



Catalog

SMFR

Voltage Detector Semaphore

Voltage Detectors
for DC Catenary

 SMFR

Voltage Detector Semaphore for Catenary DC

- ✓ Catenary Voltage Detector **V_{DC}**
- ✓ Models of **750 V_{DC}** or **1500 V_{DC}**
- ✓ **Self-powered or Auxiliary Voltage** depending on the model
- ✓ High-brightness **LED optics** in Φ 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 V_{DC}	$1500\text{ V}_{\text{DC}}$
Max. permanent voltage	800 V_{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 Auxilia Voltage

	SFMR-750	SFMR-1500
Operating ranges		
On	$> 500\text{ V}_{\text{DC}}$	$> 1500\text{ V}_{\text{DC}}$
Intermittent	$\leq 500\text{ V}_{\text{DC}}$	$\geq 880\text{ V}_{\text{DC}}$
Off	No auxiliary voltage	No auxiliary voltage
Nominal Voltage	750 V_{DC}	$1500\text{ V}_{\text{DC}}$
Max. permanent voltage	800 V_{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



Optics Pictogram 750



Optics Pictogram 1500



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

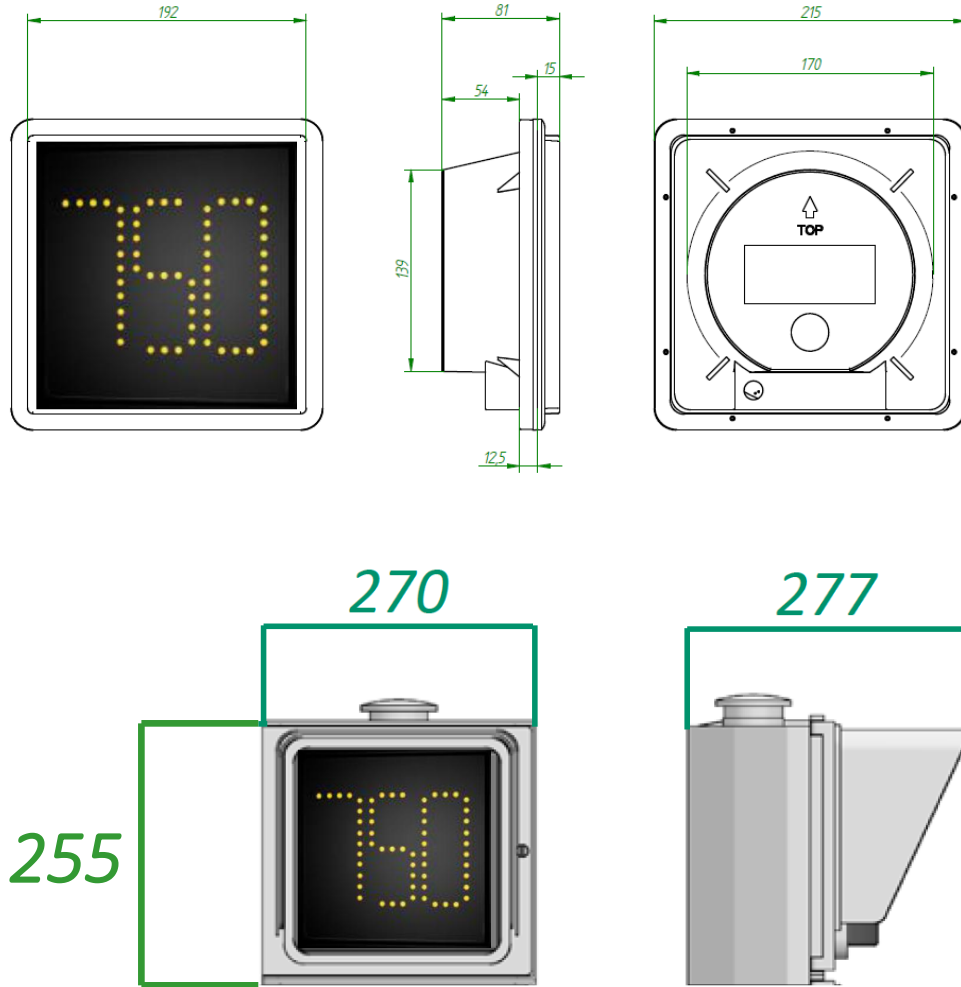
Models of 750 V_{DC}

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-A-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-A-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 Characteristics

