

**Power  
Utility**

## **Products & Services**



RMS Mors Smitt is an Australian company and part of the Wabtec Corporation; dedicated to the design, manufacture and distribution of high quality electrical engineering products.

**Major product types:**

- Auxiliary and tripping relays
- Test blocks
- Arc flash protection
- Utility grade protection and control relays
- Industrial controls and pilot lamps
- On board railway relays, CB's and panel meters

**Customer service objectives:**

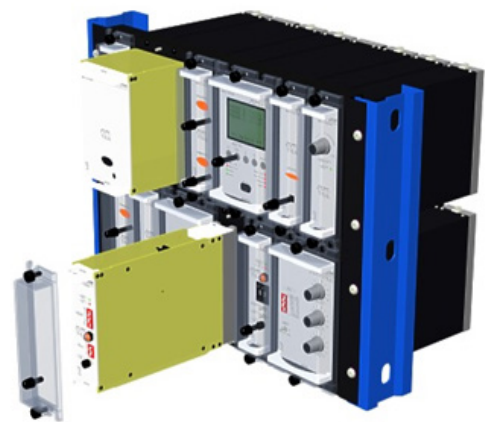
- Build to order with fast delivery
- High product quality and flexibility
- Competitive pricing
- Customer service and product backup
- Proven reputation

RMS Mors Smitt was formerly known as Relay Monitoring Systems Pty Ltd (RMS). Our history traces back to 1955 through former companies Email Ltd and Relays Pty Ltd (RPL).

RMS Mors Smitt protection relays are designed and manufactured in Australia to meet international standards.

A wide range of versions and options provide the flexibility to meet customer applications for medium and high voltage protection and control systems.

In addition to the wide range of standard relay models, full custom designs are available to meet specific customer needs.



**Compliance Laboratory**

RMS Mors Smitt maintains an extensively equipped type testing laboratory allowing on site verification of products to a range of IEC standards relating to utility grade measuring relays and high voltage protection equipment:

Common requirements		IEC6 0255-1
Voltage dips		IEC 60255-26
Vibration (sinusoidal)		IEC 60255-21-1 Class I
Shock and bump		IEC 60255-21-2 Class I
Seismic		IEC 60255-21-3 Class I
Mechanical classification		IEC 60255-1
Environmental	Test cold	IEC 60068-2-1
	Dry heat	IEC 60068-2-2
	Damp heat	IEC 60068-2-78
Transient overvoltage		IEC 60255-26
Insulation coordination		IEC 60255-26
High frequency disturbance		IEC 60255-26
Electrostatic discharge		IEC 60255-26
Radiated RFI		IEC 60255-26
Fast transient		IEC 60255-26
Surge immunity		IEC 60255-26
Conducted RFI immunity		IEC 60255-26
Capacitor discharge		ENATS 48-4
Environmental test requirements		ENATS 48-5
IP protection		AS 60529
Electromechanical elementary relays		IEC 61810-1







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**Australian Brand**

RMS Mors Smitt is an Australian based manufacturing enterprise and part of the Wabtec Corporation. RMS Mors Smitt has attained and maintains a third-party quality system accreditation in accordance to AS/NZS ISO9001:2008.

The company's depth of local manufacturing and engineering expertise to international standards is backed up by many years of experience since the formation of its predecessor, Relays Pty Ltd. (RPL) in 1955.

This experience combined with a broad base of field proven protection product types enables RMS to service specific customer needs by producing on a build to order basis with typically short lead times.



**Manufacturing Facility**

RMS Mors Smitt operates a modern manufacturing facility at its corporate headquarters in Melbourne, Australia.

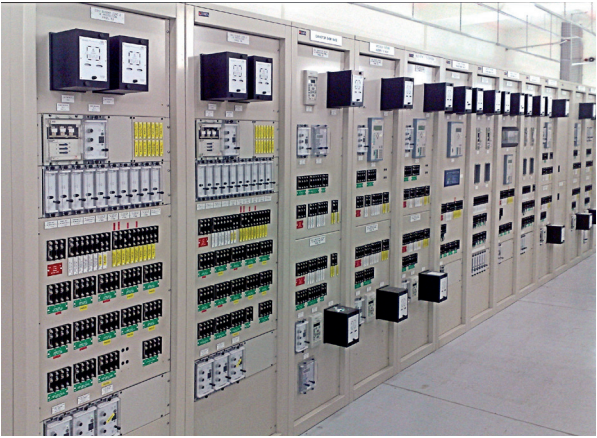
The production capabilities include sheet metal, tool room, press shop, coil winding, relay assembly, printed circuit board loading, protection relay assembly, high voltage isolation testing, calibration and environmental heat soak.

