Protocol Converter MPO
Installation and Commissioning Manual

Safety Information

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Protocol Converter MPO Sense Edition

The MPO Protocol Converter operates as an interface between the INFO communication protocol and defined external protocols.
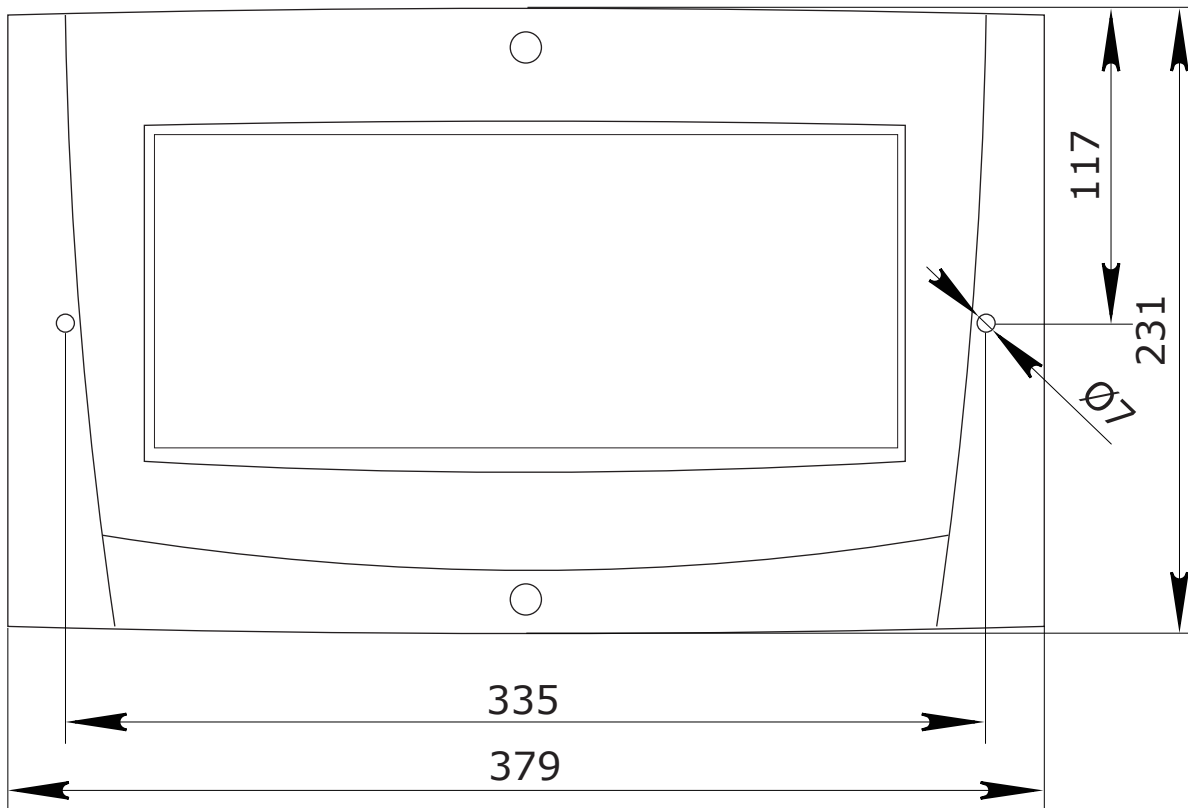
In one FDP system can be up to four MPO units connected.

The MPO can be connected to the FDP Sense Edition Panels; FDP221, FDP252 and FDP292 and FX-3Net System.

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Mechanical Dimensions

Protocol Converter MPO Sense Edition mechanical dimensions

Technical Data

Protocol Converter MPO Sense Edition Technical Data

Product number	FFS00703853
Dimensions (W × H × D)	379 × 231 × 54 mm
Weight	2.1 kg
Color	White
Operating temperature	+5 °C … +40 °C
Humidity	max. RH 95%
Operating voltage	19 ...30 VDC
Standby current	50 mA
Serial communication ports	In: RS485 or RS232
	Out: RS485
	Isolated: RS232
IP rating	IP30

