




SERVING
SAFETY

Mors Smitt Industrial Technology

Substation protection & control

High performance electromechanical relays

 **Mors Smitt**
A Wabtec Company

A photograph of a high-voltage electrical substation. The image shows a complex network of metal structures, including tall towers and cross-arms, supporting multiple high-voltage power lines. The lines are equipped with numerous dark, cylindrical insulators. In the foreground, there are several large, cylindrical components, likely part of a transformer or reactor, with metallic tops and dark, segmented bodies. The entire substation is enclosed within a metal fence. The background is a clear, bright blue sky. The text is overlaid on a semi-transparent blue rectangular area in the lower-left portion of the image.

**Power generation and distribution operators
across the world rely on our relays**

High performance electromechanical relays

Auxiliary . Tripping . Supervision . Pilot wire

D platform

The unique plug-in D-relay concept is specifically designed for heavy duty applications in power-utilities, petro chemical industries and mining.

High DC breaking capacity and inductive load switching offer long electrical life and low life cycle costs. The Solve-All relay application concept offers ultimate flexibility to design and supply tailor made D-relays. Today D-relays are used in its millions across the world.



Delta platform

The Delta platform of electro-mechanical relays has been designed for high voltage protection and control applications where a low contact count is required.

High performance and reliability remains paramount while lead times and panel space have been reduced. A wide range of operating voltage functions and options are available. The Delta relays are packaged in a compact and cost effective case suitable for flush panel or rack mounting.



Actus platform

Electro-mechanical relays specifically designed for high voltage protection and control applications. Multi-contact high-speed trip relays ensure fast operation of less than 8 ms with unique patented design. Topology ensures minimal contact bounce. The diversity of configurations and options makes the Actus platform suitable for the most demanding customer.

The Actus case system is available for flush panel and 19" rack mounting.



Mors Smitt is part of Wabtec Corporation, the NYSE stock exchange listed, global supplier of highly engineered components and solutions for rail and selected industrial markets. Operations in 17 countries and world wide sales in over 100 countries. Wabtec Corporation holds over 1.200 patents and has world class internal processes based on lean manufacturing and continuous improvement principles (Wabtec Performance System).

Within the Wabtec group Mors Smitt has its own name & identity and is focused on satisfying the needs of customers in the power grid, industry and installation sectors.

April 2014

Mors Smitt continuously improves its products and services. Specifications are changed without prior notice. No rights can be derived from specifications in this brochure. Changes and printed errors reserved.

D-platform

Features

- Mechanical trip indicator
- Bistable / latching models
- Fast switching up to < 7 ms
- High DC breaking capacity
- Low power consumption
- Optional time functions

Technical specification

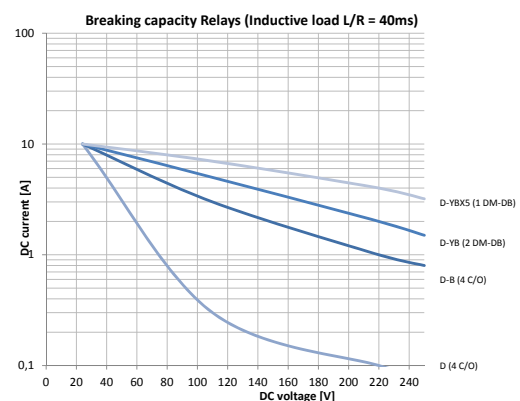
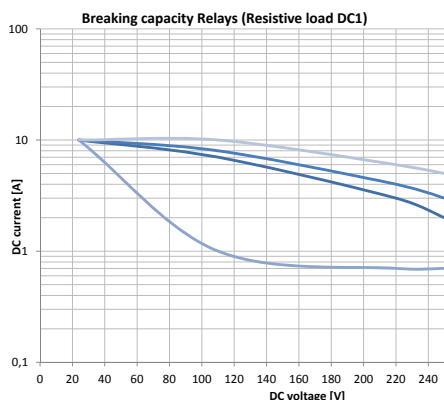
Type*	Contacts	Reset / type	Voltage range	Operating burden	Transient overvoltage	Operating voltage	Operating time
Auxiliary relays							
D	4 C/O	Self reset	30/32, 48, 110, 125, 220, 240, 250 VDC 110, 240 VAC	Self reset relays < 3 W Reset coils = 0 W	5 kV (1.2/50 µs)	80%...110% AC/DC	< 20 ms DC 5 ms AC
D8	8 C/O						
High DC breaking capacity relays (10 A, DC1)							
D-YB	2 DM/DB	Self reset	30/32, 48, 110, 125, 220, 240, 250 VDC	Self reset relays < 3 W Reset coils = 0 W	5 kV (1.2/50 µs)	80%...110% AC/DC	< 20 ms DC 5 ms AC
D-YBX5	1 DM/DB						
High speed tripping relays							
D-RA	3 C/O	Self reset Mechanical flag	30/32, 48, 110, 125, 220, 240, 250 VDC	During pull-in 25 W Continuous 1 W	5 kV (1.2/50 µs)	80 %...110 % DC	< 7 ms DC
D-RBA	3 C/O	Self reset Magnetic arc blow-out Mechanical flag					
Bistable / latching remote relays							
BD	3 C/O 1 N/O	Electrical reset	30/32, 48, 110, 125, 220, 240, 250 VDC	During pull-in 1.7 W / 4 VA Reset coils = 0 W	5 kV (1.2/50 µs)	80%...110% AC/DC	-
KDN	8 C/O						