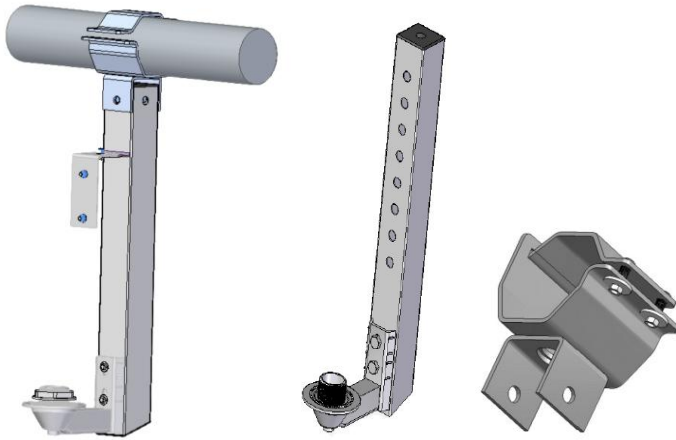


❷ Power Cord

- **SMFR-750:** It is recommended to use cable of the type SEGURFOC-331 SZ1-K (AS+) 1x1.5 insulated 1000V silicone or similar
- **SMFR-1500:** It is recommended to use cable of the type Exzhellent® Solar ZZ-F (AS) 1,8 kV CC - 0,6-1 kV CA TÜV 2 Pfg 116

Support SOP-SMFR-001

- Support for anchoring on **Bracket of diameter 76mm**
- Made of **galvanized steel**

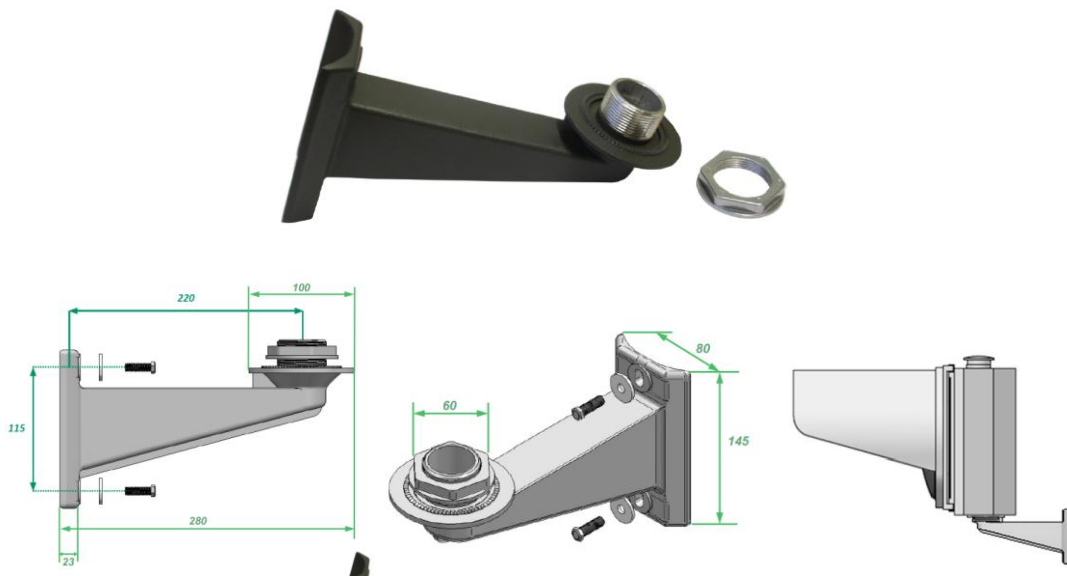


Support SOP-SMFR-002

- Support for anchoring on wall or **column Ø 100 mm**
- Made of cast **aluminum**
- **Coated in powder polyester** polymerized at 230°C
- Fixing by 2 M-8 screws.
- Internal positioning and anti-rotation serration of the coupled semaphore head.
- Traffic light fixing by sleeve-nut assembly 1½" made of aluminum

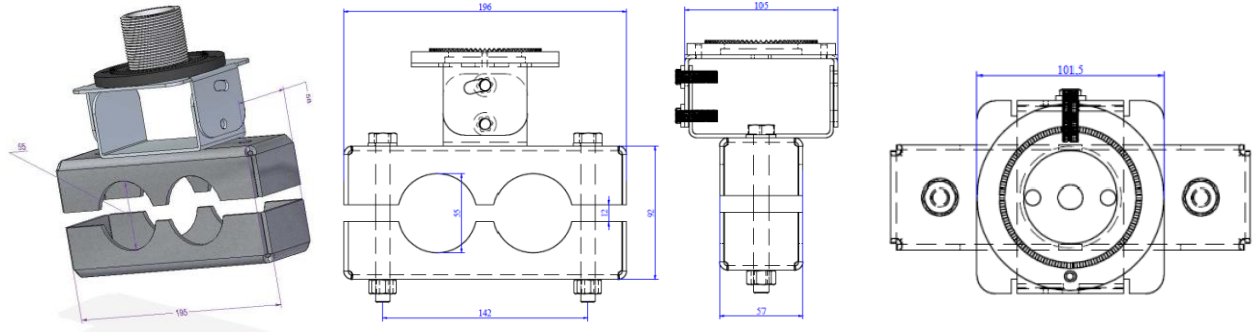
Advantages

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



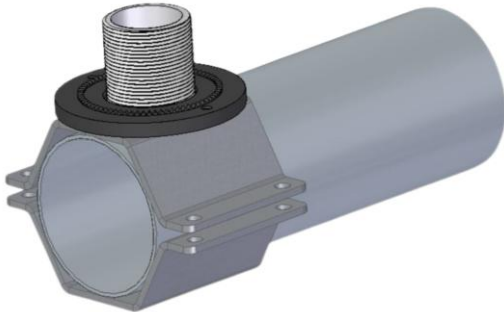
Support SOP-SMFR-003

- Support for anchoring on **Bracket of diameter 76mm**
- Made of **galvanized steel**