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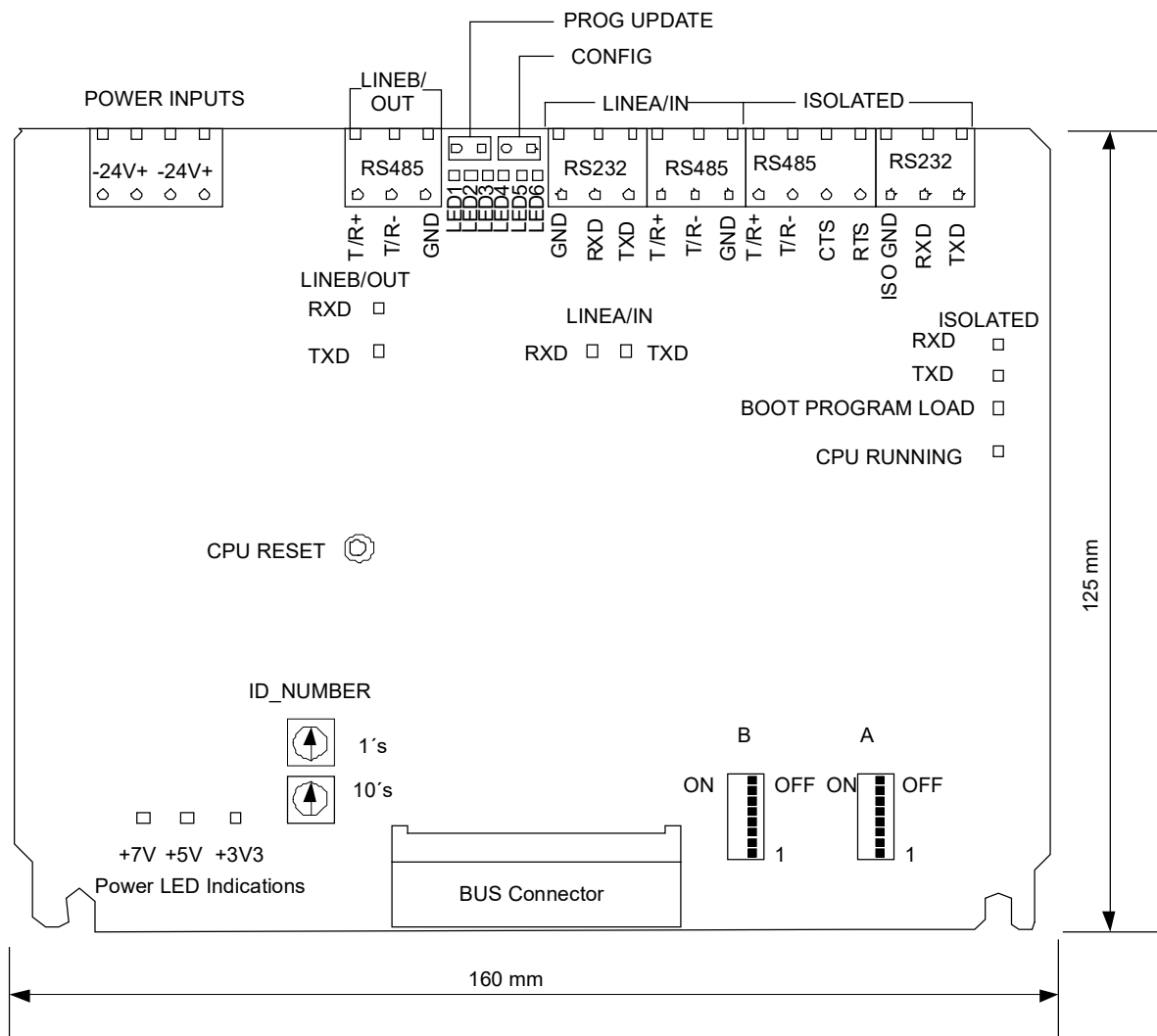
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Schneider Electric Fire & Security Oy reserves the right
to make modifications.

Protocol Converter MPO Sense Edition Product Codes

Product	Code	Description
MPO	FFS00703853	Panel version, wall mounting
MPOX-OB	FFS00703852	PCB version, card slot mounting

Electrical Connections

Electrical connections

Settings and LED Indications

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A Dip Switch

A1	OFF	Normal
	ON	Always SEK & ADR before text, if switch A3 = OFF
A2	OFF	NOT sending addressfault to paging system
	ON	Sending addressfault to paging system
A3	OFF	Sending text after trigger character
	ON	Sending all text from fire panel
A4	OFF	NOT sending comm.fault message to fire panel when no contact with paging system.
	ON	Sending comm.fault message to fire panel when no contact with paging system.
A5	OFF	Ascom character set 2
	ON	Ascom character set 1 (U910 chars)
A6	OFF	Normal
	ON	Sending paging id = 999
A7	OFF	Normal
	ON	Sending paging id = 9999
A8	OFF	Normal
	ON	Sends one paging with id as (Sw A6-A7) and text "TESTALARM"

NOTE: Switch A6-A7 cannot be used in ascom paging system together with telephony. In sites with telephony, use group numbers instead.

