virtual address	Result	
Subadr 4	Function		
Subadr 5	Virtual address	Function	
Subadr 6	Mode/ Status	Result	
Subadr 7	Virtual address	Status	Result
Subadr 8	Result		
Subadr 9	Virtual address	Status	Sensor Type
Subadr 10	Function		

Subadr 11	Result		
Subadr 12	Investigation time hi	Investigation time lo	

FUNCTION: Virtual sensor

0	Disable sensor at virtual address
1	Enable sensor at virtual address
3	Soak test sensor at virtual address on

System Zone

0	Disable system zone
1	Enable system zone
2	System zone test off
3	System zone test on

Clear Zone Test reports

0	Clear all system zone reports
1	Clear specific system zone report

STATUS:

0	Disabled system zone or virtual device
1	Enabled system zone or virtual device
2	System Zone in test mode
3	Soak virtual device

Zone test status

0...255	Zone test byte

MODE:

0	System zone status
1	System zone test status

RESULT:

0	System zone or virtual address not found, no fire(s)
1	Valid system zone or valid virtual address, found fire(s)
3	Virtual device in soak

RESULT: Report system zone status

0	System zone iso
1	System zone test
3	Request

Activate Investigation time

0	Not used
1…600	Activates Investigation time

VIRTUAL ADDRESS: 1…32

INVESTIGATION TIME: 0…600

5.3.1.81 LON Module Configuration (80/2, 50h/02h)

Pos.	Message Data	Request		Response	
		FP2000	FP780	FP2000	FP780
0	80	80	80	80	80
1	2	2	2	2	2
2 = P1	MODULE IDENTIFICATION LENGTH (L1=41)	-	-	Yes	Yes
P1+1	LON TYPE	-	-	Yes	Yes
P1+2	MESSAGE NO.	-	-	Yes	Yes
P1+3	MORE MESSAGES TO FOLLOW	-	-	Yes	Yes
P1+4... P1+9	LON NEURON ID	-	-	Yes	Yes
P1+10... P1+17	PROGRAM ID	-	-	Yes	Yes
P1+18…P1+19	HARDWARE ID	-	-	Yes	Yes
P1+20…P1+21	LON NODE ID	-	-	Yes	Yes
P1+22	CONFIGURATION STATE	-	-	Yes	Yes
P1+23…P1+28	LOCATION ID	-	-	Yes	Yes
P1+29…P1+36	SECONDARY PROGRAM ID	-	-	Yes	Yes
P1+37…P1+38	CLASS TYPE	-	-	Yes	Yes
P1+39…P1+40	INSTANCE NO.	-	-	Yes	Yes
P1+41	LON CONFIG	-	-	-	Yes
P2 = P1+L1+1	LOCATION TEXT LENGTH (L2)	-	-	-	-
... P2+L2	LOCATION TEXT	-	-	-	-
P3 = P2+L2+1	MODULE PROPERTIES LENGTH (L3)	-	-	-	-
... P3+L3	MODULE PROPERTIES	-	-	-	-

MODULE IDENTIFICATION LENGTH

Length: Byte

Range: 40

Description: Length of 1st data set.

MESSAGE NO.

Length: Byte

Range: 0...255

Description: Specifies more messages of the same type to follow.

MORE MESSAGES TO FOLLOW

Length: Byte

Range: 1...255

Description: Sequence number of this message.

PROGRAM ID

Length: 8 Bytes

Range: 0…255

Description: Module program id:

Byte	FP2000	FP780
0	99h	99h
1	0	LON CONFIG (see command 74)
2	LON PC (see command 74)	LON PC (see command 74)
3	LON OEM (see command 74)	LON OEM (see command 74)
4	LON TYPE (MSB), LONHDW (see command 74)	LON TYPE (MSB), LONHDW (see command 74)
5	LON TYPE (LSB) (see command 74)	LON TYPE (LSB) (see command 74)
6	S/W major version	S/W major version
7	S/W minor version	S/W minor version

HARDWARE ID

Length: 2 Bytes

Range: 0…255

Description: Hardware id:

Byte	FP2000	FP780
0	Model number	Model number
1	Firmware version	Firmware version

CONFIGURATION STATE

Length: Bytes

Range: 0…255

Description: Hardware id:

