



Solutions for Railway Applications

Switches, Selectors and Earthing Sequence Switches

Specialists in Designing and Manufacturing Solutions for Railway Applications



High-Speed Rail



Subway



Commuter,
Regional and
Long-Distance
Rail



Tram



Locomotives

Applications



Cabins



Access
Systems



HVAC
Systems



Traction



Fixed
Installations

- ✓ Over 60 Years of Experience
- ✓ A Broad, Versatile Product Range
- ✓ Customised Solutions

- ✓ In-House Engineering
- ✓ Vertical Integration and Efficiency
- ✓ Full Traceability and In-House Quality Control and Testing



Telergon has solid experience in railway applications, one of its key areas of expertise. The integration of Bihplat in 2015, bringing more than 60 years of experience, further strengthened a product portfolio designed to meet the demands of the railway sector.

Railway solutions with global reach

Our experience in rolling stock and fixed installations for 1,000 Vac and 1,500 Vdc has enabled us to contribute to projects worldwide.

Drawing on our expertise across multiple industries, we provide a comprehensive solution covering everything from rolling stock to low-voltage switching systems for fixed environments, including stations and signalling infrastructure.



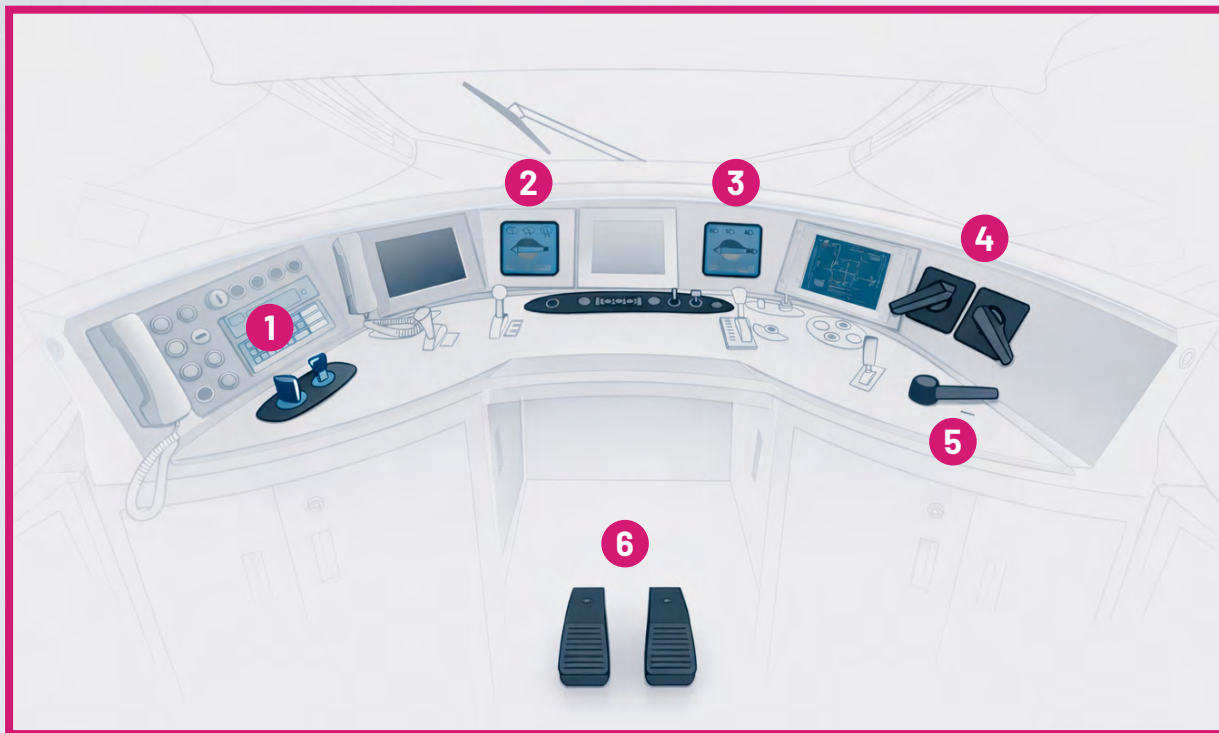
Telergon Quality



Standards



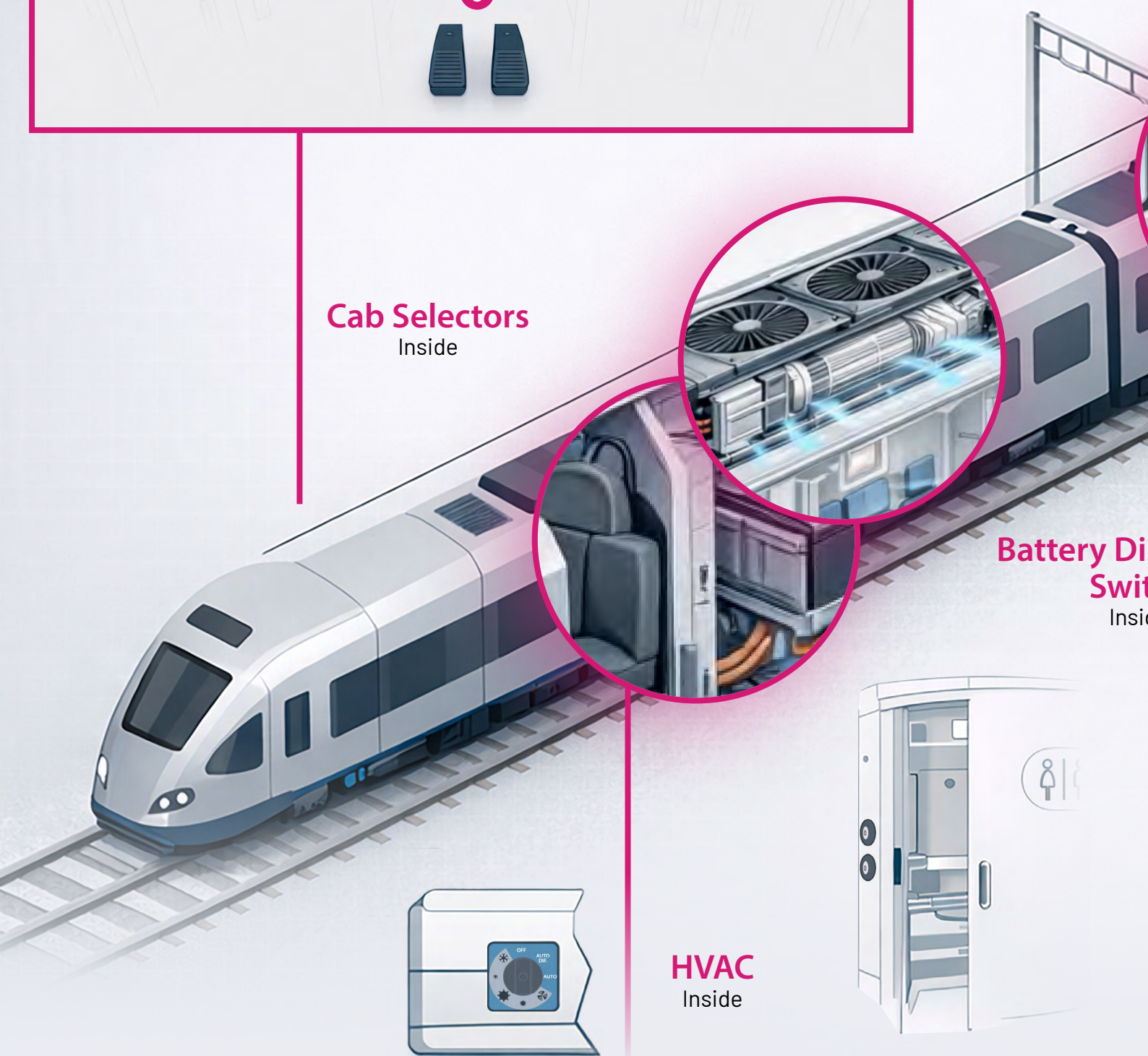
IEC60947-3 | IEC 61373 | EN 45545-2 | BS-EN 50124-1 & 2 | EN 50153 | EN 45545



Cab Selectors
Inside



Battery Diagnostics Switch
Inside



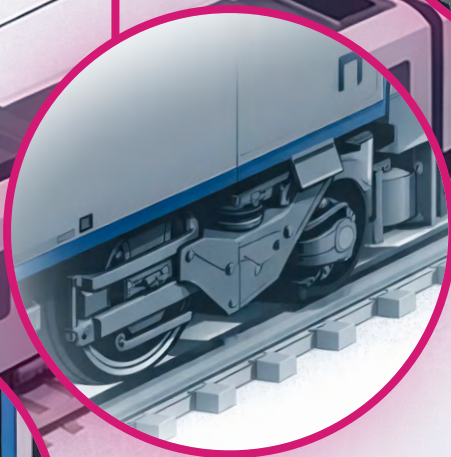
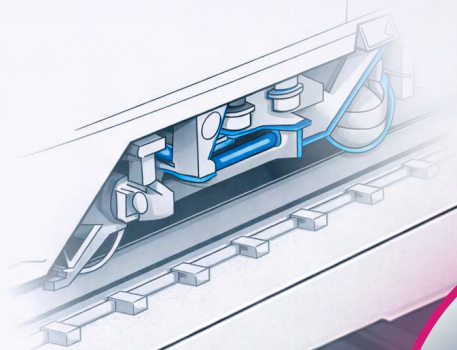
HVAC
Inside





Power Socket

Outside



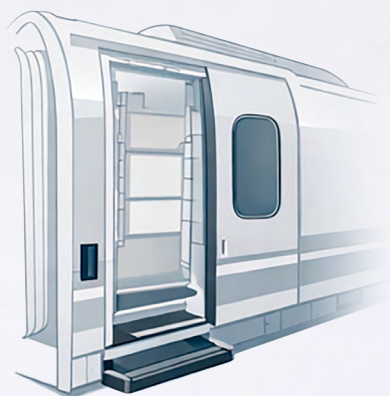
Earthing and Safety

Inside / Outside



Disconnect Switch

Inside



Access Switches

Inside / Outside

Control and Selector Switches

► B SERIES | Cam Switches



V= Ø48

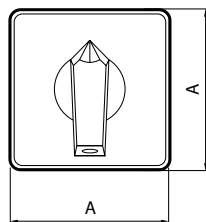
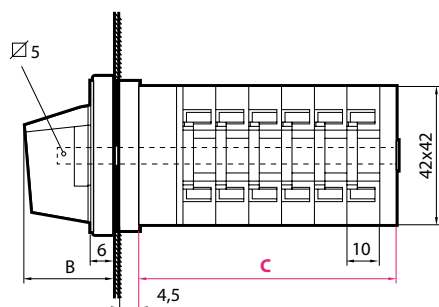
K= Ø64

