

Table 1 – 24-bit command frame encoding

Bytes/Bits										Device addressing	
Address byte								Instance byte	Opcode byte		
23	22	21	20	19	18	17	16	15...8	7...0		
0	64 short addresses							1	Device or instance or feature, see Table 2		Short addressing
1	0	32 device group addresses						1			Device group addressing
1	1	1	1	1	1	0	1			Broadcast unaddressed	
1	1	1	1	1	1	1	1			Broadcast	
1	1	0	16 special command spaces					1	Command specific		Special command
1	1	1	0	x	x	x	1	Reserved		Reserved	
1	1	1	1	0	x	x	1				
1	1	1	1	1	0	x	1				

Table 2 – Instance byte in a command frame

Instance byte								Addressing
15	14	13	12	11	10	09	08	
0	0	0	32 Instance numbers					Instance number
1	0	0	32 Instance groups					Instance group
1	1	0	32 Instance types					Instance type
0	0	1	32 Instance numbers					Feature on instance number level
1	0	1	32 Instance groups					Feature on instance group level
0	1	1	32 Instance types					Feature on instance type level
1	1	1	1	1	0	0	1	Feature broadcast
1	1	1	1	1	1	0	1	Feature on instance broadcast level
1	1	1	1	1	1	1	1	Instance broadcast
1	1	1	1	1	1	0	0	Feature on device level
1	1	1	1	1	1	1	0	Device
0	1	0	x	x	x	x	x	Reserved
1	1	1	0	x	x	x	x	
1	1	1	1	0	x	x	x	
1	1	1	1	1	0	1	x	
1	1	1	1	1	0	0	0	

Table 3 – 24-bit event message frame encoding

Bits															Event scheme ^a / Source		
Event source information														Event information			
23	22	21	20	19	18	17	16	15	14	13	12	11	10	9...0			
0	64 short addresses						0	0	32 instance types						Event	1	Device
0	64 short addresses						0	1	32 instance numbers							2	Device and instance
1	0	32 device groups					0	0	32 instance types							3	Device group
1	0	32 instance types					0	1	32 instance numbers							0	Instance
1	1	32 instance groups					0	0	32 instance types							4	Instance group
1	1	0	x	x	x	x	0	1	x	x	x	x	x	Reserved	Reserved		
1	1	1	0	x	x	x	0	1	x	x	x	x	x				
1	1	1	1	0	x	x	0	1	x	x	x	x	x				
1	1	1	1	1	0	x	0	1	x	x	x	x	x				
1	1	1	1	!	1	0	0	1	x	x	x	x	x				
1	1	1	!	1	1	1	0	1	0	x	x	x	x				
1	1	1	1	1	1	1	0	1	1	0	x	x	x				
1	1	1	1	1	1	1	0	1	1	1	Short address and device group information, refer to 9.7.2.			Device power cycle			
^a Refer to 9.7.3 for further information on event schemes.																	