Bit	FP2000	FP780
0	0: Not configured	0: Not configured
	1: Configured	1: Configured
1	0: Communication Error	0: Communication Error
	1: Communication ok	1: Communication ok
2	0: Own domain	0: Own domain
	1: Foreign domain	1: Foreign domain
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-

LOCATION ID

Length: 6 Bytes

Range: 0…255

Description: Location id:

Byte	FP2000	FP780
0	Enclosure number	-
1	Container number	-
2	Container slot	-
3	-	-
4	-	-
5	-	-

SECONDARY PROGRAM ID

Length: 8 Bytes

Range: 0…255

Description: Location id:

Byte	FP2000	FP780
0	-	-
1	Product code	
	0: FP780	0: FP780
	1: FP2000	1: FP2000
	2: PCU700	2: PCU700
	3: PCC700	3: PCC700
	4: FP780	4: FP780
2	OEM	
	0: Generic	0: Generic
	1: ARITECH	1: ARITECH
3	-	-
4	-	-
5	0…254: Boot loader version 255: invalid	0…254: Boot loader version 255: invalid
6	S/W major version	S/W major version
7	S/W minor version	S/W minor version

INSTANCE NO.

Length: 2 Bytes

Range: 0…255

Description: Identifies the packet sent.

LON TYPE (See command 74)

LON NEURON ID (See command 74)

LON NODE ID (See command 74)

LON CONFIG (See command 74)

5.3.1.82 Request LON Module Configuration (81/2, 51h/02h)

Pos.	Message Data	Request		Response	
		FP2000	FP780	FP2000	FP780
0	81	81	81	-	-
1	2	2	2	-	-
2	MODE	-	Yes	-	-

After requesting the LON Module Configuration the panel will answer with the command 80/2.

LED STATUS

Length: Byte

Range: 0…1

Description: The LON Module Configuration can be requested with or without foreign controllers::

Mode	FP2000	FP780
0	-	Normal map
1	-	Extended map (with controllers)

5.3.1.83 LON Module Configuration LED (82/2, 52h/02h)

Pos.	Message Data	Control		Response	
		FP2000	FP780	FP2000	FP780
0	82	82	82	-	-
1	2	2	2	-	-
2	7	Yes	Yes	-	-
3…8	LON NEURON ID	Yes	Yes	-	-
9	LED STATUS	Yes	Yes	-	-

LON TYPE (See command 74)

LED STATUS

Length: 1 Byte

Range: 0…1

Description: The LON module LED can be switched to the following states:

LED STATUS	FP2000	FP780
0	Off	Off
1	On	On

5.3.1.84 LON Configuration Switch (82/3, 52h/03h)

Pos.	Message Data	Control		Response	
		FP2000	FP780	FP2000	FP780
0	82	-	-	82	82
1	3	-	-	3	3
2	7	-	-	Yes	Yes
3…8	LON NEURON ID	-	-	Yes	Yes
9	SWITCH STATUS	-	-	Yes	Yes

LON TYPE (See command 74)

SWITCH STATUS

Length: 1 Byte

Range: 0…1

Description: LON Configuration Switch status:

SWITCH STATUS	FP2000	FP780
0	Off	Off
1	On	On

5.3.1.85 LON Direct Bus Access (83/1, 53h/01h)

Pos.	Message Data	Control		Response	
		FP2000	FP780	FP2000	FP780
0	83	83	83	83	83
1	1	1	1	1	1
2 = P1	DATA LENGTH (L1)	Yes	Yes	Yes	Yes
P1+1…P1+L1	DATA	Yes	Yes	Yes	Yes

DATA LENGTH

Length: Byte

Range: 0…255

Description: Length of DATA.

DATA

Length: Byte

Description: A string of data that is sent to the LON bus or received from the LON bus..

5.3.1.86 Request Hardware Status (84/1, 54h/01h)

Pos.	Message Data	Request		Response	
		FP2000	FP780	FP2000	FP780
0	84	84	84	-	-
1	1	1	1	-	-

After requesting the configuration the panel will answer with the command 84/2.

