



Catalog

SMFR

**Voltage Detector
Semaphore**

DC Voltage Detectors

SMFR

DC Catenary Voltage Detector Traffic Light

- ✓ **DC Catenary Voltage Detector**
- ✓ Models of **750 V_{DC}** or **1500 V_{DC}**
- ✓ **Self-powered or Auxiliary Voltage** depending on the model
- ✓ High-brightness **LED optics** in Ø 200 mm
- ✓ Pictogram '**750**', '**1500**' or **Light**
- ✓ **Available LED colors:** amber, blue, red, green and white
- ✓ Enclosure color: **Dark Gray**



Applications

DC Catenary voltage signaling for drivers:

- Trams
- Metropolitan Networks



Functional Features

Self-Powered Model

- Powered by catenary voltage, connected to positive and negative

	SFMR-750	SFMR-1500
Operating ranges		
On	$\geq 440 \text{ V}_{\text{DC}}$	$\geq 880 \text{ V}_{\text{DC}}$
Off	$< 440 \text{ V}_{\text{DC}}$	$< 880 \text{ V}_{\text{DC}}$
Nominal Voltage	$750 \text{ V}_{\text{DC}}$	$1500 \text{ V}_{\text{DC}}$
Max. permanent voltage	$800 \text{ V}_{\text{DC}}$	$1600 \text{ V}_{\text{DC}}$
Max. peak voltage	$1200 \text{ V}_{\text{DC}} (5\text{ms})$	$2000 \text{ V}_{\text{DC}} (5\text{ms})$

Models with Auxiliary Voltage

	SFMR-750	SFMR-1500
Operating ranges		
On	$> 500 \text{ V}_{\text{DC}}$	$\geq 880 \text{ V}_{\text{DC}}$
Intermittent	$\leq 500 \text{ V}_{\text{DC}}$	$\geq 880 \text{ V}_{\text{DC}}$
Off	No auxiliary voltage	No auxiliary voltage
Nominal Voltage	$750 \text{ V}_{\text{DC}}$	$1500 \text{ V}_{\text{DC}}$
Max. permanent voltage	$800 \text{ V}_{\text{DC}}$	$1600 \text{ V}_{\text{DC}}$
Max. peak voltage	$1200 \text{ V}_{\text{DC}} (5\text{ms})$	$2000 \text{ V}_{\text{DC}} (5\text{ms})$