B Dip Switch

B1	OFF	MS Windows codepage 1252
	ON	MS-DOS codepage 850 (Multilingual Latin 1)
B2	OFF	Not used
	ON	
B3	OFF	Used with FDP and FX system (mess code set G)
	ON	Used with ESA/MESA system (mess code set F)
B4	OFF	OUT "B" port is used with debug info (printf())
	ON	OUT "B" port is used with INFO-protocol
B5	OFF	Not used
	ON	
B6	OFF	IN "A" port baud rate 1200
	ON	IN "A" port baud rate 9600

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B7	OFF	OUT "B" port baud rate 1200
	ON	OUT "B" port baud rate 9600
B8	OFF	To be "OFF"! Only for service purposes.
	ON	

LED Indications in Normal Use

LED 1	Continuous	Not acknowledge alarm in memory
	Blinking	Blink quickly at configuration state
LED 2	Continuous	Not acknowledge polling in memory
	Blinking	NA
LED 3	Continuous	MPO parameters data in flash
	Blinking	MPO data corrupted
LED 4	Continuous	NA
	Blinking	
LED 5	Continuous	No connection to fire panel
	Blinking	NA
LED 6	Continuous	No connection to external system
	Blinking	NA

NOTE: In system fault all LED indications are continuous.

LED Indications in Start-up Condition (10 seconds)

LED 1	Continuous	Display HW installed (not used with MPO)
	OFF	Display HW not installed
LED 2	Continuous	Isolated port installed
	OFF	Isolated port not installed
LED 3	Continuous	NA
	OFF	
LED 4	Continuous	NA
	OFF	
LED 5	Continuous	NA
	OFF	
LED 6	Continuous	MCO HW installed (not used with MPO)
	OFF	MCO HW not installed

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Jumpers for Service Purposes

Jumper	ON	OFF
Program update	Program update	Normal use
Configuration	Configuration state	Configuration state

NOTICE

ELECTROSTATIC DISCHARGE

Use electrostatic discharge (ESD) protection when you handle circuit boards and when you set jumpers or dip switches.

Failure to follow these instructions can result in equipment damage.

Software Update

The unit is set to the software update state by setting "prog update" jumper ON and restarting the unit (by pressing the CPU reset button). Please set the jumper to OFF again after restart. The software update is done by using the PC loader tool and the incoming serial port with RS232 setting. During the software update of the MPO unit the communication line to the FDP panel (RS485) must be disconnected.

Configuration

NOTE: The configuration is supported MPO SW version 2.10 or later.

The unit is set to the configuration state by setting "config" jumper ON and restarting the unit (by pressing the CPU reset button). The LED1 will blink quickly to indicate the configuration state. Remove cables from LINE A (the panel port) and connect PC cable to LINEA/RS232. Now you can start WinFMPX (2.3.1 or later) PC program to read and write the MPO parameters data. Note that all other communications will stop at the this state.

To leave the configuration state: set configuration jumper OFF, boot the device and connect the panel cable again.

Operating Modes
Hex switch 1's

NOTE: Hex switch position 7 is recommended if the receiving system has built-in functionality for handling reset commands. A reset command is then sent to the receiving system when an alarm reset is done.

However, most receiving systems must be programmed to accept reset commands.

Protocol Converter MPO Sense Edition Operating Modes, Isolated Port RS-232

	Paging system	Baud	Parity	Data bits	Stop bit
0	Ascom Tateco (Philips-Bosch, STT Condigi etc) ESPA 4.4.4 format	9600	no	8	1
1	Ascom Tateco (Philips-Bosch, STT Condigi etc) ESPA 4.4.4 format	9600	no	8	1
2	STT (Svenska trygghetstelefoner)	1200	even	7	2

