Esmi Sense FDP Fire Detection Panel ALC and SLC Loop controllers

Instruction Sheet
R10000GB0

Contents

1 Esmi Sense FDP Fire Detection Panel

The intelligent and modular Esmi Sense FDP fire detection panel provides multiple new features for efficient and reliable fire safety. The Esmi Sense FDP fire detection panel comes in three different models: FDP221, FDP252 and FDP292.

You can connect the Esmi Sense FDP fire detection panel to the EcoStruxure Fire Expert online application and the full range of Schneider Electric's intelligent and conventional detectors can be connected to FDP.

Esmi Sense FDP is compatible with other fire detection equipment, such as:

- Fireman's panel FMP
- Zone led panel ZLPX
- Alarm delay panel DAP
- Multipurpose controller MCO
- Alarm management system ESGRAF

Esmi Sense FDP also provides an integration server interface, which enables integration to the building management system.
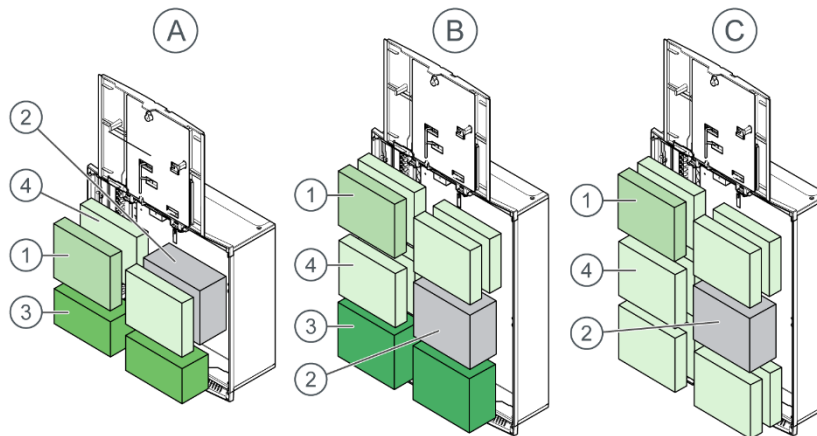
Figure 1. The components inside the Esmi Sense FDP fire detection panel

A	FDP221	FFS00703910	1	MCU unit
B	FDP252	FFS00703920	2	PS2 power supply
C	FDP292	FFS00703930	3	Batteries
			4	Optional circuit board slots

2 Construction of Esmi Sense FDP fire detection panel

Table 1.Construction of the Esmi Sense FDP fire detection panel

Component	FDP221	FDP252	FDP292	Notes
Default components				
User interface	1	1	1	
MCU master controller unit	1	1	1	
PS2 power supply	1	1	1	
Optional circuit board slots	**2**	**5**	**9**	
Optional circuit boards				
SLC loop controller	0…2	0…4	0…4	Max 4 controllers in total. Order number FFS00702511.
ALC2 loop controller	0…2	0…4	0…4	Max 4 controllers in total. Order number FFS00702519.
CLC line controller	0…2	0…4	0…4	Max 4 controllers in total. Order number FFS00702512.
IOC control unit	0…2	0…4	0…4	Max 4 control units in total. Order number FFS00702530.
OCA control unit	0…2	0…4	0…4	Max 4 control units in total. Order number FFS00702531.
REPX-OB protocol repeater	0…1	0…1	0…1	Order number FFS00703833.
MCOX-OB logic control unit	0…1	0…1	0…1	Order number FFS00703835.
ZLPX-IC zone LED panel	0…1	0…1	0…1	Order number FFS00703841.

Optional plugins for MCU master controller unit				
INFO plugin with RS485	0…1	0…1	0…1	Order number FFS00702523.
Network plugin with 2 RS485 ports	0…1	0…1	0…1	Order number FFS00702524.

Network plugin with 2 Ethernet ports	0…1	0…1	0…1	Order number FFS00702525.