Optics



750 Optics Pictogram



1500 Optics Pictogram



**Round LED Optics
PIL-200x200 PPC**

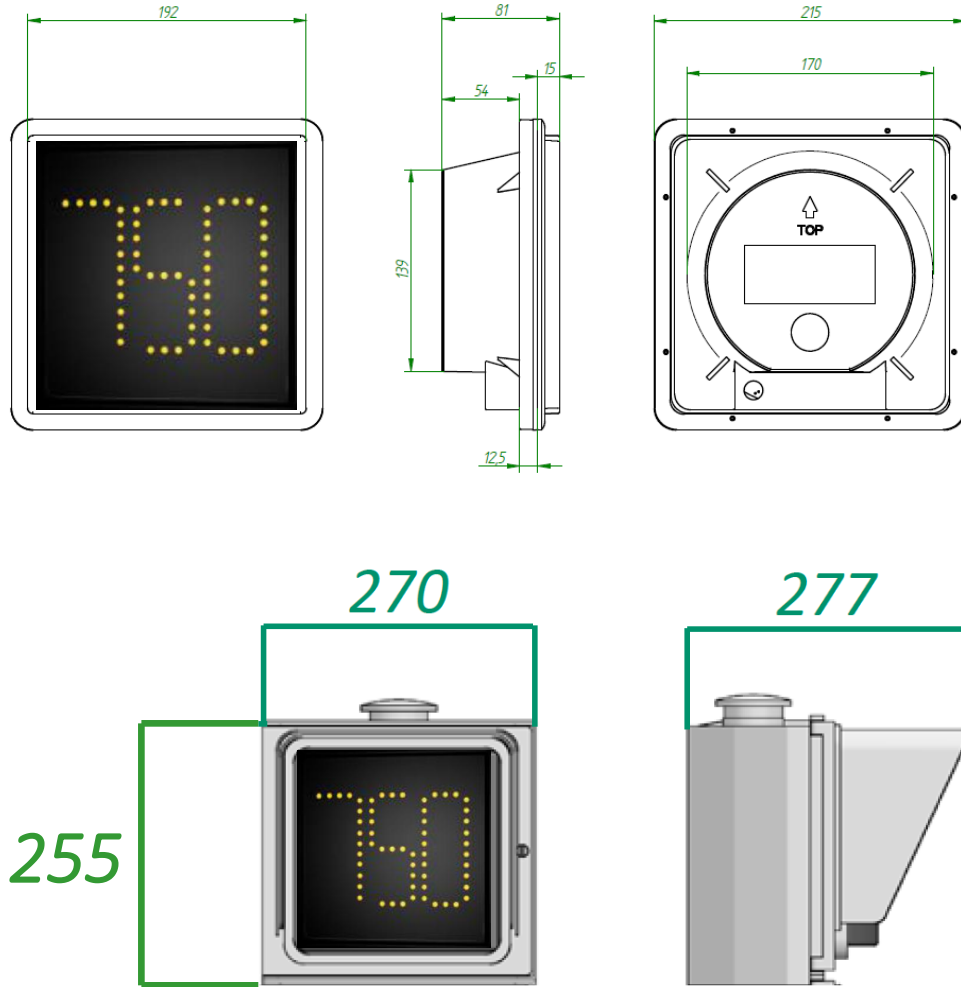
Models of 750 V_{DC}

Model	Nominal Voltage	Pictogram	LED Color	Auxiliary Voltage
SMFR-750-PA	750 V _{DC}	'750'	Amber	Self-Powered
SMFR-750-PZ	750 V _{DC}	'750'	Blue	Self-Powered
SMFR-750-PR	750 V _{DC}	'750'	Red	Self-Powered
SMFR-750-PV	750 V _{DC}	'750'	Green	Self-Powered
SMFR-750-PB	750 V _{DC}	'750'	White	Self-Powered
SMFR-750-PA-230	750 V _{DC}	'750'	Amber	230 V _{AC}
SMFR-750-PZ-230	750 V _{DC}	'750'	Blue	230 V _{AC}
SMFR-750-PR-230	750 V _{DC}	'750'	Red	230 V _{AC}
SMFR-750-PV-230	750 V _{DC}	'750'	Green	230 V _{AC}
SMFR-750-PB-230	750 V _{DC}	'750'	White	230 V _{AC}
SMFR-750-PA-125	750 V _{DC}	'750'	Amber	125 V _{DC}
SMFR-750-PZ-125	750 V _{DC}	'750'	Blue	125 V _{DC}
SMFR-750-PR-125	750 V _{DC}	'750'	Red	125 V _{DC}
SMFR-750-PV-125	750 V _{DC}	'750'	Green	125 V _{DC}
SMFR-750-PB-125	750 V _{DC}	'750'	White	125 V _{DC}
SMFR-750-A-230	750 V _{DC}	LED Optics	Amber	230 V _{AC}
SMFR-750-Z-230	750 V _{DC}	LED Optics	Blue	230 V _{AC}
SMFR-750-R-230	750 V _{DC}	LED Optics	Red	230 V _{AC}
SMFR-750-V-230	750 V _{DC}	LED Optics	Green	230 V _{AC}
SMFR-750-B-230	750 V _{DC}	LED Optics	White	230 V _{AC}
SMFR-750-A-125	750 V _{DC}	LED Optics	Amber	125 V _{DC}
SMFR-750-Z-125	750 V _{DC}	LED Optics	Blue	125 V _{DC}
SMFR-750-R-125	750 V _{DC}	LED Optics	Red	125 V _{DC}
SMFR-750-V-125	750 V _{DC}	LED Optics	Green	125 V _{DC}
SMFR-750-B-125	750 V _{DC}	LED Optics	White	125 V _{DC}