Table 23 – Standard commands

Command name	Address byte	Instance byte			Opcode byte	App Ctrl	Input device	DTR0	DTR1	DTR2	Answer	Send twice	References	Command subclause
		Device	Instance	Feature										
IDENTIFY DEVICE	Device	✓			0x00	✓	✓					✓	9.15.3	11.4.2
RESET POWER CYCLE SEEN	Device	✓			0x01	✓	✓					✓	9.13.1	11.4.3
RESET	Device	✓			0x10	✓	✓					✓	9.12.1	11.5.2
RESET MEMORY BANK (<i>DTR0</i>)	Device	✓			0x11	✓	✓	✓				✓	9.12.2	11.5.3
SET SHORT ADDRESS (<i>DTR0</i>)	Device	✓			0x14	✓	✓	✓				✓	9.15.1	11.5.4
ENABLE WRITE MEMORY	Device	✓			0x15	✓	✓					✓	9.11.6	11.5.5
ENABLE APPLICATION CONTROLLER	Device	✓			0x16	✓						✓	9.10.1	11.5.6
DISABLE APPLICATION CONTROLLER	Device	✓			0x17	✓						✓	9.10.1	11.5.7
SET OPERATING MODE (<i>DTR0</i>)	Device	✓			0x18	✓	✓	✓				✓	9.10.5	11.5.8
ADD TO DEVICE GROUPS 0-15 (<i>DTR2:DTR1</i>)	Device	✓			0x19	✓	✓		✓	✓		✓		11.5.9
ADD TO DEVICE GROUPS 16-31 (<i>DTR2:DTR1</i>)	Device	✓			0x1A	✓	✓		✓	✓		✓		11.5.10
REMOVE FROM DEVICE GROUPS 0-15 (<i>DTR2:DTR1</i>)	Device	✓			0x1B	✓	✓		✓	✓		✓		11.5.11
REMOVE FROM DEVICE GROUPS 16-31 (<i>DTR2:DTR1</i>)	Device	✓			0x1C	✓	✓		✓	✓		✓		11.5.12
START QUIESCENT MODE	Device	✓			0x1D	✓	✓					✓	9.10.4	11.5.13
STOP QUIESCENT MODE	Device	✓			0x1E	✓	✓					✓	9.10.4	11.5.14
ENABLE POWER CYCLE NOTIFICATION	Device	✓			0x1F	✓	✓					✓	9.13.2	11.5.15
DISABLE POWER CYCLE NOTIFICATION	Device	✓			0x20	✓	✓					✓	9.13.2	11.5.16
<i>Reserved^a</i>	Device	✓			0x21 ^a	✓	✓					✓		
<i>Reserved for IEC 62386-104 (see [2])</i>	Device	✓			0x22	✓		✓						

Command name	Address byte	Instance byte			Opcode byte	App Ctrl	Input device	DTR0	DTR1	DTR2	Answer	Send twice	References	Command subclause
		Device	Instance	Feature										
<i>Reserved for IEC 62386-104 (see [2])</i>	<i>Device</i>	✓			0x23	✓								
<i>Reserved for IEC 62386-104 (see [2])</i>	<i>Device</i>	✓			0x24	✓								
QUERY DEVICE STATUS	<i>Device</i>	✓			0x30	✓	✓				✓		9.17.2	11.6.3
QUERY APPLICATION CONTROLLER ERROR	<i>Device</i>	✓			0x31	✓					✓		9.16	11.6.4
QUERY INPUT DEVICE ERROR	<i>Device</i>	✓			0x32		✓				✓		9.16	11.6.5
QUERY MISSING SHORT ADDRESS	<i>Device</i>	✓			0x33	✓	✓				✓			11.6.6
QUERY VERSION NUMBER	<i>Device</i>	✓			0x34	✓	✓				✓		4.2	11.6.7
QUERY NUMBER OF INSTANCES	<i>Device</i>	✓			0x35	✓	✓				✓		9.5	11.6.9
QUERY CONTENT DTR0	<i>Device</i>	✓			0x36	✓	✓	✓			✓			11.6.8
QUERY CONTENT DTR1	<i>Device</i>	✓			0x37	✓	✓		✓		✓			11.6.10
QUERY CONTENT DTR2	<i>Device</i>	✓			0x38	✓	✓			✓	✓			11.6.11
QUERY RANDOM ADDRESS (H)	<i>Device</i>	✓			0x39	✓	✓				✓			11.6.12
QUERY RANDOM ADDRESS (M)	<i>Device</i>	✓			0x3A	✓	✓				✓			11.6.13
QUERY RANDOM ADDRESS (L)	<i>Device</i>	✓			0x3B	✓	✓				✓			11.6.14
READ MEMORY LOCATION (<i>DTR1, DTR0</i>)	<i>Device</i>	✓			0x3C	✓	✓	✓	✓		✓		9.11.5	11.6.15
QUERY APPLICATION CONTROLLER ENABLED	<i>Device</i>	✓			0x3D	✓					✓		9.10.1	11.6.16
QUERY OPERATING MODE	<i>Device</i>	✓			0x3E	✓	✓				✓		9.10.5	11.6.17
QUERY MANUFACTURER SPECIFIC MODE	<i>Device</i>	✓			0x3F	✓	✓				✓		9.10.5	11.6.18
QUERY QUIESCENT MODE	<i>Device</i>	✓			0x40	✓	✓				✓		9.10.4	11.6.19
QUERY DEVICE GROUPS 0-7	<i>Device</i>	✓			0x41	✓	✓				✓			11.6.20
QUERY DEVICE GROUPS 8-15	<i>Device</i>	✓			0x42	✓	✓				✓			11.6.21