* See our website for more types and voltages

Options*	Function	Specification
A	Mechanical hand reset flag	
B	Heavy duty contacts, magnetic arc blow-out	7 A, DC1 @ 110 V
H	High burden	10 µF, 1.5 U _n
S	Mechanical following flag	
T	Test button	
V	Wide operating and temperature range	70 % ... 125 % Unom / -25 °C...+70 °C

* Not all options can be combined, see our website for more details and options

Technical specification



Auxiliary, trip & remote relays



Available types

D and D-B High performance auxiliary relays

- Plug-in relay
- High reliable contacts
- High operate speed and low bounce
- 4 or 8 heavy duty contacts
- Self-reset
- Optional electromechanical flag indication
- Standard with LED and back EMF-diode
- Wide range of options



Available types	
D or D-B	Single element 4 contacts
D8	Dual element 8 contacts

D-RA High speed tripping relays

- Plug-in relay
- High reliable contacts
- Extreme high operate speed < 7 ms and low bounce
- 3 or 7 heavy duty contacts
- Self-reset
- Electromechanical flag indication
- Wide range of operating voltages
- Wide range of options



Available types	
D-RA	Single element 3 contacts
D8-RA	Dual element 7 contacts

BD and KDN High performance latching remote relays

- Plug-in bistable / latching relay
- High reliable electrical reset contacts
- High operate speed and low bounce
- 4 or 8 heavy duty contacts
- Electromechanical flag indication
- Wide range of operating voltages
- Wide range of options



Available types	
BD	Single element 4 contacts
KDN	Dual element 8 contacts

Sockets for D-relays



V23	V29	V33	V93	V99
35 mm rail mounting	35 mm rail mounting	Flush mounting	35 mm rail mounting	35 mm rail mounting
Screw terminals	Spring clamp terminals	Spring clamp terminals	Screw terminals	Spring clamp terminals

19" relay rack for D-relays



The 19" relay rack is equipped with 8x V33 sockets to carry any combination of relays. The racks are available in black mat finish or RAL 7035 grey.

* See our website for more types

Delta platform

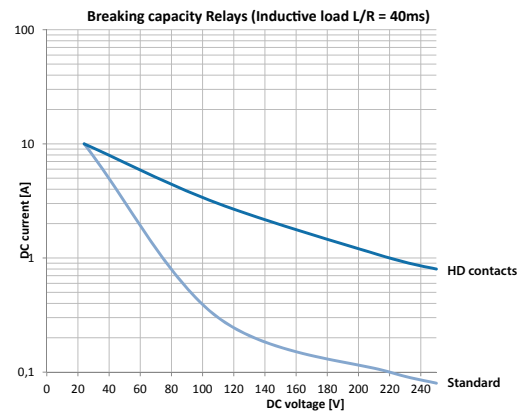
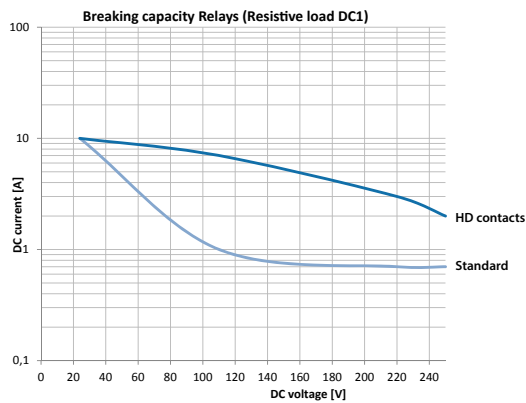
Features