5.3.1.87 Hardware Status (84/2, 54h/02h)

Pos.	Message Data	Control		Response	
		FP2000	FP780	FP2000	FP780
0	84	-	-	84	84
1	2	-	-	2	2
2	2	-	-	Yes	Yes
3	STATUS 1	-	-	Yes	Yes
4	STATUS 2	-	-	Yes	Yes

STATUS 1

Length: Byte

Range: 0…255

Description: Test data:

Bit		FP2000	FP780
0	RAM Test failed	N/A	N/A
1	Code checksum failed	N/A	N/A
2	FDI error	N/A	N/A
3	Boot checksum failed	N/A	N/A
4	Echelon interface failed	N/A	N/A
5-7	-	N/A	N/A

STATUS 2

Length: Byte

Range: 0…255

Description: Test data:

Bit		FP2000	FP780
0	Service mode	0: off	0: off
		1: on	1: on
1	Memory lock	0: unlocked	0: unlocked
		1: locked	1: locked
2	Fault input	0: passive	0: passive
		1: active	1: active
3-7	-	N/A	N/A

5.3.1.88 Hardware Control (84/3, 54h/03h)

Pos.	Message Data	Control		Response	
		FP2000	FP780	FP2000	FP780
0	84	84	84	-	-
1	3	3	3	-	-
2	1	-	-	Yes	Yes
3	STATUS 1	-	-	Yes	Yes

STATUS

Length: Byte

Range: 0…255

Description: Test data:

Bit		FP2000	FP780
0	Fault output	0: passive	0: passive
		1: active	1: active
1	Restart	0: -	0: -
		1: restart	1: restart
2-7	-	N/A	N/A

5.3.1.89 Panel Access (85/1, 55h/01h)

Pos.	Message Data	Control		Response	
		FP2000	FP780	FP2000	FP780
0	85	85	85	-	-
1	1	1	1	-	-
2	2	Yes	Yes	-	-
3,4	ACCESS TYPE	Yes	Yes	-	-
5	4	Yes	Yes	-	-
6…9	ACCESS CODE	Yes	Yes	-	-
10	0	Yes	Yes	-	-

ACCESS TYPE

Length: 2 Bytes

Range: 0…2

Description:

ACCESS TYPE		**FP2000**	**FP780**
0	Disconnect all access	Yes	Yes
1	Full access	Yes	Yes
2	Panel data only	Yes	Yes

ACCESS CODE (See command 15)

5.3.1.90 Bus Access (85/2, 55h/02h)

Pos.	Message Data	Control		Response	
		FP2000	FP780	FP2000	FP780
0	85	85	85	-	-
1	2	2	2	-	-
2	1	Yes	Yes	-	-
3	BUS ACCESS	Yes	Yes	-	-

BUS ACCESS

Length: Byte

Range: 0…3

Description:

ACCESS TYPE		**FP2000**	**FP780**
0	Stop bus access, initialise all LON modules	Yes	Yes
1	Start bus access	Yes	Yes
2	Monitor bus	-	-
3	Stop bus access	-	Yes

5.3.1.91 Panel Restart Request (85/4, 55h/04h)

Pos.	Message Data	Control		Response	
		FP2000	FP780	FP2000	FP780
0	85	85	85	-	-
1	4	4	4	-	-
2	RESTART MODE	Yes	Yes	-	-

RESTART MODE

Length: Byte

Range: 0…1

Description:

RESTART MODE		**FP2000**	**FP780**
0	Restart panel in normal mode	Yes	Yes
1	Restart panel in boot loader mode	-	-

6. UPGRADE

Release	Date	Command	Parameter	Comment
A.01	-	All	All	All command updated to FP2000 ver. 9.01 and FP780 ver. 2.01
A.02	07.06.2005	6	SENSORS	Kilsen added
		7	SENSOR	Kilsen added
			SENSOR INPUT CONFIGURATION	Kilsen added
			SENSOR TYPE	Kilsen added
			SENSOR FAULT	Kilsen 24V fault added
			SENSOR STATUS 0	Kilsen added
			SENSOR STATUS 1	Kilsen added
		8	ZONE STATUS 0	Kilsen added
		11	SENSOR	Device I/O
		12	SENSOR	Device I/O
		16	ACCESS FIELD	Auto Configure FP780
		17	SYSTEM TIME	Kilsen added
		21	PROTOCOL	Kilsen added
		24	SENSOR FIELD TYPE	Kilsen added
			INPUT STATE	Kilsen 24V fault added
			SENSOR	Kilsen added
		27	SENSOR	Kilsen added
			SENSOR TYPE	Kilsen added
		28	SENSOR	Kilsen added
			SENSOR TYPE	Kilsen added
		46	SENSOR FIELD TYPE	Kilsen added
			SENSOR	Kilsen added
			BLOCK	New
		75	SENSORS ON (A, B, BOTH)	Kilsen added
			SENSOR FIELD TYPE	Kilsen added
		80, 2	-	Added
		81, 2	-	Added
		82, 2	-	Added
		82, 3	-	Added
		83, 1	-	Added
		84, 1	-	Added
		84, 2	-	Added
		84, 3	-	Added
		85, 2	-	Added
		85, 4	-	Added
	20.06.2005	16	ACCESS LEVEL	Corrected
		31	INPUT	Corrected
		40	-	Corrected