2.1   Terminals on the MCU Unit
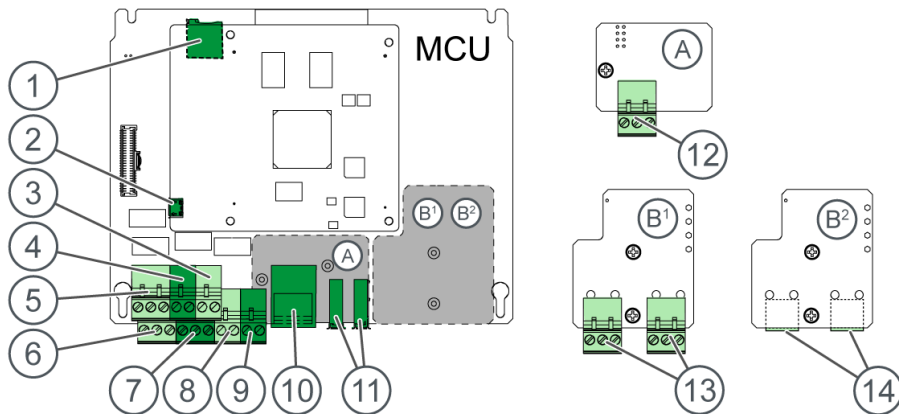
Figure 2. Terminals on the MCU unit

1.   *MicroSD card*
2.   *Micro USB*
3.   *PO*
4.   *MO*
5.   *CO3*
6.   *CO2*
7.   *CO1*
8.   *IN2*
9.   *IN1*
10. *Ethernet*

11. *USB 1, USB 2*

Option A: INFO device
12. *INFO plugin with RS485*

Option B1: RS485 (SYS1) + RS485 (SYS2)
13. *Network plugin with 2 RS485 ports*

Option B2: Ethernet (IN) + Ethernet (OUT)
14. *Network plugin with 2 Ethernet ports*

Table 2 Terminals on the MCU unit

Terminal	Connector symbol	Function	Description
PO	24 V -	Power supply out (-)	24 V power supply for external devices. Short-circuit protection, max. 500 mA
	24 V +	Power supply out (+)	
MO	-	Monitored output line (-)	Fire alarm device line as default (monitored). You can set other functions with the Fire Expert configuration tool.
	+	Monitored output line (+)	
CO1	NC	Clean contact output 1 NC	Fire alarm router output (default). You can set other functions with the Fire Expert configuration tool. Max 30 Vdc/1.0 A.
	C	Clean contact output 1 C	
	NO	Clean contact output 1 NO	
CO2	NO	Clean contact output 2 NO	Fault warning router output (default). The relay is energized in normal condition (drawn) and releases in case of fault. You can set other functions with the Fire Expert configuration tool. Max 30 Vdc/1.0 A.
	C	Clean contact output 2 C	
	NC	Clean contact output 2 NC	
CO3	NC	Clean contact output 3 NC	Fire alarm output (default). You can set other functions with the Fire Expert configuration tool. Max 30 Vdc/1.0 A.
	C	Clean contact output 3 C	
	NO	Clean contact output 3 NO	
IN 1	+	Clean contact input 1	Fault in fire alarm router (monitored and normally open as default). You can set other functions with the Fire Expert configuration tool.
	-		
IN 2	+	Clean contact input 2	Fault in fault warning router (monitored and normally open as default). You can set other functions with the Fire Expert configuration tool.
	-		
Ethernet	none		LAN configuration, connection to Fire Expert and service
USB 1	none		Configuration and software update
USB 2	none		Spare port for future development
Micro USB	none		Maintenance.
MicroSD	none		The FDP user interface and software are stored on the MicroSD card. Do not remove the MicroSD card under any circumstances.
Optional plugins:			
2 x RS485*	T/R +	Transmit/Received Data +	Network plugin (RS485). Serial communication to FDP/FX network. Order number FFS00702524.
	T/R -	Transmit/Received Data -	
	Gnd	Ground	
2 x Ethernet*	none		Network plugin (Ethernet). Connection to FDP network. Order number FFS00702525.
1 x RS485	T/R +	Transmit/Received Data +	INFO plugin (RS485). Serial communication to INFO devices. Order number FFS00702523.
	T/R -	Transmit/Received Data -	
	Gnd	Ground	

> * The MCU unit has room for either the 2 x RS485 OR 2 x Ethernet plugin. Both plugins cannot be installed on the same circuit board.