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	Paging system	Baud	Parity	Data bits	Stop bit
3	GoGool/T1 protocol for SMS function	9600	even	8	1
4	CareTech 4000	9600	no	8	2
5	CareTech 5000	9600	no	8	2
6	CSDL (Siemens) MPO emulates Siemens fire panel	1200	no	8	1
7	SCADA, extended ESPA protocol on mode 0 & 1 ESPA 4.4.4 format	9600	no	8	1
8	Printer, alarm printout	9600	no	8	1

Team Code Settings

	Language	Fire alarm	Pre alarm	Fault alarm
0,8,9	English	889	889	889
1	Finnish	901	902	903
2,6	Swedish	990	990	990
3	Norwegian	9999	9999	9999
4	Danish	9002	9003	9004
11	Belgian	2100	2050	2000

System Principle
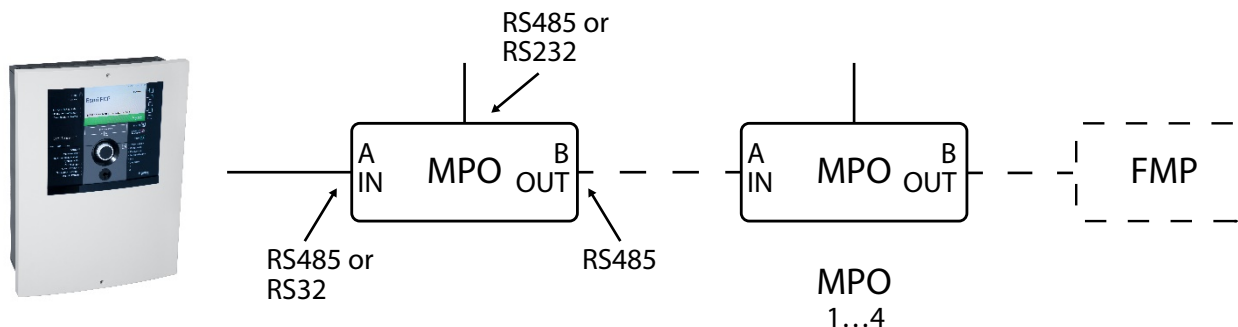
System principle

NOTE: The maximum number of MPO units connected to one FDP panel is 4.

NOTE: The RS232 setting is used for the software update and configuration.

NOTE: The maximum number of REP, FMP, DAP, ZLPX, MCO and MPO units connected to one FDP panel is 16.

NOTE: The maximum RS485 cable length is 1000 m.

NOTE: The maximum RS232 cable length is 15 m.

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Ascom Tateco (Philips-Bosch, STT Condigi etc)

Function

Supplementary text will be displayed in the fire-alarm system programmed pagers. Abbreviated text messages or the entire system text is transferred to the pager display and presented after the alarm type text, ALARM and PREALARM. Non-programmed text from the fire-alarm central unit is displayed with section and location address. Address error can also be sent to pagers but is only displayed with the section and location address.

The protocol converter also controls search type, signal tone, search type e.g. group or individual searching.

Due to the restricted size of the display on many pagers, the text displayed is limited to the text displayed after the last occurring fire-alarm search text, e.g. after the ".” in the text "Apartment. 1234”. The message sent to pagers always begins with the heading (generated by MPO) signifying the alarm type.

Thus, the displayed text will be "FIRE 1234” (Note: Text begins with a space). The displayed text always begins with "ALARM” for fire-alarms and "PREALARM” for advance notice alarms.

One can also send all extra text from the fire-alarm central unit to pagers (dipswitch A3=ON). Non-programmed addresses in the fire-alarm central unit or text beginning with two spaces is sent as "FIRE SEK 0001 ADR 01.001”. Alternatively pre-programmed text is sent as "FIRE_+text”. If it is preferred that section and address always be displayed, even if there is pre-programmed text, then set dipswitch A1 to ON.

To send alarms to several pagers in addition to the pre-assigned common id / "call address”, this should be programmed into the free text of the fire-alarm central unit by using brackets, e.g. [1234], [123] or [12]. Alpha characters not permitted. The search replaces the common search id or team code id number chosen with dipswitch A6-A7.

Programming

Leading text (fire panel) = '.'	Trigger character for start reading text from fire panel to send to pagers.
	(Switch A3=OFF)
	Not case sensitive.
Number of chars = 40/60	Max characters that fire panel can send.
Leading text for fire = FIRE	MPO-generated text
Leading text for prealarm = PREALARM	MPO-generated text
Leading text for fault = FAULT	MPO-generated text
Number of pagings = 2	Paging system take care about if more than one paging is necessary
Tone signal Fire = Siren	
Tone signal Prealarm= Siren	
Tone signal Fault = 2-beep	
Priority = Alarm	Highest priority
Paging id Fire = 889	Team code id (call address)
Paging id Prealarm = 889	Team code id (call address)
Paging id Fault = 889	Team code id (call address)
Programmed paging id= [nnnn]	Two, three or four digit number between brackets in text from fire panel will be the paging id for that alarm instead of the default team code.