Release	Date	Command	Parameter	Comment
A.02	21.06.2005	7	SENSOR TYPE	1OS
		24	SENSOR TYPE	1OS
		27	SENSOR TYPE	1OS
		28	SENSOR TYPE	1OS
		46	SENSOR FIELD TYPE	1OS
		75	SENSOR FIELD TYPE	1OS
	22.06.2005	7	SENSOR INPUT CONFIGURATION	Corrected
		7	SENSOR FAULT	Corrected
A.03	27.06.2005	6	SENSORS	Corrected
			AREAS	Corrected
		8	ZONE AREA	Corrected
			ZONE STATUS 1	Added for FP780
		23	-	Corrected
		9	AREA	Corrected
			AREA ADJ	Corrected
			AREA STATUS	Added features
		10	LOOP LED	Corrected
		11	AREA	Corrected
			Device Input	Corrected
			Device	Corrected
		12	AREA	Corrected
		23	-	Corrected
		26	AREA	Corrected
			AREA ALARM	Corrected (FP780)
		27	AREA	Corrected
		28	AREA	Corrected
		42	DATA	Corrected
		74	AREA START	Corrected
			AREAS	Corrected
			SENSOR	Corrected
			SENSORS	Corrected
			ZONE START	Corrected
			ZONE	Corrected
A.04	15.08.2005	8	ZONE STATUS 1	EAS added
		33	SYSTEM DATA	EAS added
A.05	15.08.2005	11	LON INPUT	Inputs added
			SUP. LON INPUT	Inputs added
		9	AREA STATUS	Corrected
		16	ACCESS FIELD	Added for FP780, 193
		27	GENERAL ALARM NO.	Corrected
		35	SET-UP REPLY	Added for FP780, 84

Release	Date	Command	Parameter	Comment
A.05	10.11.2005	27	GENERAL ALARM NO	Added
		27	GENERAL ALARM NO	Added
		35	SET-UP REPLY	Added for FP780
	11.11.2005	27	GENERAL ALARM	Added for FP780
		28	GENERAL ALARM	Added for FP780
		33	SYSTEM DATA	Added for FP780
	12.12.2005	7	SENSOR TYPE	CO Detector added for FP2000 Apollo
			SENSOR TYPE	LPB added for FP2000 Apollo
			SENSOR INPUT CONFIGURATION	12h and 24h added for FP2000
		11	INPUT TRIGGER	General Input, condition to Lt, Ult
			INPUT TRIGGER	Zone Input, condition to Lt, Ult
			INPUT TRIGGER	Area Input, condition to Lt, Ult
			INPUT TRIGGER	Adj. Area Input, condition to Lt, Ult
		48	Watchdog timeout 30s	
	22.01.2006	33	SYSTEM DATA	Tamper switch mask for FP2000 added
				Request corrected
				Finnish Fault
		74	LON HDW	FC780 added
		75	LOOP TEST PARAMETER	Corrected
A.06-xx	20.04.2006	8	ZONE STATUS 1	Corrected
		33	SYSTEM DATA	Finnish fault corrected
		77/1	PANEL MODE	Added
			ZONE MODE	Added
			SENSOR MODE	Added
	21.04.2006	77/1	PANEL MODE	Modified
			ZONE MODE	Modified
			SENSOR MODE	Modified
		-	Section 3.2	Cable for FC700, FC700L and FC780
	04.05.2006	76	ADDRESS LENGTH	Removed
			ADDRESS	Modified
			GROPUP ID LENGTH	Removed
			GROPUP ID	Modified
		77/1	PAGER SYSTEM LENGTH	Removed
			PAGER SYSTEM ADDRESS	Modified
	04.05.2006	74	LON CFG	Corrected
			LON CONFIG	Corrected
		77/1	ZONE/AREA MODE	4 Added
	08.05.2006	19	PORT PAR 1	Event Printer Mask added
		74	LON PRODUCT	Added
	11.05.2006	32	INVESTIGATION TIME	Changed