According to IEC / EN 60947-3		V12	V16	V25	K16	K25
Thermal current I _{th} (A)		20	25	32	25	32
U _i (V)	A	690	690	690	690	690
AC-15* Control of electromagnetic loads (contactors, valves, etc.)						
230V	A	-	6,2	9	6,2	9
400V	A	-	4,3	6	4,3	6
500V	A	-	3,3	5	3,3	5
Rated short-time withstand current (1 s)	A	500	500	650	500	650
Rated operational current (I _e)		12	16	25	16	25
Maximum conductor cross-section (mm ²)		6	6	6	6	6
Terminal screw		M4	M4	M4	M4	M4
Mechanical endurance (operations)		10 ⁶				
Electrical endurance (operations)		5.10 ⁵				
Permissible intermittent duty		Duty cycle 60 / 40 / 25% = 1.3 / 1.6 / 2.0 × I _{th}				
Ambient operating temperature °C	Al aire	-5°C to +55°C for 24 hours, with peaks up to +60°C				
	En caja	-5°C to +55°C for 24 hours, with peaks up to +60°C				
Storage temperature °C		-40°C to +85°C. Below -5°C, impacts and shocks are not permitted.				
DC-21A a 110V DC		3.5	4	4	4	4
Rated short-time withstand current, I _{cw} (1 s)	A	400			400	
Rated short-circuit making capacity I _{cm}	A	600			600	

According to UNE EN 60947-3 & (*)UNE EN 60947-5

* < 200 mA with gold-plated contacts (optional)

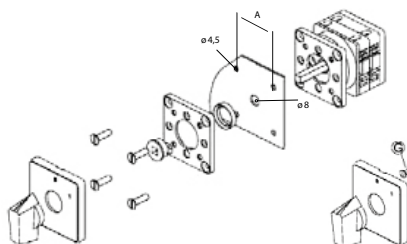
DIMENSIONS



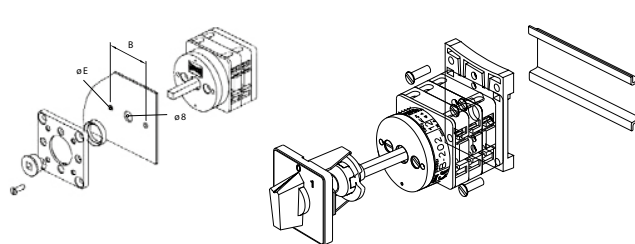
	A	B
V12 V16 V25	48	27
K16 K25	64	34

C												
Chambers	1	2	3	4	5	6	7	8	9	10	11	12
mm	30	40	50	60	70	80	90	100	110	120	130	140

MOUNTING



Panel Mounting



DIN Rail

	A	B	ØE	G
V12 V16 V25	36	34	3,5	M3
K16 K25	48	47	4,5	M4



1 Directional Switches

Active cab switch and reversing switch for tandem operation with interlocking. Compatible with a wide range of safety lock cylinders and keys from leading manufacturers.



2 Light and Windscreen Wiper Switches

Customisable wiring diagrams and markings.



3 Operating Mode Selector Switches

Metal handles with a reinforced rotary mechanism. Multiple contacts, with up to 30 per column.



4 Selector Switches

Vandal-resistant design, push-to-turn operation and a choice of actuators.



Foot Switches



HVAC Control Switches

Gold-plated contacts available. Nameplates available in a range of colours.



Customisable Onboard Access Switches

A wide range of electrical and front-panel configurations: spring-return or maintained-position switches; customised aluminium or stainless-steel front plates; safety actuators and operator keys.

Toilet



Ramp



Crew Changeover Switch



internal



external
(up to 5 chambers)

Battery Disconnect Switches



► S6 SERIES | Isolation Switch

S6/1 DC Isolation Switch 2P - 4P						
According to IEC 60947-3				200	250	400
Rated insulation voltage	Ui	V			1500	
Rated impulse withstand voltage	Uimp	kV			12*	
DC-20A Rated operational current	Ie	Ue				
		1500 Vdc	A	200	250	400
Off-load operating cycles (according to the standard; contact us for other values)	Cycles			8000	8000	5000
Maximum weight 2P	Kg				1,35	
Maximum weight 4P	Kg				2,70	

* With barriers.

COMPONENTS



Direct handle
DS-SI11R



Terminal shrouds
DR-CU11 (1 unit)



Auxiliary contacts

1NA+1NC
2NA+2NC

Ie = 6 A for resistive loads
and 4 A for inductive loads
at 250 Vac.

Included in the device.

Screw terminal or Faston
connection.