Command name	Address byte	Instance byte			Opcode byte	App Ctrl	Input device	DTR0	DTR1	DTR2	Answer	Send twice	References	Command subclause
		Device	Instance	Feature										
QUERY DEVICE GROUPS 16-23	Device	✓			0x43	✓	✓				✓			11.6.22
QUERY DEVICE GROUPS 24-31	Device	✓			0x44	✓	✓				✓			11.6.23
QUERY POWER CYCLE NOTIFICATION	Device	✓			0x45	✓	✓				✓		9.13.2	11.6.24
QUERY DEVICE CAPABILITIES	Device	✓			0x46	✓	✓				✓		9.17.1	11.6.2
QUERY EXTENDED VERSION NUMBER(<i>DTR0</i>)	Device	✓			0x47	✓	✓	✓			✓			11.6.25
QUERY RESET STATE	Device	✓			0x48	✓	✓				✓		9.17.2	11.6.26
QUERY APPLICATION CONTROLLER ALWAYS ACTIVE	Device	✓			0x49	✓					✓		9.10.2	11.6.27
SET EVENT PRIORITY (<i>DTR0</i>)	Device	✓	✓		0x61		✓	✓				✓	9.14.2	11.8.8, 11.5.17
ENABLE INSTANCE	Device		✓		0x62		✓					✓	9.10.3	11.8.2
DISABLE INSTANCE	Device		✓		0x63		✓					✓	9.10.3	11.8.3
SET PRIMARY INSTANCE GROUP (<i>DTR0</i>)	Device		✓		0x64		✓	✓				✓	9.5.5	11.8.4
SET INSTANCE GROUP 1 (<i>DTR0</i>)	Device		✓		0x65		✓	✓				✓	9.5.5	11.8.5
SET INSTANCE GROUP 2 (<i>DTR0</i>)	Device		✓		0x66		✓	✓				✓	9.5.5	11.8.6
SET EVENT SCHEME (<i>DTR0</i>)	Device		✓		0x67		✓	✓				✓	9.7.3	11.8.7
SET EVENT FILTER (<i>DTR2</i> , <i>DTR1</i> , <i>DTR0</i>)	Device		✓		0x68		✓	✓	✓	✓		✓	9.7.4	11.8.9
SET INSTANCE TYPE (<i>DTR0</i>)	Device		✓		0x69		✓	✓				✓	9.19	11.8.10
SET INSTANCE CONFIGURATION (<i>DTR0</i> , <i>DTR2:DTR1</i>)	Device		✓		0x6A		✓	✓	✓	✓		✓	9.19	11.8.11
QUERY INSTANCE TYPE	Device		✓		0x80		✓				✓		9.5.3	11.9.2
QUERY RESOLUTION	Device		✓		0x81		✓				✓		9.8.2	11.9.3
QUERY INSTANCE ERROR	Device		✓		0x82		✓				✓		9.16	11.9.4

Command name	Address byte	Instance byte			Opcode byte	App Ctrl	Input device	DTR0	DTR1	DTR2	Answer	Send twice	References	Command subclause
		Device	Instance	Feature										
QUERY INSTANCE STATUS	<i>Device</i>		✓		0x83		✓				✓		9.17.3	11.9.5
QUERY EVENT PRIORITY	<i>Device</i>	✓	✓		0x84		✓				✓		9.14.2	11.9.13, 11.6.30
QUERY INSTANCE ENABLED	<i>Device</i>		✓		0x86		✓				✓		9.10.3	11.9.6
QUERY PRIMARY INSTANCE GROUP	<i>Device</i>		✓		0x88		✓				✓		9.5.5	11.9.7
QUERY INSTANCE GROUP 1	<i>Device</i>		✓		0x89		✓				✓		9.5.5	11.9.8
QUERY INSTANCE GROUP 2	<i>Device</i>		✓		0x8A		✓				✓		9.5.5	11.9.9
QUERY EVENT SCHEME	<i>Device</i>		✓		0x8B		✓				✓		9.7.3	11.9.10
QUERY INPUT VALUE	<i>Device</i>		✓		0x8C		✓				✓		9.8.3	11.9.11
QUERY INPUT VALUE LATCH	<i>Device</i>		✓		0x8D		✓				✓		9.8.3	11.9.12
QUERY FEATURE TYPE	<i>Device</i>	✓	✓		0x8E	✓	✓				✓		9.2, 9.5.4	11.9.14, 11.6.28
QUERY NEXT FEATURE TYPE	<i>Device</i>	✓	✓		0x8F	✓	✓				✓		9.2, 9.5.4	11.9.15, 11.6.29
QUERY EVENT FILTER 0-7	<i>Device</i>		✓		0x90		✓				✓		9.7.4	11.9.16
QUERY EVENT FILTER 8-15	<i>Device</i>		✓		0x91		✓				✓		9.7.4	11.9.17
QUERY EVENT FILTER 16-23	<i>Device</i>		✓		0x92		✓				✓		9.7.4	11.9.18
QUERY INSTANCE CONFIGURATION (<i>DTR0</i>)	<i>Device</i>		✓		0x93		✓	✓	✓	✓	✓		9.19	11.9.19
QUERY AVAILABLE INSTANCE TYPES	<i>Device</i>		✓		0x94		✓	✓	✓	✓	✓		9.19	11.9.20