Release	Date	Command	Parameter	Comment
A.06-xx	15.05.2006	12	OUTPUT TRIGGER	Corrected for linked to Fltrt
			OUTPUT ADR3	Corrected: Areas for FP2000 = 99 Corrected: Zones for FP780 = 128
		74	LON DEVICE COMMON	Corrected
	18.05.2006	74	LON DEVICE MODE	Corrected
	26.05.2006	27	GENERAL ALARM NO.	Watchdog 33 added
		50	KEY	192 added
	29.05.2006	27	GENERAL ALARM NO.	Watchdog 34 added
	12.06.2006	27	MODULE NO	Added
	10.11.2006	8	Status1	MSS, Hausalarm, LA, Sprinkler added
		11	General inputs	Added 48…57
		11	Zone inputs	Added 6…8
		11	Area inputs	Added 6…8
		12	General outputs	Added 16…18
		12	Zone outputs	Added 6…8
		12	Area outputs	Added 6…8
		7	Type	Added SIM for Sentrol
		33	Data Type	Added 216…220
		58	Block, Led Data	Updated
	13.11.2006	7	Virtual Sensor Address	Added
		8	System Zone	Added
		41	System Zone Block	Added
		46	Virtual Sensor Address	Added
		27	Virtual Sensor Address	Added
		27	System Zone	Added
		28	Virtual Sensor Address	Added
		28	System Zone	Added
		78/1	All Parameters	Added new command
		78/2	All Parameters	Added new command
	16.11.2006	7	Sensor status1	Added Apollo base function
		8	Virtual address start and virtual addresses	Added
	29.11.2006	11	Trigger	Condition latched / unlatched
		74	LON HDW	FC780RTC added
		37	-	Corrected request and response addresses
	05.12.2006	12	Trigger	Condition latched / unlatched
	12.12.2006	33	System data	Added 215
	13.12.2006	75	Test	Added Production tests 12…23
	15.12.2006	78/3..7	All Parameters	Added new commands
	10.01.2007	8	Virtual address start and virtual addresses	Removed

Release	Date	Command	Parameter	Comment
A.06-xx	16.11.2006	7	Sensor status1	Added Apollo base function
		8	Virtual address start and virtual addresses	Added
	29.11.2006	11	Trigger	Condition latched / unlatched
		74	LON HDW	FC780RTC added
		37	-	Corrected request and response addresses
	05.12.2006	12	Trigger	Condition latched / unlatched
	12.12.2006	33	System data	Added 215
	13.12.2006	75	Test	Added Production tests 12…23
	15.12.2006	78/3..7	All Parameters	Added new commands
	10.01.2007	8	Virtual address start and virtual addresses	Removed
	25.01.2007	27	Action	Updated
			GENERAL ALARM	Updated
		33	SYSTEM DATA	Updated
		77/2	LANGUAGE SELECTION	Languages added
		6	Event	Changed to 0…1999
		8	Zone LED	Changed to 0…65535
		6	Mode	Added
		35	Set-up reply	Deleted 29, 72 for FP780
		36	Max Network configuration	Added configuration 3 and 4.
		20, 48, 49	1	Updated
	29.01.2007	6	Event	Changed to 0…1999
	30.01.2007	8	Zone LED	Changed to 0…65535
	15.02.2007	6	Mode	Added
	16.02.2007	35	Set-up reply	Deleted 29, 72 for FP780
	20.02.2007	36	Max Network configuration	Added configuration 3 and 4.
	21.02.2007	20, 48, 49	1	Updated
	05.03.2007	12	Adr2	Added type=Internal: LA, Sprinkler, Hausalarm
	14.03.2007	11	Input Trigger	Included: open, short and abnormal.
	20.03.2007	11	LON Device Input	81h added for FP780/FEP780
	27.03.2007	11	LON Device Input	00h defined
	04.05.2007	11	Input Type	Added type=FSE triggert
	08.05.2007	12	Adr2	Added type=internal: BFS
	14.05.2007	78	Function	Added off test/soak
	29.05.2007	78	Param1	Mode/Status
	06.06.2007	50	Key	Added keys 186…191
	29.06.2007	78	Function	Corrected: System zone test on/off
	06.07.2007	12	Adr2	Added type=sup.o/p: LA, Sprinkler, Hausalarm
	24.07.2007	12	Adr2	Added: Ink O/p dev. To LA, Sprink, Hsal, BFS