The scope of the in-house operation allows RMS Mors Smitt to have direct control over all major manufacturing processes thus providing significant benefits in terms of offering short lead times and a wide range of product variations.

**Committed Team**

At RMS Mors Smitt we have a committed and highly skilled team undertaking research and development, engineering, quality assurance, sales, marketing and training activities.

A critical component of the operation is our highly skilled production team who are committed and focussed to achieve high quality outcomes in an efficient and timely manner. We strive to surpass our customers' expectations for customer service.



**Exporting to the World**

RMS Mors Smitt exports worldwide and has been successful in offering a viable alternative for its many export customers. With a proven track record in delivering technically compliant and competitively priced products we have established long standing repeat business as a partner of choice.



# Arc Flash Protection



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Fast acting protection against arcing faults in metal clad air insulated switchgear.  
Suitable for medium and low voltage applications.

## 1S20

### 2 and 3 point sensor arc fault monitor

- One, two or three arc sensors
- Used with 1S30 optical point arc sensors
- One or two arc protection zones
- 2 trip contacts
- Integrated arc sensor supervision



## 1S23

### 1 and 2 point sensor arc fault monitor

- 1 or 2 arc sensor input versions
- Used with 1S30 optical point arc sensors
- 1 output makes any relay arc fault protection ready
- Integrated arc sensor supervision



## 1S24

### 16 point sensor arc fault monitor 12 point & 2 linear sensor arc fault monitor

- 16 arc sensor inputs
- Used with 1S30 optical point arc sensors
- Optional 2 x 1S40 optical linear arc sensor inputs
- 3 High Speed Trip outputs
- Integrated arc sensor supervision
- Application in simple or complex schemes



## 1S25

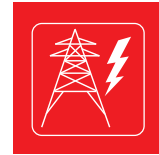
### 8 point sensor arc fault monitor

- Up to 8 arc sensors
- Used with 1S30 optical point arc sensors
- Up to 4 arc protection zones
- 9 trip contacts
- Integrated arc sensor supervision





# Arc Flash Protection



Power  
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Fast acting protection against arcing faults in metal clad air insulated switchgear.  
Suitable for medium and low voltage applications.

## 1S26

### 8 point sensor arc fault monitor with current check

- Up to 8 arc sensors
- Integrated high speed current check
- Used with 1S30 optical point arc sensors
- Up to 4 arc protection zones
- 9 trip contacts
- Integrated arc sensor supervision



## 1S27

### 4 point sensor arc fault monitor 4 point & 1 linear sensor arc fault monitor

- Up to 4 point arc sensors and 1 linear sensor
- Used with 1S30 optical point arc sensors
- Optional 1S40 optical linear arc sensor input
- Up to 2 arc protection zones
- 4 trip contacts
- Integrated arc sensor supervision



## 1S30

### Point sensor

- Single or dual detectors
- Through hole or surface mount
- 6 meter and 20 meter cable lengths
- Supervised by the connected arc fault monitor



## 1S40

### Linear sensor

- Linear Arc Sensor to provide coverage of large volumes
- Up to 35 meter detector fibre length
- Up to 40 meter black link fibre length
- Supervised by the connected arc fault monitor



# Bus Protection



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High speed differential protection for power system plant including busbars, generators, motors & the individual windings of power transformers. Also suitable for restricted earth fault protection applications.