- Up to 4 heavy duty C/O contacts
- 3U high 2U wide rack or flush mounting
- Plug-in terminal block
- M4 screw terminals
- Wide range of operating voltages
- Optional gold contacts
- Standard LED coil pickup indication

Technical specification

Type*	Contacts	Reset / type	Voltage range	Operating burden	Transient overvoltage	Operating voltage	Operating time
MSARD4 - High performance auxiliary relays							
MSARD4	4	Self, hand, electrical	30/32, 48, 110, 125, 220, 240, 250 VDC 110, 240 VAC	Self reset relays < 3 W Reset coils < 3 W	5 kV	70 %...120 % DC 80 %...110 % AC	< 20 ms
MSTRD4 - High speed tripping relays							
MSTRD4	4	Self, hand, electrical	30/32, 48, 110, 125, 220, 240, 250 VDC	Self reset relays < 25 W Reset coil < 10 W	5 kV	65 %...120 % DC	< 10 ms
MSXRD4 - Supervision relays							
MSXRD4-4	4	Trip supply	30/32, 48, 110, 125, 220, 240, 250 VDC	Self reset relays < 5 W	5 kV	70 %...120 % DC	< 400 ms
MSXRD4-6	4	Trip circuit					

* See our website for more types



Mounting options



Rack mounting



Panel mounting

Auxiliary, trip & supervision relays



Available types

MSTRD4 High speed trip relays

- < 10 ms operate time
- High burden trip relay
- 4 C/O contacts
- Standard magnetic arc blow out
- Self-reset, hand reset and hand/electrical reset versions
- Hand reset mechanical flag
- Flush panel or rack mounting
- Wide range of operating voltages



Available type

MSTRD4	Self-reset or latching contacts Surface/rail or panel mounting
--------	---

MSARD4 High performance auxiliary relays

- Self-reset and latching versions
- Low burden auxiliary relay
- 4 C/O contacts
- Standard magnetic arc blow out
- Hand reset flag
- Flush panel or rack mounting
- Wide range of operating voltages



Available type

MSARD4	Self-reset or latching contacts Surface/rail or panel mounting
--------	---

MSXRD4 Supervision relays

- Trip supply & trip circuit supervision models
- Low burden supervision relays
- 3 C/O or 4 C/O contacts
- Delay on drop-off
- Hand reset flag drops to indicate alarm condition
- Flush panel or rack mounting
- Wide range of operating voltages



Available type

MSXRD4-4	Trip supply supervision Surface/rail or panel mounting
MSXRD4-6	Trip circuit supervision Surface/rail or panel mounting

Actus platform

Features

- Rugged modular construction
- Double action contacts for high operating speed and low bounce
- Electrical reset interlock
- Electromechanical flag indication
- Rack of flush mounting
- M4 screw terminals
- Optional gold plated contacts for low current

Technical specification

Type*	Contacts / terminals	Reset / type	Voltage range	Operating burden	Transient overvoltage	Operating voltage	Operating time
MSAR - High performance auxiliary relays							
MSAR5	5	Self, hand, electrical	30/32, 48, 110, 125, 220, 240, 250 VDC 110, 240 VAC	Self reset relays < 5 W Latching relays = 0.4 W Reset coils = 0 W	5 kV	70 %...120 % DC 80 %...110 % AC	< 35 ms
MSAR12	12						
MSAR25	10						
MSTR - High speed tripping relays							
MSTR5	5	Self, hand, electrical	30/32, 48, 110, 125, 220, 240, 250 VDC	Self reset relays < 5 W Latching relays = 0.4 W	5 kV	50 %...120 % DC	< 8 ms
MSTR12	12						
MSXR - Supervision relays							
MSXR5-00-1	5	Trip relay coil	30/32, 48, 110, 125, 220, 240, 250 VDC	Depending on the CB coil resistance	5 kV	70 %...120 % DC	-
MSXR5-00-4	5	Trip supply					
MSXR5-00-6	5	Trip circuit					
MS4M400 - Test block systems							
MS4M400	14	Test block	Max. 660 V	-	-	-	-
MS4M420	14	Test plug					

* See our website for more types

Contact rating	
Make and carry continuously	1250 VA AC, limited at both 660 V and 8 A
Make and carry for 3 seconds	7500 VA AC, limited at both 660 V and 30 A
AC break capacity	1250 VA AC, limited at both 2500 V and 8 A
DC break capacity	1250 W DC resistive
Contact operational life	
Maximum contact load	> 10.000 operations