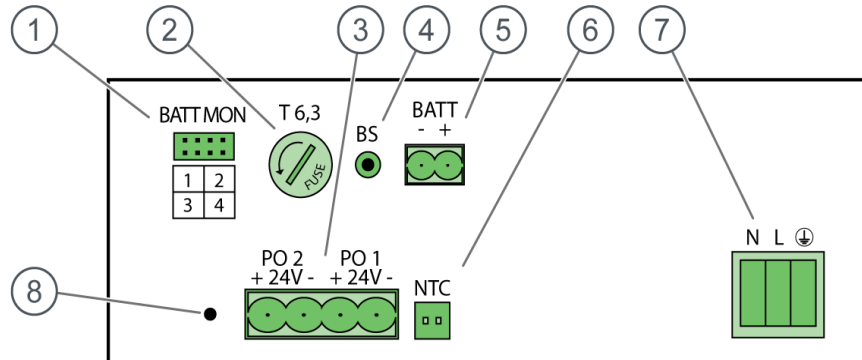## 2.2 Terminals on the PS2 Power Supply

Figure 3. Terminals and fuses on the PS2 power supply

1. *Terminals for the battery monitoring device*
2. *Battery fuse, 6.3 A*
3. *Power outputs PO1 and PO2 (24 V)*
4. *Battery start button*
5. *Terminal for the battery cable*
6. *Battery temperature sensor*
7. *Mains terminal*
8. *Factory assembly adjustment only*

Table 3. Terminals and fuses on the PS2 power supply

Terminal	Connector symbol	Function	Description
Battery monitoring device	BATT MON 1–4	Terminals for the battery monitoring device.	If you install the optional battery monitoring device, FDP gives a fault warning if batteries are disconnected or removed. One battery monitoring device monitors one pair of batteries.
PO1	24V-	Power supply out -	24 V power supply for external devices. Short-circuit protection, max. 4A.
	24V+	Power supply out +	
PO2	24V-	Power supply out -	24 V power supply for external devices. Short-circuit protection, max. 4A.
	24V+	Power supply out +	
Mains fuse	-	Mains fuse (T4A/ 250V)	The mains connection is protected with a T 4 A fuse (only replaceable by service personnel)

Terminal	Connector symbol	Function	Description
Battery fuse	Fuse T 6.3	Battery fuse (T6.3A/ 250V)	The battery connection is protected with a T 6.3 A fuse.
NTC	NTC	Temperature sensor	Monitors the ambient temperature around batteries.
Battery	BATT -	Battery -	Battery connection (back-up power)
	BATT +	Battery +	
Mains	N	Neutral	Mains connection
	L	Live	
	Ground	Ground	

2.3 Terminals on the SLC circuit board
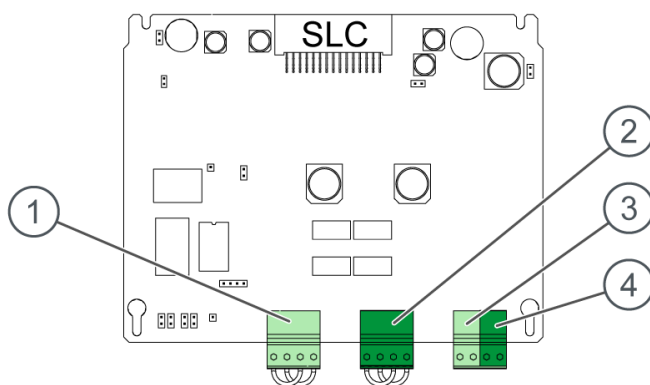
Figure 4. Terminals on the SLC circuit board

15. *Addressable loop 1* 17. *PO2*
16. *Addressable loop 2* 18. *PO1*

The SLC circuit board (order number FFS00702511) is an optional feature.