Release	Date	Command	Parameter	Comment
A.06-26	30.07.2007	8	ZONE1 STATUS	Zone Sounder Enable/disable removed for FP780/FEP780
		22	LANGUAGE, TEMP LANGUAGE	Corrected for FP780/FEP780
A.06-27	21.08.2007	27	Event Class	Added selector 5.
	23.08.2007	78	Sub-address	Added sub-address 8
	24.08.2007	33	System Data	Added 214, 216…219 for FP2000
	03.09.2007	78	Sub-address	Added sub-address 9
	11.09.2007	33	System Data	Added 213 for FP780
	12.09.2007	78	Sub-address	Added sub-address 9, 10
	20.09.2007	33	System Data	Description for 213, FP780
A.06-28	26.11.2007	33	System Data	Added 211, 212 for FP2000
	28.01.2008	78	Sub-address	Added sub-address 11
	26.02.2008	19	Board type	Missing parameter.
	04.04.2008	78	Sub-address	Added sub-address 12
	07.04.2008	28	Flags	Added SND and Fbrig delay status
	15.05.2008	6	Configuration data Version-number/date	Added Configuration version / Date
	16.09.2008	33	System Data	Added sub-address 211
A.09-29	05.02.2009	7	Sub-Type	Added Discovery Sounder Beacon
	05.02.2009	7	Sensor Status 2	Added new parameter
	26.05.2009	19	Par1	Added Thermo printer for event and report
	03.07.2009	7	Sensor Status0, Sensor Status1	Added Tone and Volume settings for DSBs
	07.07.2009	7	Sensor Status1	Added bit 2 Apollo Discovery Beacon Status
A.06-30	30.10.2009	19	Par 1	Changed ‘Event String’ to Terminal dump
	29.12.2009	33	System Data	Added 208 for FP2000
A.06-31	07.01.2010	33	System Data	Removed 217
		22	LANGUAGE	Added for control for FP2000
			LANGUAGE GROUP	Added for response for FP2000
		23	OPERATION	Added for control for FP2000
		21	PROTOCOL	Added for control for FP2000
		27	GENERAL ALARM NO.	Watchdog 35 added
		33	System Data	Removed 211
		33	System Data	Removed 212
		6	Configuration	LON DEVICES max. 32
		6	Configuration	PAGER DEVICES max. 32
	07.01.2010	76	Pager Configuration Data	PAGER max 32
	15.01.2010	37	FEP and Host version format	Extended format

A.06-32	10.11.2010	6	SENSORS	Kilsen removed
		7	SENSOR	Kilsen removed
			SENSOR STATUS0	Kilsen removed
			SENSOR TYPE	Kilsen removed
			SENSOR TYPE	Kilsen removed
			SENSOR FAULT	Kilsen removed
			SENSOR INPUT CONFIGURATION	Kilsen removed
			SENSOR STATUS1	Kilsen removed
		8	ZONE STATUS0	Kilsen removed
		10	LOOP LED	Kilsen removed
		11	DEVICE INPUT CHANNEL	Kilsen removed
		12	DEVICE OUTPUT CHANNEL	Kilsen removed
		17	SYSTEM TIMES	Kilsen removed
		24	INPUT STATE	Kilsen removed
			SENSOR FIELD TYPE	Kilsen removed
		30	LOOP SEGMENTS	Kilsen removed
			LOOP LEDs	Kilsen removed
		46	PAGE	Kilsen removed
			VIRTUAL SENSOR ADDRESS	removed
		27	GENERAL ALARM	104-110 removed
			WATCHDOG	Watchdogs added