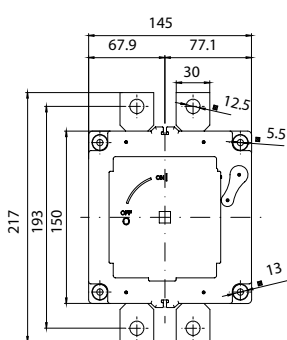
Panel handle
IP65
DS-SA11R



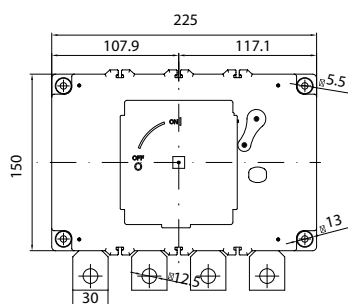
Phase barriers
DR-SF11 (1 unit)
DR-SF12 (2 units)

Customised shafts

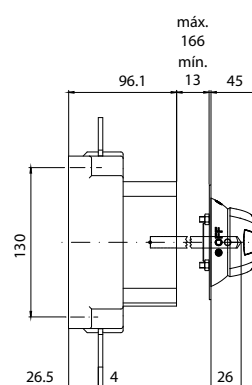
DIMENSIONS



S6/12P



S6/14P



► S6 SERIES | Isolation Switch



S6/2 DC | Isolation Switch 2P - 4P

According to IEC 60947-3				630	800
Rated insulation voltage	Ui	V			
Rated impulse withstand voltage	Uimp	kV			12*
DC-20A Rated operational current	Ie	Ue			
		1500 Vdc	A	630	800
Off-load operating cycles (according to the standard; contact us for other values)	Cycles			5000	3000
Maximum weight 2P	Kg				3,80
Maximum weight 4P	Kg				5,70

* With barriers.

COMPONENTS



Direct handle
DS-LI21R



Terminal shrouds
DR-CU21 (1 unit)



Auxiliary Contacts

1NA+1NC
2NA+2NC

Ie = 6 A for resistive loads
and 4 A for inductive loads
at 250 Vac.

Mounted on the device.

Screw terminal or Faston
connection.



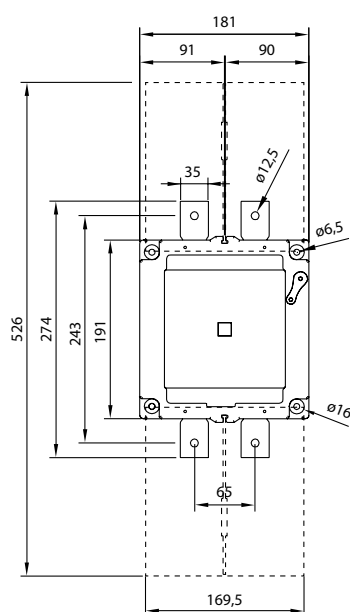
Panel handle
IP65
DS-LA21R



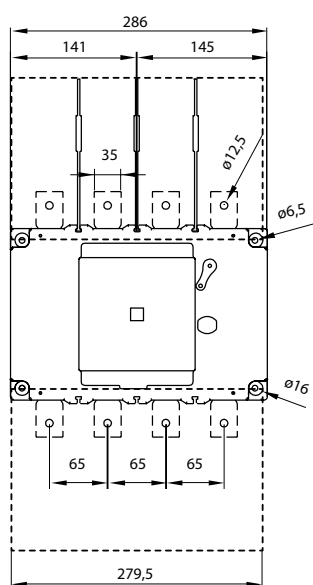
Phase barriers
DR-SF21 (1 unit)
DR-SF22 (2 units)

Customised shafts

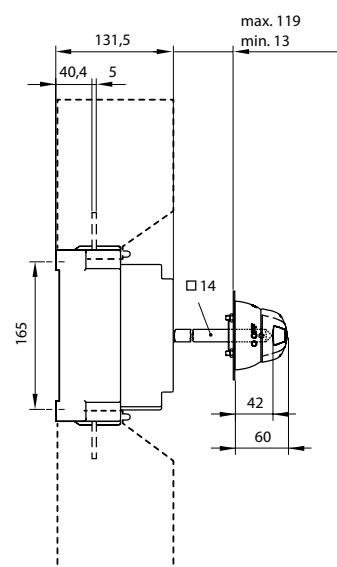
DIMENSIONS



S6/2 2P



S6/2 4P



► T175 SERIES | Battery Disconnect Selector Switch



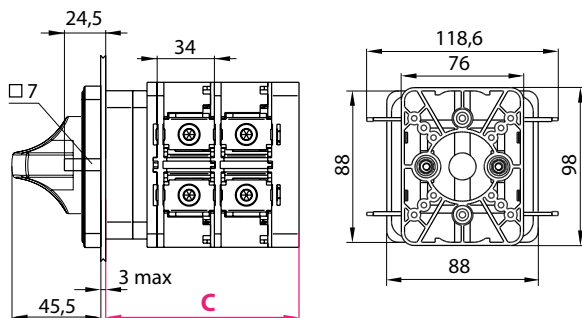
*Coaxial Coupling available

T175 Battery Disconnect Selector Switch			
According to IEC 60947-3			
Electrical Characteristics (DC-20)	Thermal current	I _{th}	200 A
	Insulation voltage	U _i	1500 Vdc
	Number of poles	Poles	Up to 16P* ¹
	Overvoltage category		OV3
	Pollution degree		PD3
	Rated impulse withstand voltage	U _{imp}	10 kV
Short-Circuit Performance	Rated short-circuit making capacity	I _{cm} (peak)	5,2 kA
	Rated short-time withstand current (1 s)	I _{cw} (1 sec)	3,5 kA
Mechanical Data	Number of off-load operating cycles	Cycles	20.000
Connection Capacity	Min. Cu wire section	mm ²	240
	Min. Busbar (thickness / Width)	mm	7/40
	Screw type		M10

*¹ For more poles, please contact us.



DIMENSIONS



C								
Chambers	1	2	3	4	5	6	7	8
mm	80,8	114,8	148,8	182,8	216,8	250,8	284,8	318,8



Coaxial Coupling

Simultaneous operation of two or more different-sized T Series cam switches, mechanically coupled and controlled by a single handle.