Table 4. Terminals and fuses on the SLC circuit board

Terminal	Connector symbol	Function	Description
PO1	-	Power supply out -	24 V power supply for external devices. Short-circuit protection, max. 500 mA.
	+	Power supply out +	
PO2	-	Power supply out -	24 V power supply for external devices. Short-circuit protection, max. 500 mA.
	+	Power supply out +	
Addressable loop 1	B -	Addressable loop return -	Addressable loop for SLC addressable detectors and devices.
	B +	Addressable loop return +	

Terminal	Connector symbol	Function	Description
Addressable loop 2	A -	Addressable loop outgoing -	159 addressable detectors and 159 other devices, max. 318.
	A +	Addressable loop outgoing +	
	B -	Addressable loop return -	Addressable loop for SLC addressable detectors and devices. 159 addressable detectors and 159 other devices, max. 318.
	B +	Addressable loop return +	
	A -	Addressable loop outgoing -	
	A +	Addressable loop outgoing +	

2.4 Terminals on the ALC2 circuit board
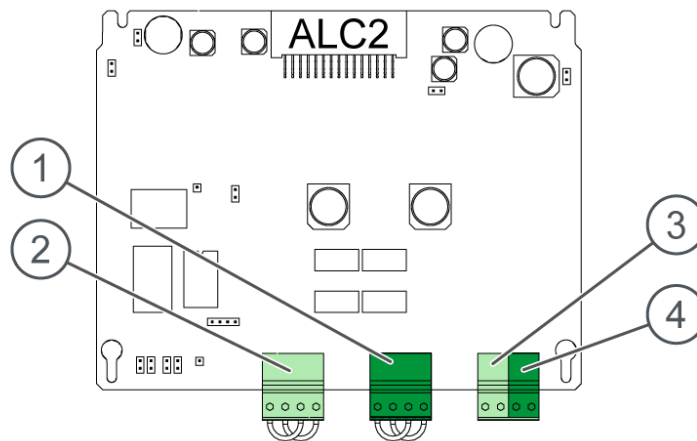
Figure 5. Terminals on the ALC2 circuit board

1. *Addressable loop 1*   3. *PO2*
2. *Addressable loop 2*   4. *PO1*

The ALC2 circuit board (order number FFS00702519) is an optional feature.

Table 5 Terminals and fuses on the ALC2 circuit board

Terminal	Connector symbol	Function	Description
PO1	-	Power supply out -	24 V power supply for external devices. Short-circuit protection, max. 500 mA.
	+	Power supply out +	
PO2	-	Power supply out -	24 V power supply for external devices. Short-circuit protection, max. 500 mA.
	+	Power supply out +	
Addressable loop 1	B -	Addressable loop return -	Addressable loop for ALC2 addressable detectors and devices.

	B +	Addressable loop return +	Max. 126 addresses.
	A -	Addressable loop outgoing -	
	A +	Addressable loop outgoing +	
Addressable loop 2	B -	Addressable loop return -	Addressable loop for ALC2 addressable detectors and devices. Max. 126 addresses.
	B +	Addressable loop return +	
	A -	Addressable loop outgoing -	
	A +	Addressable loop outgoing +	

