

**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	Device or instance or feature, see Table 2	
0	64 short addresses								1		
1	0	32 device group addresses							1		
1	1	1	1	1	1	1	0	1			
1	1	1	1	1	1	1	1	1			
1	1	0	16 special command spaces						1		
1	1	1	0	x	x	x	1	Command specific		Special command	
1	1	1	1	0	x	x	1	Reserved			
1	1	1	1	1	0	x	1	Reserved			

**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		Reserved			
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	Reserved					
1	1	1	1	0	x	x	x	Reserved					
1	1	1	1	1	0	1	x	Reserved					
1	1	1	1	1	0	0	0	Reserved					

**Table 3 – 24-bit event message frame encoding**

Bits															Event scheme <sup>a</sup> / 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				
1	1	1	0	x	x	x	0	1	x	x	x	x	x	Reserved				
1	1	1	1	0	x	x	0	1	x	x	x	x	x	Device power cycle				
1	1	1	1	1	0	x	0	1	x	x	x	x	x	Device power cycle				
1	1	1	1	!	1	0	0	1	x	x	x	x	x	Device power cycle				
1	1	1	!	1	1	1	0	1	0	x	x	x	x	Device power cycle				
1	1	1	1	1	1	1	0	1	1	0	x	x	x	Device power cycle				
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			