Models of 1500 V_{DC}

Model	Nominal Voltage	Pictogram	LED Color	Auxiliary Voltage
SMFR-1500-PA	1500 V _{DC}	‘1500’	Amber	Self-Powered
SMFR-1500-PZ	1500 V _{DC}	‘1500’	Blue	Self-Powered
SMFR-1500-PR	1500 V _{DC}	‘1500’	Red	Self-Powered
SMFR-1500-PV	1500 V _{DC}	‘1500’	Green	Self-Powered
SMFR-1500-PB	1500 V _{DC}	‘1500’	White	Self-Powered
SMFR-1500-PA-230	1500 V _{DC}	‘1500’	Amber	230 V _{AC}
SMFR-1500-PZ-230	1500 V _{DC}	‘1500’	Blue	230 V _{AC}
SMFR-1500-PR-230	1500 V _{DC}	‘1500’	Red	230 V _{AC}
SMFR-1500-PV-230	1500 V _{DC}	‘1500’	Green	230 V _{AC}
SMFR-1500-PB-230	1500 V _{DC}	‘1500’	White	230 V _{AC}
SMFR-1500-PA-125	1500 V _{DC}	‘1500’	Amber	125 V _{DC}
SMFR-1500-PZ-125	1500 V _{DC}	‘1500’	Blue	125 V _{DC}
SMFR-1500-PR-125	1500 V _{DC}	‘1500’	Red	125 V _{DC}
SMFR-1500-PV-125	1500 V _{DC}	‘1500’	Green	125 V _{DC}
SMFR-1500-PB-125	1500 V _{DC}	‘1500’	White	125 V _{DC}
SMFR-1500-A-230	1500 V _{DC}	LED Optics	Amber	230 V _{AC}
SMFR-1500-Z-230	1500 V _{DC}	LED Optics	Blue	230 V _{AC}
SMFR-1500-R-230	1500 V _{DC}	LED Optics	Red	230 V _{AC}
SMFR-1500-V-230	1500 V _{DC}	LED Optics	Green	230 V _{AC}
SMFR-1500-B-230	1500 V _{DC}	LED Optics	White	230 V _{AC}
SMFR-1500-A-125	1500 V _{DC}	LED Optics	Amber	125 V _{DC}
SMFR-1500-Z-125	1500 V _{DC}	LED Optics	Blue	125 V _{DC}
SMFR-1500-R-125	1500 V _{DC}	LED Optics	Red	125 V _{DC}
SMFR-1500-V-125	1500 V _{DC}	LED Optics	Green	125 V _{DC}
SMFR-1500-B-125	1500 V _{DC}	LED Optics	White	125 V _{DC}

❶ Constructive Features

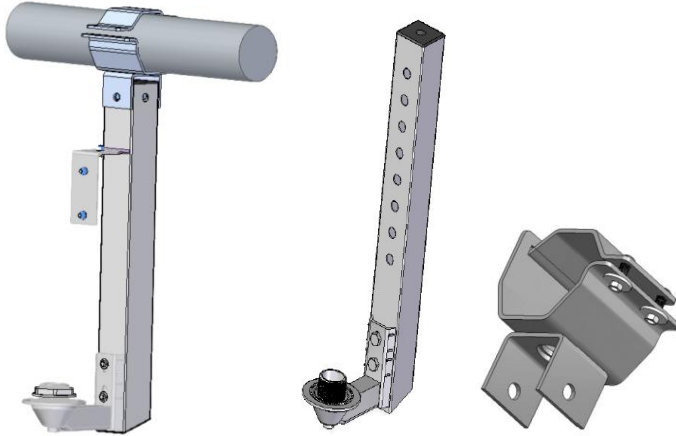


❷ Power Cable

- **SMFR-750:** It is recommended to use cable of the type SEGURFOC-331 SZ1-K (AS+) 1x1.5 1000V with silicone insulation or similar
- **SMFR-1500:** It is recommended to use cable of the type Exzhellent® Solar ZZ-F (AS) 1.8 kV DC – 0.6-1 kV AC TÜV 2 Pfg 116

❶ Mounting Bracket SOP-SMFR-001

- Mounting Bracket for attachment to a **76 mm diameter bracket**
- Made of galvanized steel