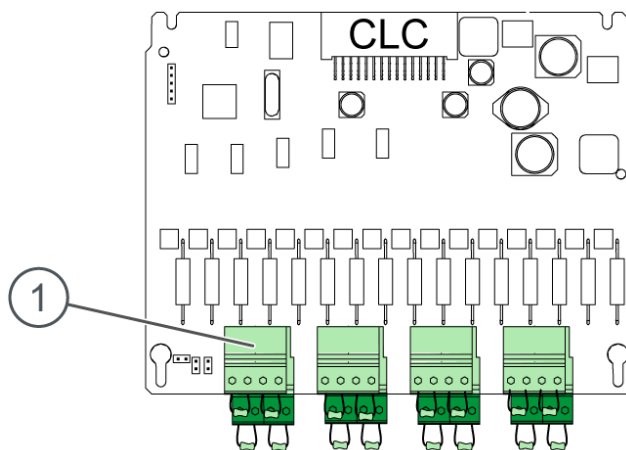## 2.5 Terminals on the CLC circuit board

Figure 6. Terminals on the CLC circuit board

16 conventional line terminals

The CLC circuit board (order number FFS00702512) is an optional feature.

Table 6 Terminals and fuses on the CLC circuit board

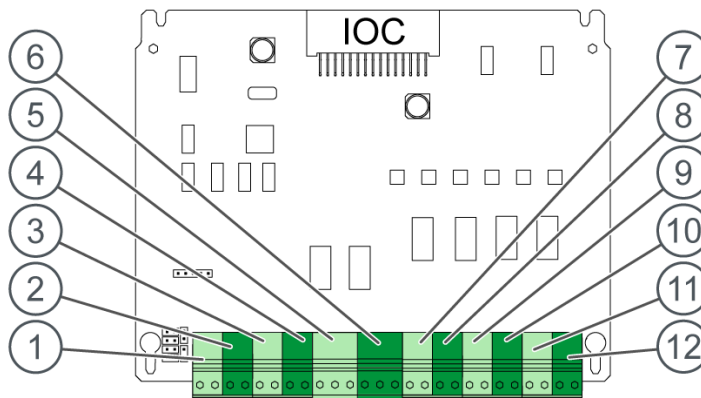| Terminal	Connector symbol	Function	Description
16 conventional line terminals	-	*Conventional line -*	Connection for conventional detectors and other conventional devices. Conventional lines can be configured as input lines.
	+	*Conventional line +*	

2.6 Terminal on the IOC circuit board

Figure 7. Terminals on the IOC circuit board

1. *IN4*   5. *CO2*   9. *MO4*
2. *IN3*   6. *CO1*   10. *MO3*
3. *IN2*   7. *PO2*   11. *MO2*
4. *IN1*   8. *PO1*   12. *MO1*

Table 7. Terminals on the IOC circuit board

Terminal	Connector symbol	Function	Description
IN1	+	Clean contact input 1	Fault warning, normally closed (default). You can set other functions with the Fire Expert configuration tool.
	-		
IN2	+	Clean contact input 2	Fault in extinguisher, normally closed (default). You can set other functions with the Fire Expert configuration tool.
	-		
IN3	+	Clean contact input 3	