<sup>a</sup> 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 (DTR0)	Device	✓			0x11	✓	✓	✓			✓		9.12.2	11.5.3
SET SHORT ADDRESS (DTR0)	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 (DTR0)	Device	✓			0x18	✓	✓	✓			✓		9.10.5	11.5.8
ADD TO DEVICE GROUPS 0-15 (DTR2:DTR1)	Device	✓			0x19	✓	✓		✓	✓	✓			11.5.9
ADD TO DEVICE GROUPS 16-31 (DTR2:DTR1)	Device	✓			0x1A	✓	✓		✓	✓	✓			11.5.10
REMOVE FROM DEVICE GROUPS 0-15 (DTR2:DTR1)	Device	✓			0x1B	✓	✓		✓	✓	✓			11.5.11
REMOVE FROM DEVICE GROUPS 16-31 (DTR2:DTR1)	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
Reserved <sup>a</sup>	Device	✓			0x21 <sup>a</sup>	✓	✓				✓			
Reserved for IEC 62386-104 (see [2])	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										
Reserved for IEC 62386-104 (see [2])	Device	✓			0x23	✓								
Reserved for IEC 62386-104 (see [2])	Device	✓			0x24	✓								
QUERY DEVICE STATUS	Device	✓			0x30	✓	✓				✓		9.17.2	11.6.3
QUERY APPLICATION CONTROLLER ERROR	Device	✓			0x31	✓					✓		9.16	11.6.4
QUERY INPUT DEVICE ERROR	Device	✓			0x32		✓				✓		9.16	11.6.5
QUERY MISSING SHORT ADDRESS	Device	✓			0x33	✓	✓				✓			11.6.6
QUERY VERSION NUMBER	Device	✓			0x34	✓	✓				✓		4.2	11.6.7
QUERY NUMBER OF INSTANCES	Device	✓			0x35	✓	✓				✓		9.5	11.6.9
QUERY CONTENT DTR0	Device	✓			0x36	✓	✓	✓			✓			11.6.8
QUERY CONTENT DTR1	Device	✓			0x37	✓	✓		✓		✓			11.6.10
QUERY CONTENT DTR2	Device	✓			0x38	✓	✓			✓	✓			11.6.11
QUERY RANDOM ADDRESS (H)	Device	✓			0x39	✓	✓				✓			11.6.12
QUERY RANDOM ADDRESS (M)	Device	✓			0x3A	✓	✓				✓			11.6.13
QUERY RANDOM ADDRESS (L)	Device	✓			0x3B	✓	✓				✓			11.6.14
READ MEMORY LOCATION (DTR1, DTR0)	Device	✓			0x3C	✓	✓	✓	✓		✓		9.11.5	11.6.15
QUERY APPLICATION CONTROLLER ENABLED	Device	✓			0x3D	✓					✓		9.10.1	11.6.16
QUERY OPERATING MODE	Device	✓			0x3E	✓	✓				✓		9.10.5	11.6.17
QUERY MANUFACTURER SPECIFIC MODE	Device	✓			0x3F	✓	✓				✓		9.10.5	11.6.18
QUERY QUIESCENT MODE	Device	✓			0x40	✓	✓				✓		9.10.4	11.6.19
QUERY DEVICE GROUPS 0-7	Device	✓			0x41	✓	✓				✓			11.6.20
QUERY DEVICE GROUPS 8-15	Device	✓			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(DTR0)	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 (DTR0)	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 (DTR0)	Device		✓		0x64		✓	✓			✓		9.5.5	11.8.4
SET INSTANCE GROUP 1 (DTR0)	Device		✓		0x65		✓	✓			✓		9.5.5	11.8.5
SET INSTANCE GROUP 2 (DTR0)	Device		✓		0x66		✓	✓			✓		9.5.5	11.8.6
SET EVENT SCHEME (DTR0)	Device		✓		0x67		✓	✓			✓		9.7.3	11.8.7
SET EVENT FILTER (DTR2, DTR1, DTR0)	Device		✓		0x68		✓	✓	✓	✓	✓		9.7.4	11.8.9
SET INSTANCE TYPE (DTR0)	Device		✓		0x69		✓	✓			✓		9.19	11.8.10
SET INSTANCE CONFIGURATION (DTR0, DTR2:DTR1)	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	Device		✓		0x83		✓				✓		9.17.3	11.9.5
QUERY EVENT PRIORITY	Device	✓	✓		0x84		✓				✓		9.14.2	11.9.13, 11.6.30
QUERY INSTANCE ENABLED	Device		✓		0x86		✓				✓		9.10.3	11.9.6
QUERY PRIMARY INSTANCE GROUP	Device		✓		0x88		✓				✓		9.5.5	11.9.7
QUERY INSTANCE GROUP 1	Device		✓		0x89		✓				✓		9.5.5	11.9.8
QUERY INSTANCE GROUP 2	Device		✓		0x8A		✓				✓		9.5.5	11.9.9
QUERY EVENT SCHEME	Device		✓		0x8B		✓				✓		9.7.3	11.9.10
QUERY INPUT VALUE	Device		✓		0x8C		✓				✓		9.8.3	11.9.11
QUERY INPUT VALUE LATCH	Device		✓		0x8D		✓				✓		9.8.3	11.9.12
QUERY FEATURE TYPE	Device	✓	✓		0x8E	✓	✓				✓		9.2, 9.5.4	11.9.14, 11.6.28
QUERY NEXT FEATURE TYPE	Device	✓	✓		0x8F	✓	✓				✓		9.2, 9.5.4	11.9.15, 11.6.29
QUERY EVENT FILTER 0-7	Device		✓		0x90		✓				✓		9.7.4	11.9.16
QUERY EVENT FILTER 8-15	Device		✓		0x91		✓				✓		9.7.4	11.9.17
QUERY EVENT FILTER 16-23	Device		✓		0x92		✓				✓		9.7.4	11.9.18
QUERY INSTANCE CONFIGURATION (DTR0)	Device		✓		0x93		✓	✓	✓	✓	✓		9.19	11.9.19
QUERY AVAILABLE INSTANCE TYPES	Device		✓		0x94		✓	✓	✓	✓	✓		9.19	11.9.20

<sup>a</sup> 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
Reserved for IEC 62386-104 (see [2])	0xC1	0x0B	<i>data</i>	✓			✓			
Reserved for IEC 62386-104 (see [2])	0xC1	0x0C	<i>data</i>							
Reserved for IEC 62386-104 (see [2])	0xC1	0x0D	<i>data</i>							
WRITE MEMORY LOCATION (DTR1, DTR0, <i>data</i> )	0xC1	0x20	<i>data</i>	✓	✓		✓		9.11.6	11.10.13
WRITE MEMORY LOCATION – NO REPLY (DTR1, DTR0, <i>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 (DTR1, <i>offset</i> , <i>data</i> )	0xC5	<i>offset</i>	<i>data</i>	✓	✓		✓		9.11.6	11.10.18
DTR1:DTR0 ( <i>data1</i> , <i>data0</i> )	0xC7	<i>data1</i>	<i>data0</i>	✓	✓					11.10.19
DTR2:DTR1 ( <i>data2</i> , <i>data1</i> )	0xC9	<i>data2</i>	<i>data1</i>	✓	✓					11.10.20