Earthing Switch

Protection, Control and Reliability

Our earthing systems are designed to protect personnel and safeguard equipment under all operating conditions. Each component is engineered to work in coordination as part of a reliable, proven safety sequence.

OPERATION

- 1 The **active cab key switch** (B Series) enables the earthing system.
- 2 The **pneumatic interlocking valve** (CRWGA) allows compressed air to flow through the system.
- 3 The **earthing switch** (CRWGB) safely and visibly connects the systems to earth.
- 4 The **door locks** (CRWGD) prevent access to the enclosures while the earthing system is active.
- 5 The **battery disconnect switch** (T-175) isolates the system's auxiliary power supply.
- 6 The **key multiplier** (CRWGC) manages and controls multiple access points using one or more master keys.



► EARTHING SWITCH SEQUENCE | A Key Safety Concept

B Series Switches

Active Cab Key Switch
(see page 6)



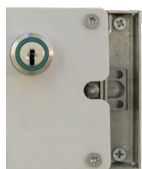
CRWGA

Pneumatic
Interlocking Valve



CRWGD

Right-Hand Door Lock



CRWGB

Earthing Switch



T-175

Battery Disconnect Switch
(see page 9)



CRWGC

Key Multiplier



CRWGD

Left-Hand Door Lock



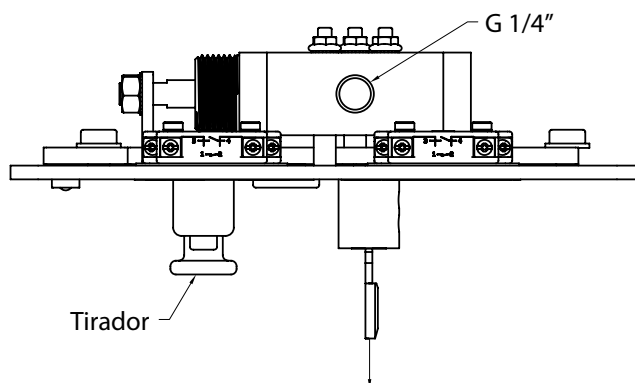
► CRWGA | Pneumatic Interlocking Valve



The pneumatic interlocking valve is a safety device installed in the pneumatic circuit that supplies air to the pantograph or any other pneumatically operated device.

During inspection or maintenance work, the valve is manually switched to the OFF position, cutting off the air supply and releasing pressure from the pneumatic circuit of the operated device. In this safe position, removing the output/slave key or keys (available in custom colours) prevents unauthorised operation of the pneumatic interlocking valve.

* Customisable key colour.



Without pull handle:

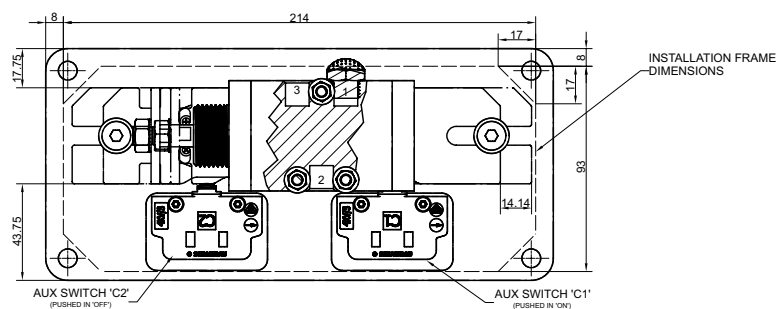
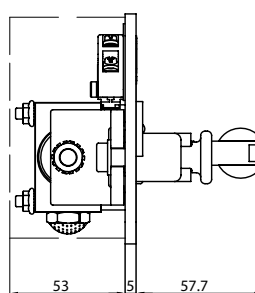
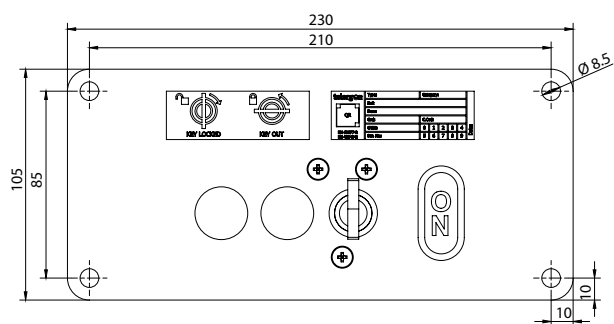
Up to 2 output keys

With pull handle:

Up to 3 output keys

Up to 1 input key and 2 output keys

DIMENSIONS



► CRWGB | Earthing Switch

Without push button



With push button



Technical Features

- Modular design with individual contact chambers.
- Up to two double-break, positive-opening contacts per chamber.
- Compact multipole switch.
- High performance and robust construction.
- Interlocking mechanism for enhanced safety.
- Ergonomic handle for easier operation.

Sistema de bloqueo

Without push button:

- Up to 10 customisable keys, arranged in pairs and operated simultaneously as input and output keys.

With push button:

- Up to 6 customisable keys, arranged in pairs and operated simultaneously as input and output keys.

Quality and Compliance

- Compliant with environmental requirements.
- Subjected to strict quality controls.
- Reliable performance in demanding applications.

Up to 10 pairs of customisable keys with simultaneous operation.