## 2V73

### High impedance differential relay

- Voltage operated
- Adjustable setting in seven equal steps
- Two trip contacts
- Hand reset flag
- Flush or rack mount size 2 case



## 2V68-S

### Bus wire supervision relay

- Bus wire Supervision
- Hand Reset Shorting and Alarm Contacts
- Fixed 3s or Adjustable time delay option
- Harmonic Filter option
- Hand reset flag
- Flush or rack mount size 4 case



## 6RA20

### CT shorting relay

- Hand or Electrical reset versions
- 3 phase common or phase segregated versions
- High isolation across open contacts
- Flush or rack mount size 2 or size 4 case



## 2V75

### Metrosil module

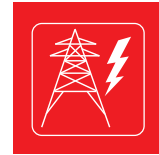
- Metrosil & resistors
- 6 inch metrosil
- 100 W or 200 W adjustable resistors
- 1 phase or 3 phase
- Flush / rack mounting





# Bus Protection

High speed differential protection for power system plant including busbars, generators, motors & the individual windings of power transformers. Also suitable for restricted earth fault protection applications.



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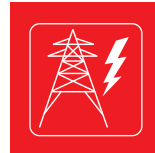
## 1M123

### High impedance scheme

- 3x 2V73 or 2C73
- 1x 2V75
- 1x High speed trip relay
- 1x 19 inch rack frame



# Alarm & Control Panels



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Equipment for the annunciation of substation alarms, manual control of circuit breakers and transient impulse immunity of digital inputs.

## 1A54

### Alarm panel

- 4, 8 or 16 alarm points
- LED indication and custom label text for each alarm point
- Non-volatile memory
- Wide range status input to initiate each alarm point
- Repeat output contact(s) for each alarm point
- Common alarm output contact
- Front panel acknowledge and reset button & status inputs



## 1X50

### CB control module

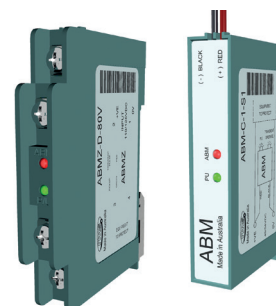
- Circuit breaker OPEN and CLOSE push buttons
- High visibility CB status LED's
- Optional CB spring charge status LED
- Optional locking cover
- Optional lamp test button & output contact
- Flush or rack mount size 2 case



## ABM

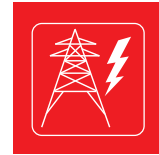
### Active burden module

- Improve security of sensitive, high speed status inputs
- Provides capacitor discharge protection to ENA TS 48-4
- Transient noise withstand to IEC 60255 standards
- Compact and easy to fit and retrofit
- Instantaneous burden turn-on with ~50 ms fixed dwell time
- Thermal cut out protection
- Operation check LED





# Test Blocks



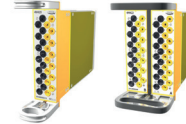
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Quick and safe testing access point for protection, metering and control panels.  
Safely isolate, test and verify protection, metering and control schemes.

## 4M200

### 14 Circuit test block system

- Compatible with industry standard 14 circuit test blocks
- Compatible with industry standard test plugs
- Finger safe test plug
- Supplied with finger safe shorting leads
- Panel or rack mounting



## 4M300

### 14 Circuit test block system

- Economical 14 test circuit test block
- Finger safe test plug
- Supplied with finger safe shorting leads
- Panel or rack mounting



## 4M400

### 14 Circuit test block system

- Automatic CT shorting inside the test block
- Staged isolation
- Custom circuit configurations available
- Finger safe test plug
- One test plug suits all 4M400 variants
- Panel or rack mounting



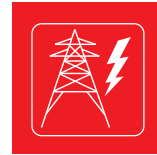
## 4M402

### 28 Circuit test block system

- Automatic CT shorting inside the test block
- Staged isolation
- Custom circuit configurations available
- Finger safe test plug
- One test plug suits all 4M402 variants
- Panel or rack mounting



# High Speed Trip Relays



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High speed relays used as interposing relays between main protection relays and circuit breakers and for contact multiplication.

## Delta TRD

- 4 contacts
- < 10 ms operate time
- High burden to meet capacitor discharge test requirements
- Standard magnetic arc blowouts
- Self-reset, hand reset, hand/electrical reset versions (lockout)
- Hand reset mechanical flag
- Compact 2U high flush or 35 mm rail mounting versions



## Alpha TR

- TR5 1 element, 5 contacts
- TR12 1 element, 12 contacts
- < 8 ms operate time
- Selectable high or low burden operation
- Self-reset, hand reset, hand/electrical reset versions (lockout)
- Flush or rack mount size 2 case



## 6R Matrix platform

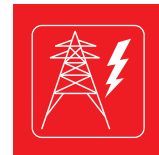
- 6RJ and 2HSM versions
- 1 to 20 contacts in any combination of N/O and N/C
- < 10 ms operate time
- Optional magnetic arc blowouts (2HSM)
- High burden or low burden order variants
- Self-reset, hand reset, hand/electrical reset versions (lockout)
- Flush or rack mount size 2 or 4 case





# Trip Circuit Manager (TCM)

Multifunction trip relay incorporating supervision functions. Robust contact rating relays for demanding power utility applications.