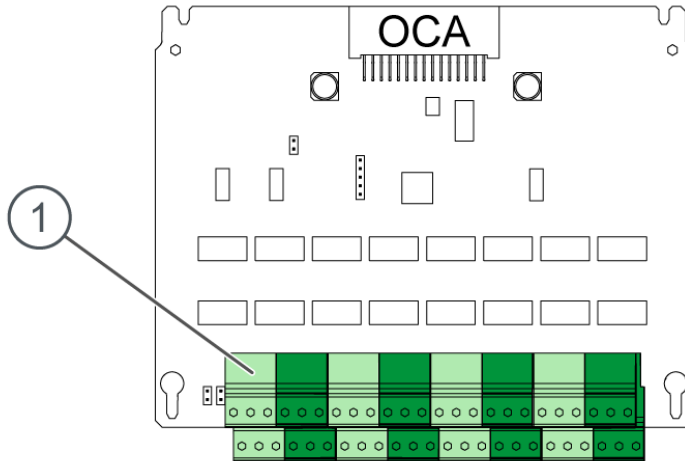| Terminal	Connector symbol	Function	Description
-			Extinguisher activated, normally open (default). You can set other functions with the Fire Expert configuration tool.
IN4	+	Clean contact input 4	Smoke vents activated, normally open (default). You can set other functions with the Fire Expert configuration tool.
	-		
CO1	NC	Clean contact output 1 NC	Fire alarm output (default). You can set other functions with the Fire Expert configuration tool. Max 30 Vdc/1.0 A.
	C	Clean contact output 1 C	
	NO	Clean contact output 1 NO	
CO2	NO	Clean contact output 2 NO	Fire alarm output (default). You can set other functions with the Fire Expert configuration tool. Max 30 Vdc/1.0 A
	C	Clean contact output 2 C	
	NC	Clean contact output 2 NC	
PO1	24 V -	Power supply out (-)	Power supply 1. 24 V power supply for external devices. Short-circuit protection, max. 500 mA
	24 V +	Power supply out (+)	
PO2	24 V -	Power supply out (-)	Power supply 2. 24 V power supply for external devices. Short-circuit protection, max. 500 mA
	24 V +	Power supply out (+)	
MO1	-	Monitored output line 1 -	Fire alarm device line as default (monitored). You can set other functions with the Fire Expert configuration tool. Max 500 mA each.
	+	Monitored output line 1 +	
MO2	-	Monitored output line 2 -	
	+	Monitored output line 2 +	
MO3	-	Monitored output line 3 -	
	+	Monitored output line 3 +	
MO4	-	Monitored output line 4 -	Fault warning device line as default (monitored). You can set other functions with the Fire Expert configuration tool. Max 500 mA each.

2.7 Terminals on the OCA circuit board

Figure 8. Clean contact outputs on the OCA circuit board

16 clean contact outputs

Table 8. Terminals on the OCA circuit board

Terminal	Connector symbol	Function	Description
CO1–CO2	NC	Clean contact output NC	Fire alarm output. You can set other functions with the Fire Expert configuration tool. Max 30 Vdc/1.0 A.
	C	Clean contact output C	
	NO	Clean contact output NO	
CO3–CO4	NC	Clean contact output NC	Fire door output. You can set other functions with the Fire Expert configuration tool. Max 30 Vdc/1.0 A.
	C	Clean contact output C	
	NO	Clean contact output NO	
CO5–CO6	NC	Clean contact output NC	Pre-alarm output. You can set other functions with the Fire Expert configuration tool. Max 30 Vdc/1.0 A.
	C	Clean contact output C	
	NO	Clean contact output NO	
CO7–CO8	NC	Clean contact output NC	Technical alarm output. You can set other functions with the Fire Expert configuration tool. Max 30 Vdc/1.0 A.
	C	Clean contact output C	
	NO	Clean contact output NO	
CO9–CO10	NC	Clean contact output NC	Fault warning output. You can set other functions with the Fire Expert configuration tool. Max 30 VDdc1.0 A.
	C	Clean contact output C	
	NO	Clean contact output NO	
CO11–CO12	NC	Clean contact output NC	Maintenance warning output. You can set other functions with the Fire Expert configuration tool. Max 30 Vdc/1.0 A.
	C	Clean contact output C	
	NO	Clean contact output NO	
CO13–CO14	NC	Clean contact output NC	Disablement output. You can set other functions with the Fire Expert configuration tool. Max 30 Vdc/1.0 A.
	C	Clean contact output C	
	NO	Clean contact output NO	

Terminal	Connector symbol	Function	Description
CO15–CO16	NC	Clean contact output NC	Access level 2 output. You can set other functions with the Fire Expert configuration tool. Max 30 Vdc/1.0 A.
	C	Clean contact output C	
	NO	Clean contact output NO	

Security Annex

Purpose of network connectivity

The Esmi Sense FDP Fire detection panel supports centralized configuration management and remote monitoring and operation using the EcoStruxure Fire Expert online solution. In order to enable the remote management capabilities, the panel needs to have access to an Internet connection, and has to be registered in the EcoStruxure Fire Expert service during commissioning, as described in the EcoStruxure Fire Expert User manual.