TECHNICAL DATA

Earthing Switch without Push Button

According to IEC 60947-3

Electrical Characteristics (DC-20)	Thermal current	I _{th}	200 A
	Rated insulation voltage	U _i	1500 Vdc
	Number of poles	Poles	Hasta 16 P* ¹
	Overvoltage category	OV3	
	Pollution degree	PD3	
	Rated impulse withstand voltage	U _{imp}	10 kV
Short-Circuit Performance	Rated short-circuit making capacity	I _{cm} (peak)	5,2 kA
	Rated short-time withstand current (1 s)	I _{cw} (1 sec)	3,5 kA
Mechanical Data	Number of off-load operating cycles	Cycles	20.000
Connection Capacity	Min. Cu wire section	mm ²	240
	Min. Busbar (thickness / Width)	mm	7/40
	Screw type	M10	



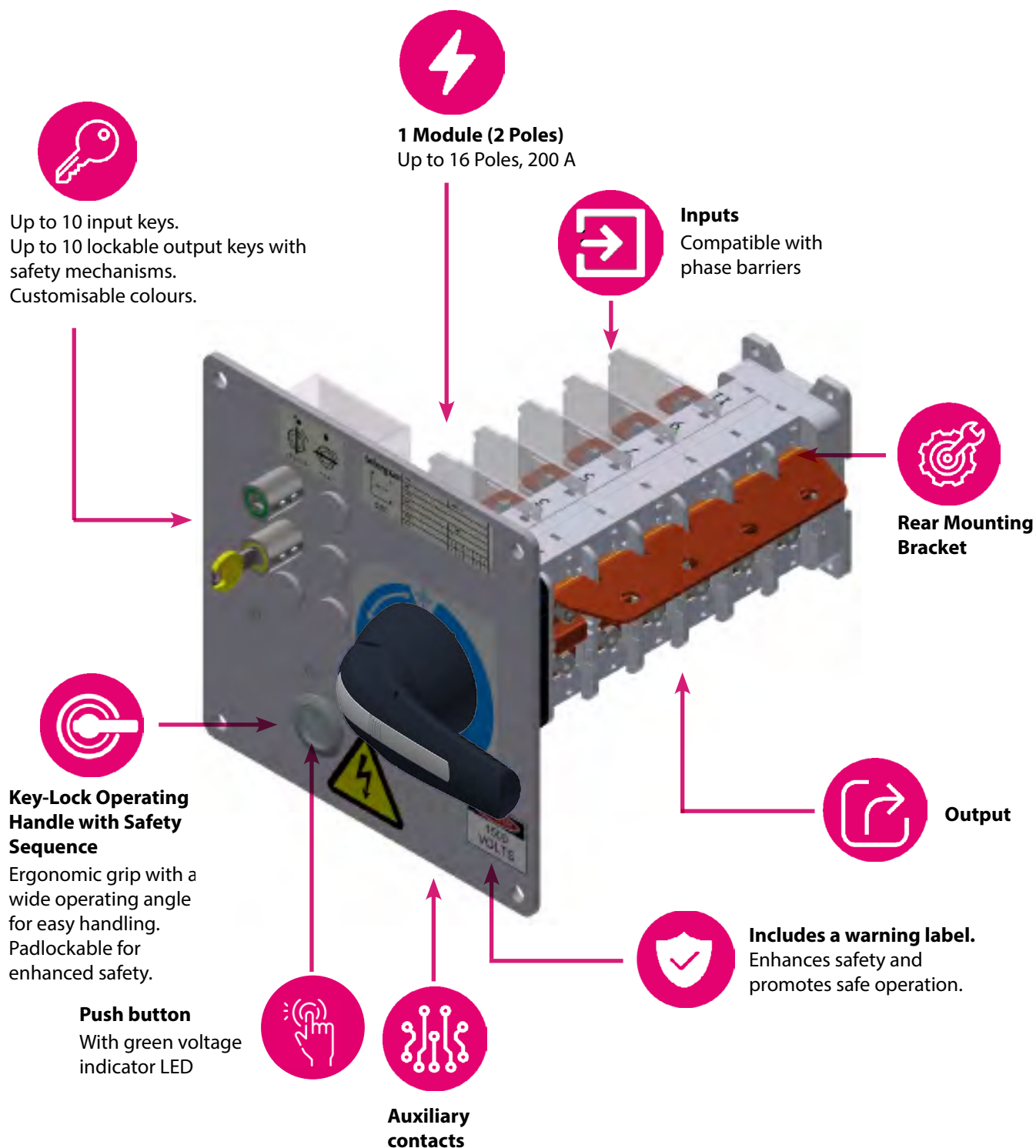
Earthing Switch with Push Button

According to IEC 60947-3

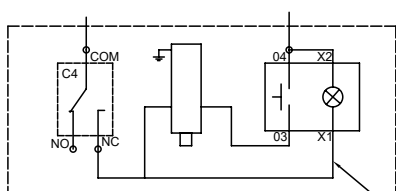
Electrical Characteristics (DC-20)	Thermal current	I _{th}	200 A
	Rated insulation voltage	U _i	1500 Vdc
	Number of poles	Poles	Up to 16P ^{*1}
	Overvoltage category	OV3	
	Pollution degree	PD3	
	Rated impulse withstand voltage	U _{imp}	10 kW
Short-Circuit Performance	Rated short-circuit making capacity	I _{cm} (peak)	5,2 kA
	Rated short-time withstand current	I _{cw} (1 sec)	3,5 kA
Mechanical Data	Off-load operating cycles	Cycles	20.000
Connection Capacity	Maximum copper busbar	mm ³	240
	Minimum busbar dimensions	mm	7/40
	Connection	M10	
Environmental Conditions (IEC 61373)	Vibration and shock	Category 1 Class B	
Service Conditions (EN 50125-1)	Altitude	AX	More than 1400m
	Temperature	TX	-40°C / +50°C (out) -40°C / +60°C (in)
	Moisture	T3	40°C / 50%HR
Auxiliary Contacts	Max. current	For 110Vdc	0,5A