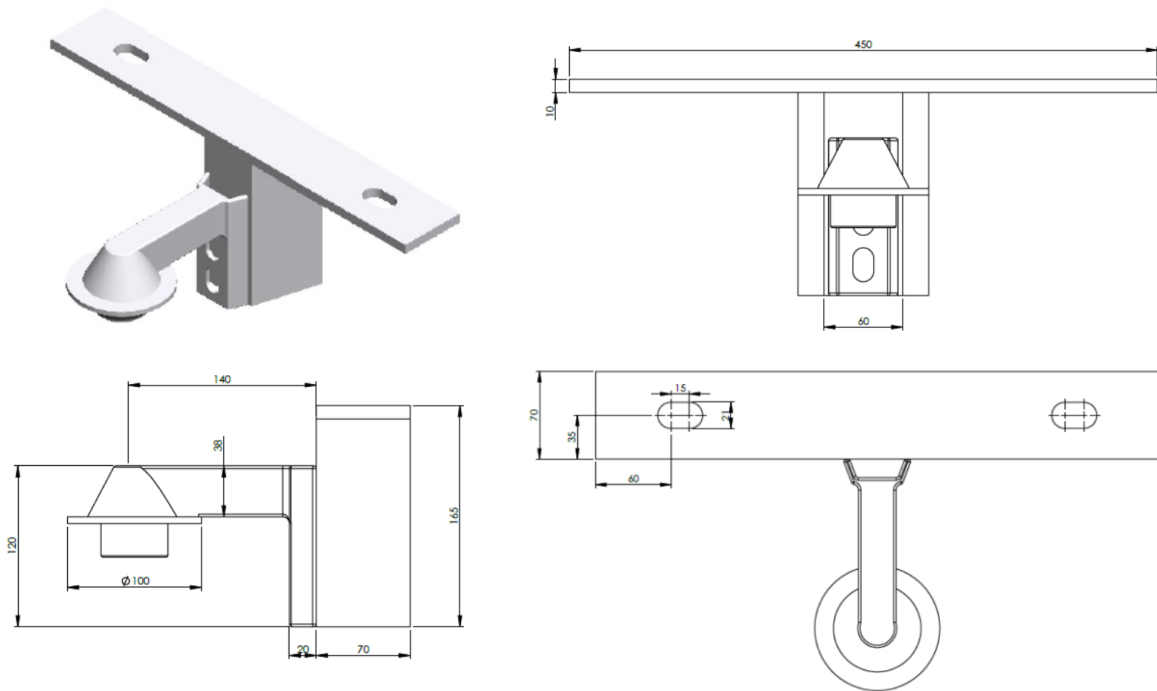
Support SOP-SMFR-004

- Support for anchoring on **Bracket of diameter 76mm**
- Made of **galvanized steel**



Support SOP-SMFR-005

- Support for **inverted ceiling anchoring**
- Made of **galvanized steel**



Support SOP-SMFR-006

- Support for anchoring in **ceiling or vault**
- Made of **galvanized steel**



Technical data

SFMR

Case Specifications	
Manufacturing material	U.V. Colored stabilized polycarbonate
Environmental Protection Grade	IP55 (according to EN 60529)
Degree of impact resistance	IR3 (according to EN 60598)
Electromagnetic Compatibility	According to EN 50293
Operating Temperature	-40°C a +60°C
Certificate and marking	According to EN12368
Square Optics (PIL)	200 x 200 mm
Outside Size	270 x 255 mm
Enclosure color	gray, black, yellow, or green
Pictogram	'750' in color '1500' in color
LED Colors	Amber, green, red, white, blue

PIL-200x200 PPC

Specifications	
Nominal Voltage	125 V _{DC} or 230 V _{AC}
Consumption	< 8W
Number of LEDs (Red, Amber or Green)	56
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)	Meets standard requirements EN50278
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 4 (Amber) Class 5 (Green)
Colors of light signals (EN 12368 – 6.7)	620-630 nm (Red) 587-592 nm (Amber) 502-508 nm (Green)
Environmental Protection Grade (EN 60598)	IP65
Degree of impact resistance (EN 60598-1)	IR3
Front Lens Material	Stabilized transparent polycarbonate UV
Enclosure material	ABS black

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