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CareTech 4000

Function

Supplementary text will be displayed in the fire-alarm system programmed pagers. Abbreviated text messages or the entire system text is transferred to the pager display and presented after the alarm type text, ALARM and PREALARM.

On fire alarm MPO sends an alarm code that is taken from the last numbers (max 3 digits) in the text message from the fire panel. The text message in the fire panel can be programmed individually on each alarm address. For example "Apartment nr. 123". The sent alarm code will be 123.

The alarm message in the cell phone will be "fire alarm code 123". If no text is programmed at the alarm address, MPO sends three 000.

CareTech 5000

Function

Supplementary text will be displayed in the fire-alarm system programmed pagers. Abbreviated text messages or the entire system text is transferred to the pager display.

On fire alarm MPO sends an alarm code that is taken from the last numbers (max 4 digits) in the text message from the fire panel. The text message in the fire panel can be programmed individually on each alarm address. For example "Apartment nr. 1234". The sent alarm code will be 1234.

The alarm message in the cell phone will be "fire alarm code 1234". If no text is programmed at the alarm address, MPO sends 0000.

ROBOFON googol/T1

Function

Additional texts that shall be shown in an SMS, are programmed in fire panel.

A separate part of the text or the whole text in the panel is transferred to the SMS and present after alarm type text (FIRE or PRE ALARM) and address and zone information.

The protocol converter MPO is connected to ROBOFON/T1 to send SMS message to GSM cell phones. ROBOFON/T1 is an dial-up alarm transmitter.

To be able to send SMS message to GSM cell phones, MPO has to be connected to a ROBOFON GooGol/T1 (see separate instruction manual for GooGol/T1). GooGol/T1 is an dial-up transmitter who always calls an centralized service at an operator for SMS messages.

The message is sent to the operator service and distributed to cell phones.

If the alarm reaches the operator but for some reason is not distributed to the phone, the message will be stored for three days and after that deleted.

The phone number to the service is pre-programmed but has to be adjusted and complemented with country specific number if necessary.

The phone numbers for the cell phones (max 16 digits) has to be programmed in the ROBOFON/T1 using a computer.

A windows program is included for programming and configuring with the ROBOFON/T1 unit. The unit has to be programmed to the right function. An example is included. If the intention is to call to several phones, the example has to be modified.

The ROBOFON/T1 has to be connected to a telephone line, and if there is a switch connection you can program the unit to generate a zero signal and wait for dial tone.

User can program a text per address point/detector. This user texts (max 30 characters) is sent in SMS-message with alarm and prealarm events. Text is not sent with fault events.

Programming

Leading text (fire panel) = '.'	Trigger character for start reading text from fire panel to send as SMS.
	(Swith A3=OFF)
	Not case sensitive.
Number of chars = 30	Max characters that fire panel can send

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Leading text for fire = FIRE	MPO-generated text
Leading text for prealarm = PREALARM	MPO-generated text
Leading text for fault = FAULT	MPO-generated text

STT – Svenska TrygghetsTelefoner

Function
On fire alarm MPO sends a message with type=1 and an alarm code which is unique for each alarm point. On reset of alarm MPO sends a message with type= 2 and the same alarm code as for the fire alarm. Function is equal to Tele Larm fire alarm system.

Printer Interface

Function
Alarms and resets are printed. Printed alarm types are fire alarm, pre-alarm and fault alarms. If additional text is programmed in the panel, it will be printed out for fire and pre alarms.

The print out on alarms is the same as on the fire panel. For example:

FIRE I ZONE:0002 ADR:01.001

Possible EXTRA TEXT

RESET I ZONE:0002 ADR:01.001

CSDL (Siemens) MPO Emulates Siemens

Function
The MPO can emulate the Siemens panel with CSDL protocol, for example AlgoRex CS1140 with communication card 440763.

CSDL SCADA, Expanded ESPA Protocol

Extended Protocol MPO
MPO is a serial protocol converter for adapting fire-alarm systems from Schneider Electric to paging systems or supervisor system (SCADA). This mode is an add-on to ascom-tateco mode 1.