Latching Solenoid	Duty Cycle ED	%	100%
	Absorbed power at 20°C	W	14W
	Solenoid weight	gr	365g
	Rated voltage		110Vdc
Push Button Contact Module (LED and Auxiliary Contacts)			
Push Button	IP Protection degree	IP66, IP67, IP69	
	NEMA protection degree	1, 2, 3, 3R, 4, 4X, 12, 13	
	Mechanical	Cycles	3.000.000
	Temperature	-25°C / +70°C (operation)	
		-40°C / +80°C (storage)	
General Technical Data	Insulation voltage rated value	V	500
	Surge voltage resistance rated value	kV	6
	Protection class IP	IP40 (enclosure) / IP20 (terminal)	
	Continuous current of the C characteristic MCB	1	
	Operating voltage (50Hz/60Hz)	500Vdc	
Auxiliary Contacts	Number of NC contacts for auxiliary contacts	Lagging switching	0
	Number of NO contacts for auxiliary contacts	Leading contact	0
	Operational current	DC-12	24V – 10A
			110V – 2,5A
			500V – 0,3A
		DC-13	24V – 3A
			110V – 0,7A
			400V – 0,1A
Connections / Terminals	Type of electrical connection	Spring-loaded terminals	
	Type of connectable conductor cross-sections: • Solid without core end processing • Finely stranded with core end processing • Finely stranded without core end processing • At AWG cables	•2x (0.25 ... 1.5 mm ²) •2x (0.25 ... 0.75 mm ²) •2x (0.25 ... 1.5 mm ²) •2x (24 ... 16)	

^{*1} For more poles, consult.

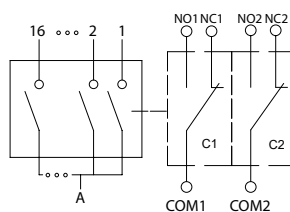
► CRWGB | Earthing Switch with Push Button



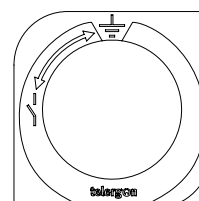
Connection Diagram
With Push Button



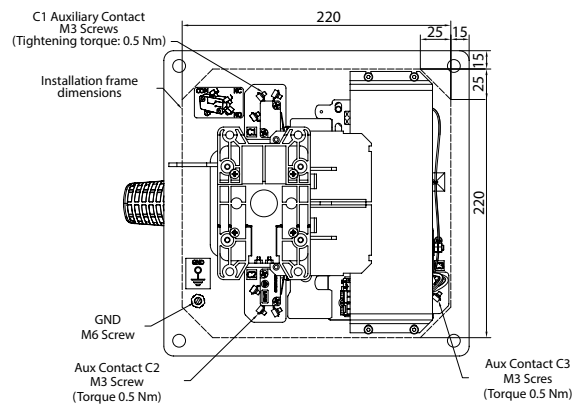
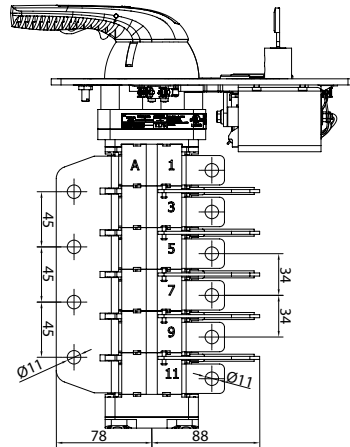
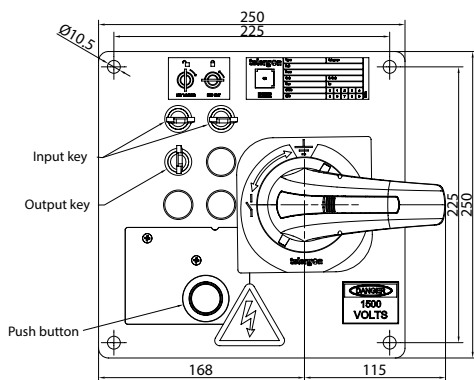
Connection Diagram
Without Push Button



