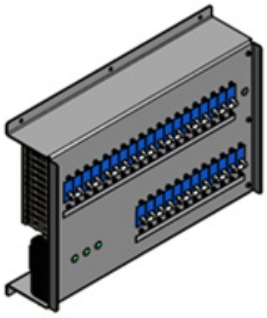
SERVING SAFETY

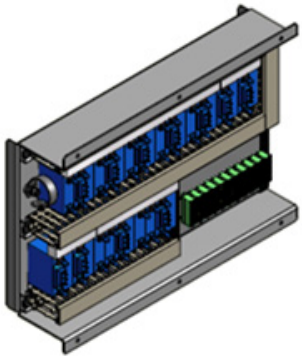
Intelligent Circuit Protection

UTO solutions with remote circuit breakers

The number of driverless railway vehicles is growing at fast pace and the industry is challenged to deliver solutions for remotely operated equipment. Additionally the industry is challenged to provide more 'passenger space ' which further reduces the space available for technical systems . The third challenge is to reduce the weight of cabling in railway vehicles.

Mors Smitt addresses these challenges with the Intelligent Circuit Protection.

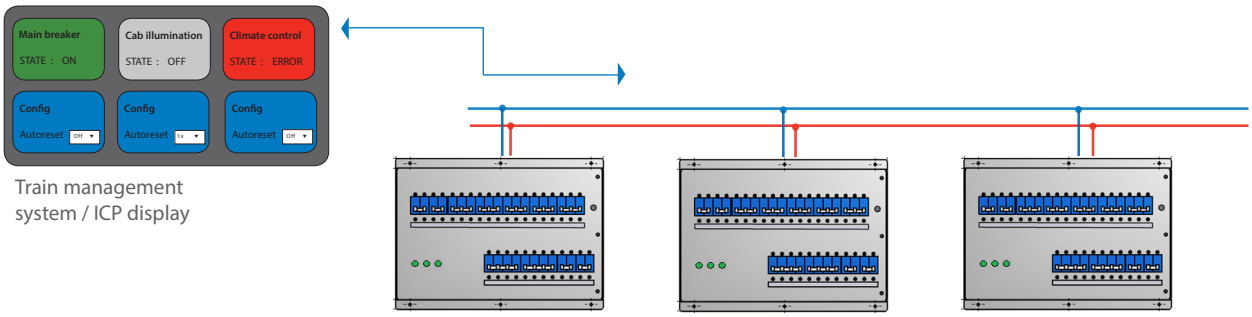




Features

- Railway proven and designed to EN 50126 / 8 / 9 (SIL) standards
- Networked circuit protection solution for driverless vehicles
- Integrated circuit protection for inaccessible breaker panels
- Integrated into TCMS or stand alone
- Reduces cabling
- Programmable auto reset function
- Engineered to fit limited space

Example configuration



Train management system / ICP display

www.morssmitt.com

Mors Smitt
A Wabtec Company

Remotely operated rolling stock circuit protection
Remotely operated Circuit Protection for inaccessible

Description

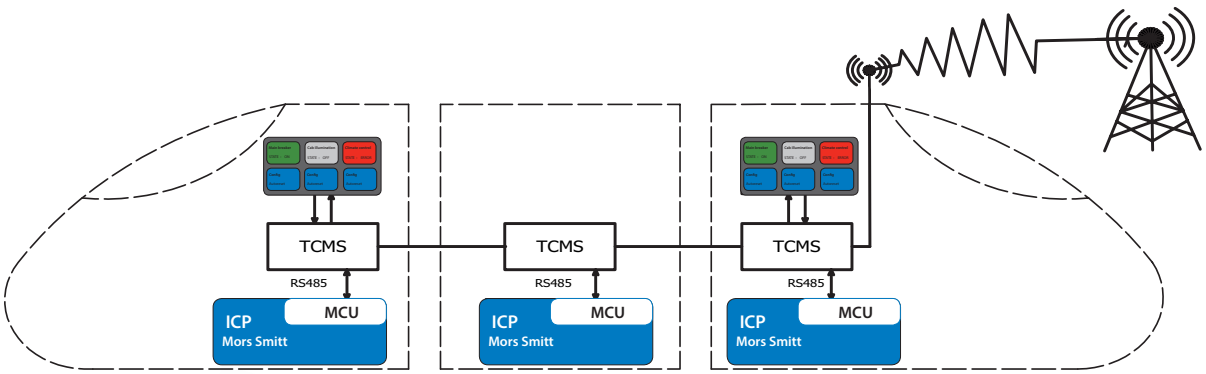
iCP combines railway certified remotely monitored and/or operated circuit breakers with a SIL rated, railway proof control unit that connects the CB panel to either the Train Control Management System or an on board (touch screen) annunciator panel. This enables operators to control CB's without direct human interference and opens the way to use decentralized CB panels and put them right next to the circuits that need protection, thus reducing power cabling.

iCP also enables railcar designers to put CB panels in inaccessible spaces, e.g. rooftop or under carriage, thus creating more 'passenger space'. iCP may be connected to decentralized on board annunciator panels that are used for status indication, switching on or switching off of individual circuit breakers.

