



# TYPE APPROVAL CERTIFICATE



N. ELE055318CS

This is to certify that the product below is found to be in compliance with the applicable requirements of the RINA type approval system.

<b>Description</b>	<b>Monitoring and Control System for Fire Doors and Fire Dampers</b>
<b>Type</b>	<b>FDMS</b>
<b>Applicant</b>	<b>MARTEC S.p.A. Via dell' Industria 1/3 20060 Vignate (MI) Italy</b>
<b>Manufacturer</b>	<b>MARTEC S.p.A. Via dell' Industria 1/3 20060 Vignate (MI) Italy</b>
<b>Reference Standards</b>	<b>RINA Rules for the Classification of Ships - Part C - Machinery, Systems and Fire Protection - Ch. 3, Sect. 6, Table 1</b>

Issued in Genova on 22 October, 2018

This certificate is valid until 22 October, 2023

RINA Services S.p.A.

*Valerio Bonanni*





# TYPE APPROVAL CERTIFICATE



N. **ELE055318CS**

**FDMS 60-0122- ... System** , main features:

**FDMS** is a system developed to control and monitoring the fire doors and dampers.

## System configuration

The system is composed of three parts:

- Top System (\*) - Ethernet ring
- Field interface - MPB-DCU
- Field control unit FCU2
- FDU Fire Door / Damper unit

The TOP system is normally made by the ESD system, which via the Ethernet interface with the MPB-DCU unit, reads the status feedback and executes the commands to doors/dampers.

In addition, the top system can also perform the function of operator interfaces or alternatively provides information to another system that runs the function.

The field interface is made through the unit MPB-DCU-C which provide redundant power and communication to field units.

The field consists of the FCU2 in different configurations depending on the type of door/damper.

On the same branch you can install up to 32 FCU2.

## MPB Technology

The infrastructure of the FDMS system is based on MPB technology that is developed to power, control and monitor the field units.

The FDMS system has been developed to ensure that a single failure will not cause a degradation of performance; in particular, the FCU2 receives a redundant power supply and communication.

System architecture is based on two main components, the MPB-DCU-C (data Collecting Unit) and the FCU2. (field unit)

## MPB-DCU-C Power Bus Data Collecting Unit

Provides an ac/dc power supply with extensive input from 85 to 265 Vac and 54 Vdc / 500W field power supply / auxiliary power supply (Nominal input voltage is 230V ac 50/60Hz)

The output is provided with short circuit monitoring

In addition to providing power to the field, the MPB-DCU-C handles the communication with the field and with the top system (ESD)

The communication to the field is realized by the OFDM technology which consists in frequency modulation on the two power supply wires. The field unit are powered redundantly via two MPB-DCU installed in separate control cabinets.

The communication to the top system is realized by Ethernet 10/100 Mbit/s

**MPB-DCU-C** includes:

- Redundant power supply with internal change over (230Vac), main and back-up with supervision
- Short circuit monitoring and short circuit protection
- Redundant Communication
- Host communication: Ethernet 10/ 100 Mbit and RS 485
- Field power supply 54Vdc \_ 500W
- Auxiliary power supply 54Vdc \_ 500W





# TYPE APPROVAL CERTIFICATE



N. **ELE055318CS**

## **Fire Door Unit FDU-A-10W and FDU-A-15W**

Units for the control and monitoring of the fire doors, the same can also be used as a unit of generic input output

The unit is connected to two MPB-DCU-C from which it receives the power supply and communication based on OFDM modulation frequency.

On the same branch can be connected up to 32 units, this limit must be checked case by case because it depends on the consumption of the field , the length of the cable and the cable cross section.

**FDU-A-10W** ( IP44 - Case A)

**FDU-A-15W** ( IP44 - Case A)

Contains Electronics unit **FCU2** with the following characteristics:

Redundant 54Vdc power supply input

Redundant OFDM communication

10 or 15 Watt isolated DC/DC power supply for field

Short circuit insulator

2 output for solenoid control, incl. open circuit detection / short circuit protection (10W/ 15W -24Vdc)

6 supervised input , PNP or switch type (24Vdc)

Rotary Dip-Switch for local configuration

Led for local status indication

## **Fire Damper Unit FDU-C-15W and FDU-E-15W**

Units for the control and monitoring of the fire damper. A units can control 2 fire dampers.

The units are connected to two MPB-DCU-C from which it receives the power supply and communication based on OFDM modulation frequency.

On the same branch can be connected up to 32 units, this limit must be checked case by case because it depends on the consumption of the field , the length of the cable and the cable cross section.

**FDU-C-15W with local release** (IP 54 – Case C)

**FDU-E-15W without local release** (IP 44 – Case D)

Contains Electronic unit **FCU2-1-15W** with the following characteristics:

Redundant 54Vdc power supply input

Redundant OFDM communication

15 Watt isolated DC/DC power supply for field

Short circuit insulator

2 digital output for motor damper control, incl. open circuit detection / short circuit protection (15W – 24Vdc)

2 switch for damper local control

2 RGB led for damper position indication

6 supervised digital input, PNP or switch type (24Vdc)

Rotary Dip-Switch for local configuration

LED for local status indication





# TYPE APPROVAL CERTIFICATE



N. ELE055318CS

## Fire damper Unit FDU-D-10F

Unit for the indication of the local position of 10 fire damper and for the ESD command

The unit is connected to two MPB-DCU from which it receives the power supply and communication based on OFDM modulation frequency

On the same branch can be connected up to 32 units, this limit must be checked case by case because it depends on the consumption of the field, the length of the cable and the cable cross section.

## FDU-D-10F with local release main features:

Contains Electronic unit **FCU2-10F** (IP54 - Case C)

Redundant 54Vdc power supply input

Redundant OFDM communication

Short circuit insulator

1 switch for ESD command

1 push button for lamp test

10 RGB led for damper position indication

2 supervised input for local switch and push button

Rotary Dip-Switch for local configuration

Led for local status indication

(\*) Items (HW and SW) not included in this Type Approval Certificate

## Technical specification:

Fire Door /Damper Monitoring System (FDMS) Rev. R15

Fire Damper -Type approval test Specification Rev. 2 doc. n. 60-0166-TAS (01/06/18)

Fire Door -Typer approval test Specification Rev. 1 doc. n. 60-0137-S

Fire Door /Damper Monitoring System - FMEA Rev. 0 doc. 60-0122-FMEA

## TesLab test reports:

15C251F-A (MPB-DCU-C); 16C280F-a (FDU-A-10W); 16C280F-b (FDU-A-15W)

179251F-C (FDU-E-15W); 179251F-b (FDU-C-15W); 179251F-a (FDU-D-10F)