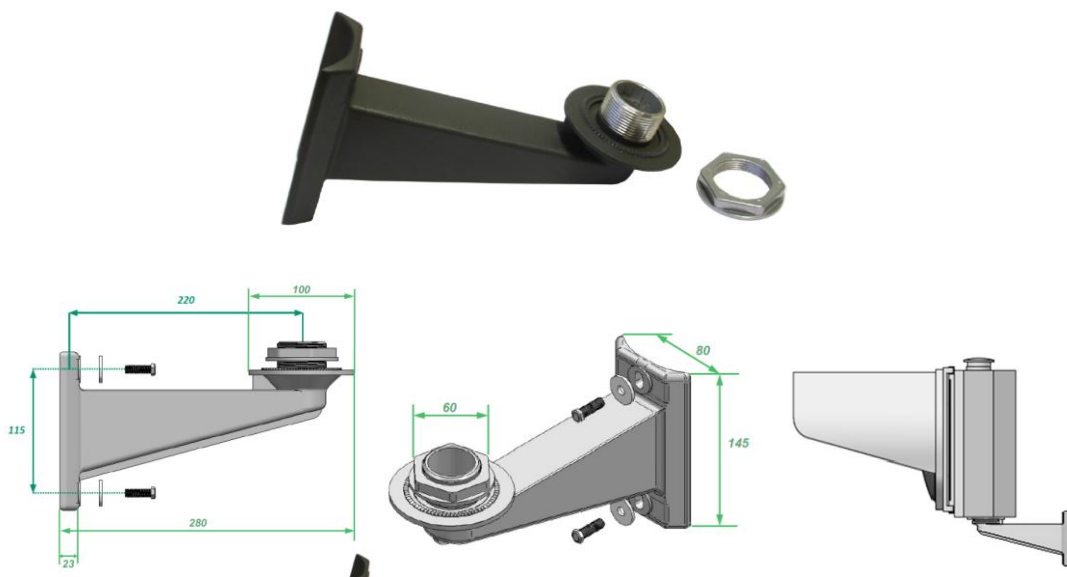


❷ Mounting Bracket SOP-SMFR-002

- Mounting Bracket for attachment to wall or **column Ø 100 mm**
- Made of cast **aluminum**
- **Coated** with **polyester** powder polymerized at 230 °C
- Fixed with 2 M8 screws
- Internal positioning and anti-rotation serration of the coupled Signal Light head.
- Signal Light fixing by sleeve-nut assembly 1½" made of aluminum

Advantages

- High mechanical strength
- High resistance to environmental conditions
- Its hollow structure allows the Signal Light to be wired through it



❶ Mounting Bracket SOP-SMFR-006

- Mounting Bracket for mounting on a **ceiling or vault**
- Made of galvanized steel



❷ Technical data

SMFR

Case Specifications	
Enclosure material	Colored UV-stabilized polycarbonate
IP rating	IP55 (according to EN 60529)
Degree of impact resistance	IR3 (according to EN 60598)
Electromagnetic Compatibility	According to EN 50293
Operating temperature	-40° C to +60° C
Certificate and marking	According to EN 12368
LED Optics (PIL)	200 x 200 mm
External dimensions	270 x 510 mm
Enclosure color	gray, black, yellow or green
LED colors	Green and Red

LED Optics

Specifications	
Nominal voltage	125 V _{DC} or 230 V _{AC}
Power consumption	< 8 W
Number of LEDs (Red or Green)	120
On/off reaction time	< 50 ms
Environmental requirements (EN 12368 – 5.1)	Class A, B, C (operating temperature of -30°C to + 70°C)
Electromagnetic compatibility (EMC)	Complies with the requirements of EN 50278
Luminance distribution (EN 12368 – 6.4)	W A3/1
Luminance uniformity (EN 12368 – 6.5)	> 1:10
Ghost effect (EN 12368 – 6.6) *	Class 4 (Red) Class 5 (Green)
Colors of light signals (EN 12368 – 6.7)	620-630 nm (Red) 502-508 nm (Green)
Environmental protection grade (EN 60598)	IP65
Degree of impact resistance (EN 60598-1)	IR3
Front lens material	UV-stabilized transparent polycarbonate
Enclosure material	Black ABS

(*) The ghosting effect occurs in halogen or incandescent signal lights with the parabolic reflector, due to the reflection of the sun. Drivers could get confused and have the impression that the signal light is on when it is not.