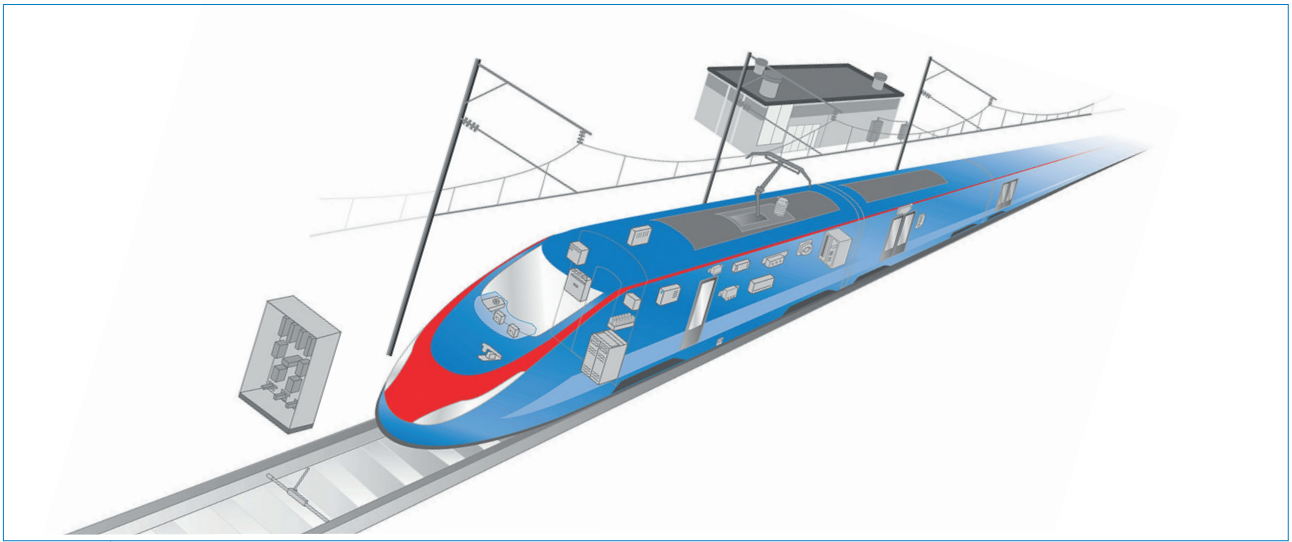
iCP consists of an engineered-to-order CB panel, that is fitted with the tried and tested Mors Smitt circuit breakers from the motor controlled RBR and CR series. These series cater for a wide range of current protection profiles, both in nominal currents as well as in timing profiles. The panel can be designed to exactly fit tight spaces.

Communication, control and monitoring is done by the MCU, to a maximum of 24 CB's in a panel. Communication is though RS485 or alternatively through Ethernet.

iCP with TCMS



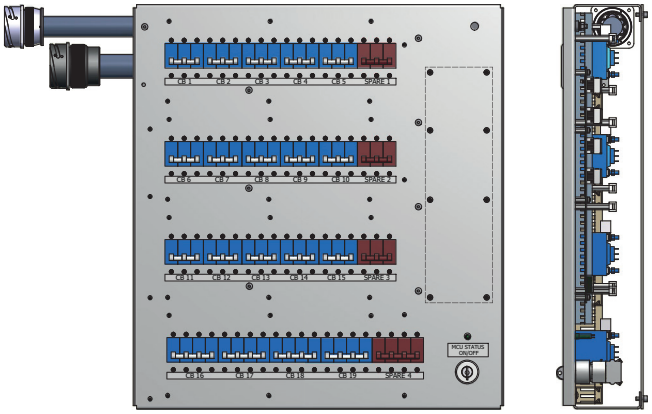
Also available in stand-alone version.