Technical requirements for the Internet connection

When using the customer's own network connection instead of the bundled mobile data solution, the connectivity must meet the following criteria:

- A DHCP service must be available for the panel, providing an IP configuration that is able to look up and contact the EcoStruxure Fire Expert service at the address gatewayfdp.esmifire.com

- The client must be able to connect Fire Expert directly. The service is listening to TCP port 443.

- All connections are outbound and initiated by the FDP, no inbound port openings are required.

- Only the connector "Ethernet Connection to EcoStruxure Fire Expert and maintenance" must be used for Internet connectivity. Refer to the product installation documentation to identify the correct physical connector in the unit.

Security principles

The panel uses its internet connection only for contacting the management services provided by EcoStruxure Fire Expert over secured connections. The panel will not contact any third-party systems or accept any incoming connections. Connections between FDP and EcoStruxure Fire Expert are encrypted and use certificates for endpoint authentication.

The management interface uses only the external Ethernet interface and has been isolated from fire detection core features, which operate independently of any online

features. Unavailability of the Internet connectivity or malicious traffic in the external network do not affect the core functionality of the panel.

⚠ WARNING
Certain hardware configurations have additional Ethernet ports for inter-panel connectivity. These interfaces are reserved for this purpose only. Do not connect these ports to any LAN set up for another purpose and never connect any unsupported devices to the FDP dedicated network. Although the panel's interfaces have been secured against malicious traffic, the load caused by unsupported devices could affect the core features.

The panel does not provide remote shell access and does not have any default OS level accounts. The network interface has been hardened and firmware distributions include security patches available at release time. Schneider Electric will provide fixes to vulnerabilities discovered in components used, but installation of fixes requires that changes are approved by owner. In order to ensure the security of the panel, the person responsible for managing the panel must acknowledge and deploy the fixes in a timely manner. If the responsibility of installing security patches has not been assigned, the manufacturer cannot assure the security of the connection and it is not safe to connect the panel to the Internet.

Security of the EcoStruxure Fire Expert cloud services

EcoStruxure Fire Expert is a multitenant SaaS service built on the Microsoft Azure cloud platform and relies on security solutions provided by the platform. For more information on the technology, refer to Microsoft Azure security documentation. The access control model of the service is based on the ownership of data and role-based permissions. Each customer has access to only their own data. Transfer of customer data over the Internet uses only secure connections.

<table>
<tr><td align="center">C €
0402</td></tr>
<tr><td align="center">Schneider Electric Fire & Security Oy P.O. Box 415

FI-02601 Espoo, Finland</td></tr>
<tr><td align="center">For models: FDP221, FDP252, FDP292

Declaration of performance:
0402-CPR-SC0154-17, 0402-CPR-SC0155-17</td></tr>
<tr><td align="center">European standard EN 54-2:1997/AC:1999/A1:2006

EN 54-4:1997/AC:1999/A1:2002/A2:2006

Control and indicating equipment for fire detection and fire alarm systems for buildings

FDP221, FDP252, FDP292</td></tr>
<tr><td>Provided options: 7.8; 7.9.1; 7.10.3; 7.11; 7.12.2; 7.13; 8.3; 8.4; 8.9; 9.5; 10</td></tr>
<tr><td>Related documents: D01778 Esmi Sense FDP Fire detection panel with SLC loop controller data sheet, D01779 Esmi Sense FDP Fire detection panel with ALC2 loop controller data sheet, O1884 Esmi Sense FDP Fire detection panel User manual, O1885 Esmi Sense FDP Fire detection panel Installation and commissioning manual, O1889 Esmi Sense FDP Fire detection panel Maintenance manual</td></tr>
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