Auxiliary, trip & supervision relays



Available types*

MSTR High speed tripping relays

- Electrical reset interlock
- User selectable low or high burden
- High reliable double action contacts
- High operate speed and low bounce
- 5 or 12 heavy duty contacts
- Self-reset, hand reset or hand/electrical reset
- Electromechanical flag indication
- Wide range of operation voltages



Available types	
MSTR5	High or low burden 5 contacts
MSTR12	High or low burden 12 contacts

MSAR High performance auxiliary relays

- Low burden auxiliary relay
- High reliability double action contacts
- High operate speed and low bounce
- 5, 10 or 12 heavy duty contacts
- Self-reset, hand reset or hand/electrical reset
- Electromechanical flag indication
- Wide range of operating voltages



Available types	
MSAR5	Single element 5 contacts
MSAR12	Single element 12 contacts
MSAR25	Dual element 2 x 5 contacts

MSXR Supervision relays

- Supervision of CB trip circuits, supply & CB coil integrity
- No external resistors required
- Fixed time delay
- Low AC burden
- High operate speed and low bounce
- Self-reset, hand reset or hand/electrical reset
- Electromechanical flag indication
- Wide range of operating voltages



Available types	
MSXR5-1	Trip relay coil supervision
MSXR5-4	Trip supply supervision
MSXR5-6	Single pole, trip circuit supervision

MS4M400 Test block systems

- Finger safe test sockets
- 14 independent test groups
- Automatic CT shorting inside test block
- Staged isolation
- One test plug fits all MS4M400 variants



Available types	
MS4M400	Test block
MS4M420	Test plug

* See our website for more types

Mors Smitt, a trusted partner is the supply chain



Sales locations

- 1. Mors Smitt France SAS, Paris - France
- 2. Mors Smitt B.V., Utrecht - Netherlands
- 3. Mors Smitt Technologies Inc., Buffalo Grove, IL - USA
- 4. Mors Smitt Asia Ltd. - Hong Kong
- 5. Mors Smitt UK Ltd, Cradley Heath - UK

Engineering & manufacturing locations

- 6. Mors Smitt France SAS, Sable-sur-Sarthe - France
- 7. Mors Smitt B.V., Utrecht - Netherlands
- 8. Zhongshan Mors Smitt Relay Ltd, Zhongshan - PR China
- 9. Mors Smitt UK Ltd, Cradley Heath - UK

Quality management

Certification to strictest standards. Mors Smitt have certified quality and environmental management systems according the leading international standards;

IRIS
ISO 9001:2008
ISO 14001



Mors Smitt brochures are also available on our website: www.morssmitt.com



Heavy duty relays



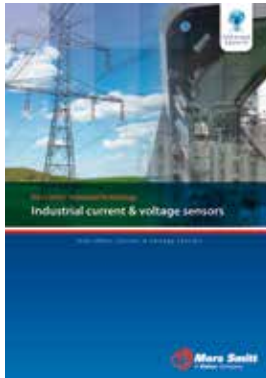
General purpose relays



Actus relays



Surge protection devices



Industrial sensors

SALES OFFICES

FRANCE

Mors Smitt France SAS
Tour Rosny 2, Avenue du Général de Gaulle,
F - 93118 Rosny-sous-Bois Cedex, France
T +33 (0) 1 4812 1440
F +33 (0) 1 4855 9001
E sales@msrelais.com

HONG KONG

Mors Smitt Asia Ltd.
807, Billion Trade Centre, 31 Hung To Road
Kwun Tong, Kowloon, Hong Kong SAR
T +852 2343 5555
F +852 2343 6555
E info@morssmitt.hk

THE NETHERLANDS

Mors Smitt B.V.
Vrieslantlaan 6
3526 AA Utrecht, The Netherlands
T +31 (0)30 288 1311
F +31 (0)30 289 8816
E sales.msbv@wabtec.com

UNITED KINGDOM

Mors Smitt UK Ltd.
Doulton Road, Cradley Heath
West Midlands, B64 5 QB, UK
T +44 (0)1384 567 755
F +44 (0)1384 567 710
E sales.msuk@wabtec.com

USA

Mors Smitt Technologies Inc.
1010 Johnson Drive
Buffalo Grove, IL 60089-6918, USA
T +1 847 777 6497
F +1 847 520 2222
E salesmst@wabtec.com

Your local contact

www.morssmitt.com

BRO - Substation P&C V.1.3 April 2014