circuit breakers and driverless vehicles

Features

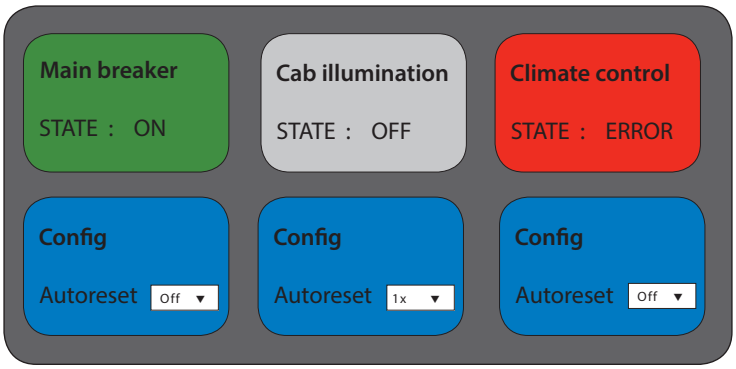
- Hydraulic magnetic, for precise temperature independent operation
- Immediately resetable after trip
- Unique arc chute design for high interrupting capacities
- Wide range of trip ratings and breaking characteristics and delay curves
- Compact design



Features

- Plug- and play solution
- Designed to fit limited spaces up to IP65
- Complete, engineered to order solution
- Communication RS485 or Ether-net and integrates with TCMS
- Global project references
- Designed to EN 50126 / 8 / 9 (SIL) standards specification
- IRIS certified engineering and production

Display example



Features

- RS485 communication protocol to Train Control Management System
- Adjustable auto-reset function
- Mechanical protection function is fully independent from monitoring & control function
- Intrinsically safe

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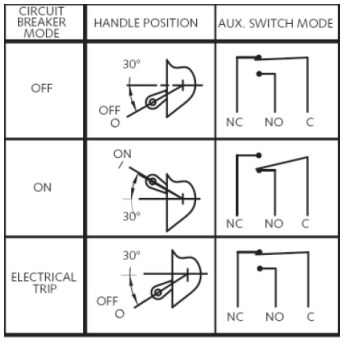
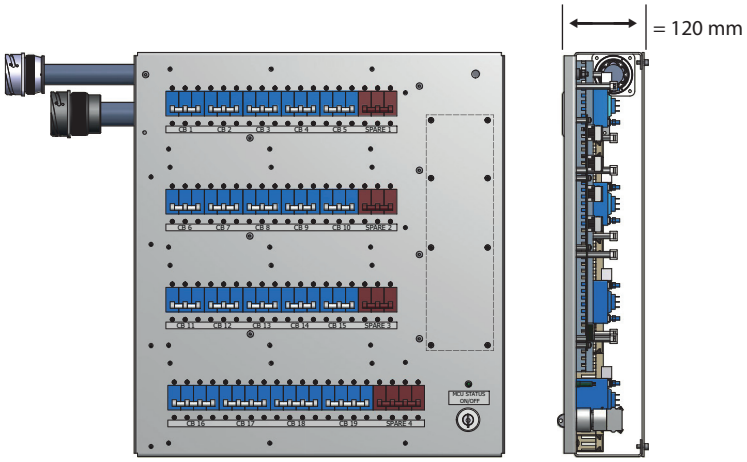
Technical data

	CR	RBR
	Monitoring	Monitoring & operated
Max. poles	6	3
Rated current	0.1 - 100 A	
Max. voltage	137.5 VDC, 304.7 VAC, 456.5 VAC	
Max. interrupting capacity	10 kA @ 80 VDC, 6 kA @ 415 VAC	



Example panel with:
- 4 x 3-pole RBR circuit breakers
- 15 x 2-pole RBR circuit breakers



Compliance

Temperature	-25 °C...+80°C
Temperature shock	MIL Method 107D, Condition A
Damp heat	IEC60068-2-30, Test Method Db, Variant 1
Vibration	IEC 61373, Section 8, Table 1, Category 1, Class B, Body Mounted, MIL-STD-202G Method 204C

Protection	IP40 standard, IP50 on request
Salt	IEC 60068-2-52, Severity Level 3
Fire & smoke	EN 45545-2, level HL3 (highest level)
Mechanical shock	NF F62-001-1, Par. 11.4.2, IEC 61373, Par. 10, Table 3, Category 1, Classes A & B, Body Mounted MIL-STD-202G

Mors Smitt is a railway supplier for onboard and trackside safety-critical solutions. Its solutions combine electro-mechanical ultra-high dependability relays with safety-critical electronics, all of which is manufactured to the strictest standards (IRIS, ISO 9001, ISO 14001).

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LE-ICP V3.0 Nov 2015

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