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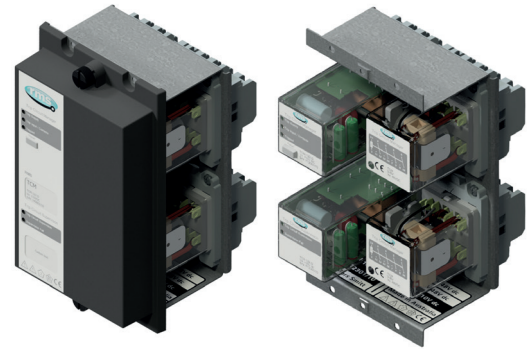
## TCM

### High speed trip relays

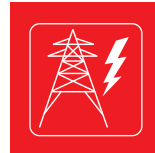
- < 10 ms operate time
- 4, 8, 12 or 16 contacts (magnetic blowouts standard)
- Self-reset and latching contact versions (lockout)
- High burden or low burden versions
- Hand reset LED trip indicator
- Integrated trip relay supervision
- Integrated trip supply supervision
- Optional trip circuit supervision

#### Three high speed trip functions:

- TCM-1 SR contacts + HR flag button + ER flag input
- TCM-2 ER contacts and Flag + HR contacts and flag button (lockout)
- TCM-3 ER contacts + HR contacts and flag button (lockout)



# Auxiliary Relays



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Utility

Interposing relays and timers used for control purposes and for contact multiplication.

## Delta ARD

- 4 contacts
- Standard magnetic arc blowouts
- Self-reset, hand reset, hand/electrical reset versions (lockout)
- Hand reset mechanical flag
- Compact 2U high flush or 35 mm rail mounting versions



## Alpha AR

- AR5 1 element, 5 contacts
- AR12 1 element, 12 contacts
- AR25 2 element, 5 contacts per element
- Self-reset, hand reset, hand/electrical reset versions (lockout)
- Flush or rack mount size 2 case



## 6R Matrix platform

- 6RM
- 6RA
- Up to 20 contacts per case
- 1, 2, 3 or 4 elements per case
- Self-reset, hand reset, hand/electrical reset versions (lockout)
- Flush or rack mount size 2 or size 4 case

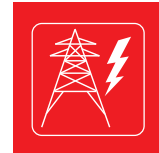


## 2T105 Timer

- Four time ranges: 0-0.99 s, 0-9.9 s, 0-99 s, 0-990 s
- Time settings selected by digital thumb wheel switches
- Selectable delay operate or delay release
- Instantaneous, definite time, count down reset
- 4 C/O output contacts
- Flush or rack mount size 2 case



# Supervision Relays



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Supervision relays used to monitor secondary protection and control systems such as trip supplies, circuit breaker trip circuits and trip relays.

## Delta XRD

- XRD-4-xx Trip supply supervision
- XRD-6-xx Trip circuit supervision with CB open and closed
- Contacts: XRD-4 4 C/O XRD-6 3 C/O
- Hand reset flag drops to indicate alarm condition
- XRD-5-xx Trip supply supervision
- XRD-7-xx Trip circuit supervision with CB open and closed
- Contacts: XRD-5 2 C/O XRD-7 2 C/O
- Self-reset LED indication
- Delay on drop off on all variants
- Compact 2U high Flush or 35 mm rail mounting version



## Alpha XR5

- XR5-xx-1- Trip relay supervision
- XR5-xx-4- Trip supply supervision
- XR5-xx-6- Trip circuit supervision
- Delay on drop off
- Hand reset flag drops to indicate alarm condition
- Flush or rack mount size 2 case



## 1X series 1X

- Miniature supervision relays
- 1X10 Trip supply supervision
- 1X20 Trip circuit supervision CB closed
- 1X30 Trip circuit supervision CB open and closed
- Large LED supervision indication
- 1 output contact
- Pilot light mount case



## 6R Matrix platform

- 6RX11 Trip relay supervision
- 6RX12 Trip supply supervision
- 6RX21 Trip circuit supervision - 2 relay element
- 6RX31 Trip circuit supervision - 3 relay element
- Delay on drop off
- Hand reset reverse flag
- Flush or rack mount size 2 or size 4 case



# Phase Failure Protection



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Relays for the monitoring of three phase voltages to detect phase angle imbalance, loss of phase, reverse phase sequence and three phase undervoltage.