Functionality is depending on ascom-tateco mode setup.

Reserved Characters
Communication follow ESPA 4.4.4 syntax and messages are sent as text messages as follow.

SOH 0x01

STX 0x02

ETX 0x03

EOT 0x04

ENQ 0x05

ACK 0x06

BEL 0x07

NAK 0x15

SYN 0x16

ETB 0x17

US 0x1F

RS 0x1E

GS 0x1D

DLE 0x10

Example of Fire Alarm Message from MPO
SOH, "1", STX, "1", US, "990", RS, "2", US, " text message "
,RS,"3",US,"0",RS,"5",US,"1",RS,"6",US,"1",ETX,BCC

BCC = Checksum for the message

The text message could have different format depending on setup of MPO.

Ex 1. Alarm type + text from panel

FIRE XXXXXXXXXXXXXXXXXXXX XXXX = text from panel

FIRE + space always before text

PREALARM + space always before text

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FAULT + space always before text

The text from panel is on 7th position in text message.

Ex 2. Alarm type + address info + text from panel

FIRE ZONE 0001 ADR 01.004
XXXXXXXXXXXXXXXXXXXX XXXX = text from panel

The text from panel is on 27th position in text message.

All alarm messages shall be acknowledged with ACK (06H).

MPO ends the conversation with one EOT (04H).

Communication
MPO sends polling message
(EOT)(EOT)(EOT)1(ENQ)2(ENQ) to check that
connection is ok. The polling message shall be
answered with ACK.

MPO ends the conversation with one EOT(04H).

Message Types
Message is built of 5 characters plus spaces and is
leading every text message followed by other
information.

ZZZZ = 4 digits zone number

LL = 2 digits for loop number

DDD = 3 digits for detector number

XXX = 3 digits for device code

"FIRE ZONE ZZZZ ADR LL.DDD"	Fire alarm (address)
"PREALARM ZONE ZZZZ ADR LL.DDD"	Prealarm (address)
"FAULT ZONE ZZZZ ADR LL.DDD"	Address Fault
"SERVC ZONE ZZZZ ADR LL.DDD"	Service alarm (address)
"COMM.FAULT ZONE 0000 ADR 00.000"	Comm fault with panel
"KOMM.OK ZONE 0000 ADR 00.000"	Comm fault OK
"TEST"	Test alarm (DipSw A8)
"LO_DI ZONE ZZZZ ADR LL.000"	Loop disconnected
"LO_EN ZONE ZZZZ ADR LL.000"	Loop connected
"ZO_DI ZONE ZZZZ ADR 00.000"	Zone disconnected
"ZO_EN ZONE ZZZZ ADR 00.000"	Zone connected
"AD_DI ZONE 0000 ADR LL.DDDI"	Address disconnected
"AD_EN ZONE 0000 ADR LL.DDD"	Address connected
"DEVDI CODE XXX"	Device disconnected
"DEVEN CODE XXX"	Device connected
"DEV_F CODE XXX"	Device fault
"L_RFI ZONE ZZZZ ADR LL.DDD"	Reset address fire
"L_RPR ZONE ZZZZ ADR LL.DDD"	Reset address prealarm
"L_RFA ZONE ZZZZ ADR LL.DDD"	Reset address fault
"L_RMA ZONE ZZZZ ADR LL.DDD"	Reset address service
"G_RES"	Reset total

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Synchronization

It's possible for the supervisor system to check actual status in the fire system through sending a BEL(0x07). MPO sends an acknowledge ACK as an answer to the command.

On that command the fire system sends all status information that differs from normal state. All other inputs are assumed to be normal.

General Device Codes

Fault/Maintenance Warnings, Monitoring Cannot Be Disabled

Internal comm. fault	11
External comm. fault	12
Interpanel comm. fault	13

Fault/Maintenance Warnings, Monitoring Can Be Disabled

Fire routing fault/monitor	21
Fault routing fault/monitor	23
Extinguisher fault/monitor	25
Alarm device fault/monitor	40
Power supply fault/monitor	60
Earth fault/monitor	70
Fuse fault/monitor	80
Battery loading monitor	101

Controls

Fire routing control	121
Fault routing control	123
Extinguisher control	125
Alarm device control	140
Fire controls	160
Auxiliary relays	171..173
Open coll. outputs	201..232

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