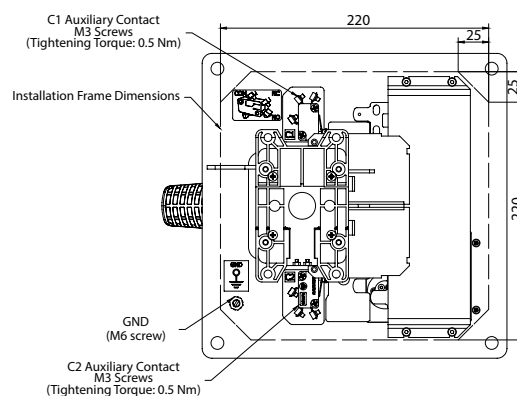
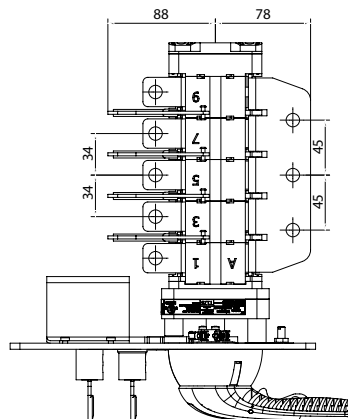
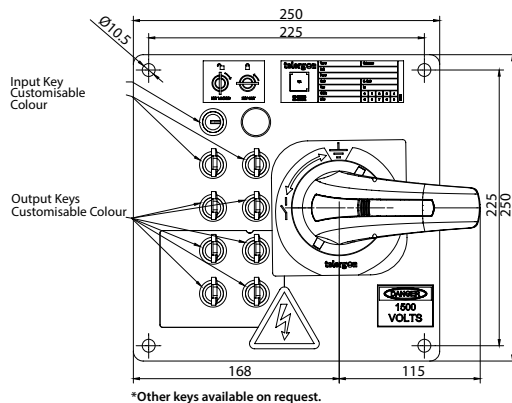
Operation angle



DIMENSIONS WITH PUSHBUTTON



DIMENSIONS WITHOUT PUSHBUTTON



► CRWGC | Key Multiplier



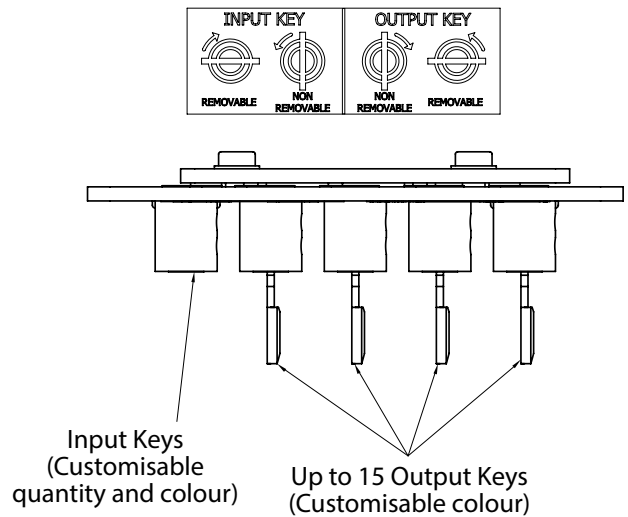
Components of the safety key interlocking tree used in railway vehicles to provide the highest level of safety and prevent high-voltage electrical hazards during inspection and maintenance operations.

The unit accepts the released input/master key (customisable colour) from the earthing switches, which remain locked in the earthed position. The master key is then retained, allowing the required output/slave keys (customisable colour) to be released for the next step in the safety sequence.

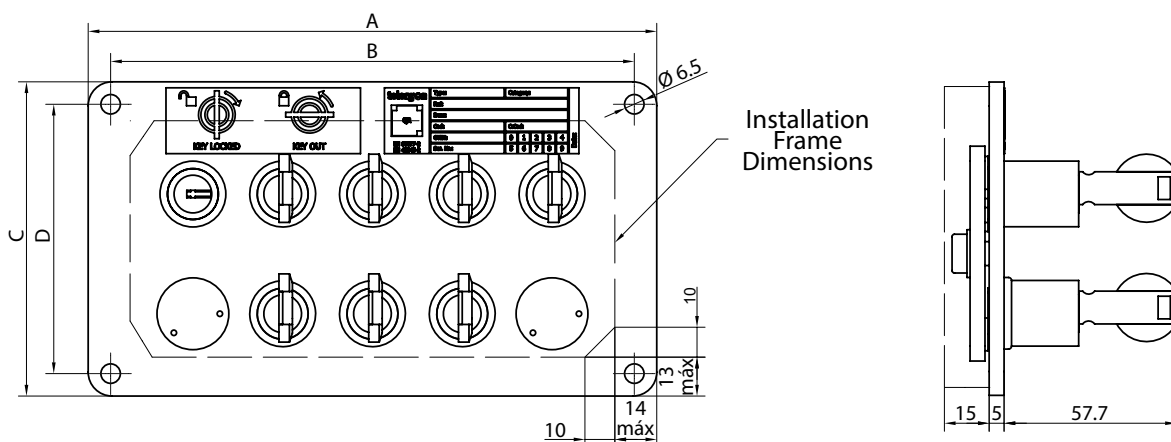
Depending on the safety interlocking scheme and the earthing switch configuration, the key multiplier function can also be integrated directly into the earthing switch, supporting up to 8 output/slave keys.

Standard sizes:

- Size 1: Up to 6 keys
- Size 2: Up to 10 keys
- Size 3: Up to 15 keys



DIMENSIONS



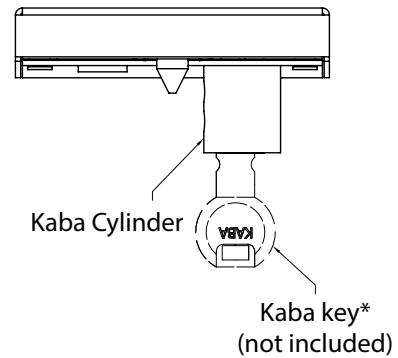
► CRWGD | Door Lock



Ensures maintenance operations are carried out safely by preventing the accidental energisation of electrical equipment and exposure to hazardous voltages.

Installed on equipment enclosures, it operates through a mechanical interlocking system and can only be locked or unlocked using the designated input key (customisable colour) from the sequential interlocking system.

*other brands available under request.



DIMENSIONS