## 2P740

### Phase failure relay

- Detects phase angle imbalance
- Detects reverse phase sequence
- Detects supply under voltage
- Adjustable 5-15 % out of balance setting
- Failsafe operation (contacts normally picked up)
- 35 mm rail or surface mount



## 2P49

### Phase failure relay

- Detects phase angle imbalance
- Detects reverse phase sequence
- Detects supply under voltage
- Adjustable 5-15 % out of balance setting
- Failsafe operation (contacts normally picked up)
- Flush or rack mount size 2 case



## 2P48

### Voltage selection relay

- Voltage change-over scheme
- 5 C/O contacts
- LEDs for each supply
- Adjustable 5-15 % out of balance setting
- Flush or rack mount size 4 case





# Grid connection

Relays used to safely connect embedded generation on to electricity networks.



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## 2H34-S

### Frequency relay

- Four independent over or under frequency stages
- Four independent ROCOF detection stages
- Under voltage blocking
- Timing & trip indication LED's
- Front panel USB PC programming port
- RS485 port with MODBUS protocol
- Flush or rack mount size 4 case



## 2SY212-S

### Check sync relay

- Adjustable phase angle and time delay
- Flexible live and dead voltage configuration
- Bus or line U/V close block
- Voltage differential close block
- Flexible synchronism check bypass logic
- Front panel USB PC programming port
- RS485 port with MODBUS protocol
- Flush or rack mount size 4 case



## 1B230

### Auto reclose relay

- Single or double shot reclose with selectable auto reset
- Reclose counter option
- Shunt or series initiate input
- Safe to reclose input
- CB reclose spring status input
- Flush or rack mount size 4 case



# Voltage Protection



Power  
Utility

Relays used for the monitoring of network voltages and protection against abnormal voltage conditions.

## 2V63

### Single phase voltage

- AC & DC input versions for under or over voltage function
- Heavy duty output contacts
- Self-reset LED P/U indication
- Optional hand or self-reset mechanical flag
- Fixed or adjustable pick up
- Fixed or adjustable drop out
- Self-powered from voltage sensing input
- Flush or rack mount size 2 or 4 case



## 2V76

### Single phase voltage

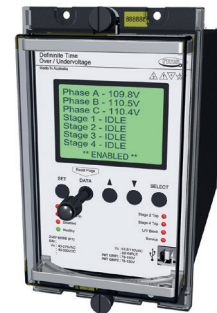
- Under voltage or Over voltage
- Neutral displacement over voltage
- Wide voltage monitoring range 1-255V AC in 1V steps
- Adjustable time delay
- 5 C/O output contacts
- Flush or rack mount size 2 case



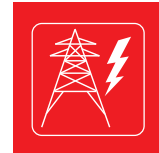
## 2V67-S

### Three phase voltage

- Four independent under or over voltage setting stages
- Under voltage blocking
- Timing & trip indication LED's
- Front panel USB PC programming port
- RS485 port with MODBUS protocol
- Flush or rack mount size 4 case



# Voltage Regulation



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Equipment used in conjunction with transformer on load tap changers to regulate network voltage profiles within steady state limits.