^a Reserved to maintain backward compatibility due to use in Edition 1 of IEC 62386-103:2014 (see [3]).

Table 24 – Special commands (implemented by both application controller and input device)

Command name	Address byte	Instance byte	Opcode byte	DTR0	DTR1	DTR2	Answer	Send twice	References	Command subclause
TERMINATE	0xC1	0x00	0x00							11.10.2
INITIALISE (<i>device</i>)	0xC1	0x01	<i>device</i>					✓	9.15	11.10.3
RANDOMISE	0xC1	0x02	0x00					✓	9.15	11.10.4
COMPARE	0xC1	0x03	0x00				✓		9.15	11.10.5
WITHDRAW	0xC1	0x04	0x00						9.15	11.10.6
SEARCHADDRH (<i>data</i>)	0xC1	0x05	<i>data</i>						9.15	11.10.7
SEARCHADDRM (<i>data</i>)	0xC1	0x06	<i>data</i>						9.15	11.10.8
SEARCHADDRL (<i>data</i>)	0xC1	0x07	<i>data</i>						9.15	11.10.9
PROGRAM SHORT ADDRESS (<i>data</i>)	0xC1	0x08	<i>data</i>						9.15	11.10.10
VERIFY SHORT ADDRESS (<i>data</i>)	0xC1	0x09	<i>data</i>				✓		9.15	11.10.11
QUERY SHORT ADDRESS	0xC1	0x0A	0x00				✓		9.15	11.10.12
<i>Reserved for IEC 62386-104 (see [2])</i>	0xC1	0x0B	<i>data</i>	✓			✓			
<i>Reserved for IEC 62386-104 (see [2])</i>	0xC1	0x0C	<i>data</i>							
<i>Reserved for IEC 62386-104 (see [2])</i>	0xC1	0x0D	<i>data</i>							
WRITE MEMORY LOCATION (<i>DTR1, DTR0, data</i>)	0xC1	0x20	<i>data</i>	✓	✓		✓		9.11.6	11.10.13
WRITE MEMORY LOCATION – NO REPLY (<i>DTR1, DTR0, data</i>)	0xC1	0x21	<i>data</i>	✓	✓				9.11.6	11.10.14
DTR0 (<i>data</i>)	0xC1	0x30	<i>data</i>	✓						11.10.15
DTR1 (<i>data</i>)	0xC1	0x31	<i>data</i>		✓					11.10.16
DTR2 (<i>data</i>)	0xC1	0x32	<i>data</i>			✓				11.10.17
SEND TESTFRAME (<i>data</i>)	0xC1	0x33	<i>data</i>	✓	✓	✓				11.10.21
DIRECT WRITE MEMORY (<i>DTR1, offset, data</i>)	0xC5	<i>offset</i>	<i>data</i>	✓	✓		✓		9.11.6	11.10.18
DTR1:DTR0 (<i>data1, data0</i>)	0xC7	<i>data1</i>	<i>data0</i>	✓	✓					11.10.19
DTR2:DTR1 (<i>data2, data1</i>)	0xC9	<i>data2</i>	<i>data1</i>		✓	✓				11.10.20