## 2V164-S

### Voltage regulation relay

- Power transformer on-load tap change control
- Fine & coarse voltage bandwidth windows
- Definite time & inverse time delays
- Over & under voltage alarms
- Under voltage blocking and Overcurrent blocking
- Line voltage, Line current, TPI displays
- Front panel USB PC programming port
- RS485 port with MODBUS RTU protocol



## 1M122A

### Parallel transformer scheme

- Simple Master Follower scheme
- Scalable scheme for up to 4 transformers
- Simple system wiring
- Caters for flexible transformer switching configurations
- Tap change out of step alarm



## 2V200

### TPI transducer

- Transformer tap position transducer
- BCD, BIN or Resistor Chain Input
- Voltage/frequency 0-5kHz signal output
- Connects to 1M122A, 2V164-S or 4D200 display



## 4D200

### Tap position indicator

- Transformer tap position transducer
- Interfaces with 2V200 TPI transducer
- Optional BCD/BIN input version
- Tap range 1 to 30 taps



# Pilot Wire DC Intertrip Relays

Intertrip relays used to convey trip signals over DC pilot wires.



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## 3A20

### Send & receive relays series

- 3A200 Receive relay
- 3A201 Send relay
- 3A202 Combined send & receive relay
- Immune to AC voltages (300 V)
- 2 kV, 5 kV, 15 kV isolation
- Flush or rack mount size 2 or size 4 case





# Current Protection



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Protection relays for the detection of overcurrent conditions.

## 2C138

### Sensitive earth fault relay

- Definite time sensitive earth fault
- 0.1 to 3.1 % or 0.5 to 15 % of nominal current setting range
- Options for 1 A or 5 A nominal CT's
- Harmonic rejection
- Instantaneous, definite time and count down reset options
- 3 output contacts



## 2C65

### Current check relay

- 5 - 50 % or 20 - 200 % of nominal current setting range
- Options for 1 A or 5 A nominal CT's
- Fast O/C pick up (<15 ms at 2x setting)
- Fast O/C reset time (<15 ms at 2x setting)
- 8 C/O output contacts
- 0 to 99 s time delayed output
- Flush or rack mount size 4 case



## 2C139

### Shaft overcurrent relay

- Tuned to the 3rd Harmonic (150 Hz or 180 Hz)
- Definite time settings 0 – 31 sec (125 ms steps)
- 0.1 to 3.1 % of nominal current setting range
- Options for 1A or 5 A nominal CT's
- Instantaneous, definite time and count down reset options
- 3 output contacts
- Flush or rack mount size 2 case

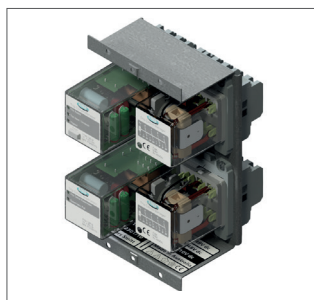


## 2C81

### DC current sensing relay

- Derived current via voltage measurement across a current shunt
- Choice of 5 voltage measurement ranges
- Setting dials are custom engraved with desired current setting range
- Choice of 3 time delay ranges
- 2 C/O output contacts
- Flush or rack mount size 2 case





**Sales offices & factories:**

Mors Smitt Asia Ltd.  
26/F, Casey Aberdeen House  
38 Heung Yip Road,  
Wong Chuk Hang, Hong Kong  
Tel: +852 2343 5555  
sales.msa@wabtec.com

Mors Smitt France SAS  
2 Rue de la Mandinière  
72300 Sablé-sur-Sarthe, France  
Tel: +33 (0) 243 92 82 00  
sales.msf@wabtec.com

Mors Smitt Technologies Ltd.  
1010 Johnson Drive  
Buffalo Grove, IL 60089-6918, USA

Mors Smitt UK  
Graycar Business Park  
Burton on Trent  
DE13 8 EN, UK  
Tel: +44 (0)1283 357 263  
msu\_sales@wabtec.com

RMS Mors Smitt  
19 Southern Court  
Keysborough, VIC 3173, Australia  
Tel: +61 (0)3 8544 1200  
sales.rms@wabtec.com

Wabtec Netherlands B.V.  
Darwinstraat 10  
6718 XR Ede, Netherlands  
Tel: +31 (0)88 600 4500  
wnl\_salesupport@wabtec.com

**Sales & Support offices:**

China  
Zhongshan, P.R. China  
sales.msa@wabtec.com

Gulf Region  
Abu Dhabi, UAE  
sales.rms@wabtec.com

India  
Bangaluru, India  
sales.msa@wabtec.com

Malaysia  
Kuala Lumpur, Malaysia  
sales.rms@wabtec.com

[www.morssmitt.com/rms](http://www.morssmitt.com/rms)



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