**Designation**  
Industrial-grade remote terminal unit (RTU)

**Processor**  
32 bits ARM9, 400MHz

**Redundancy**  
Power supply, communications, processor level (cold start)

**Clock**  
Real-time clock with lithium battery backup — External GPS synchronization (optional)

**Memory**  
32MB NOR Flash  
64MB DDR2 SDRAM  
1MB SRAM with lithium battery backup  
Industrial grade SD / µSD card to 32GB (see our price list)

**Backplane rack**  
Passive backplane. Available for 3, 5, 10, 15 and 20 slots

**Mounting**  
DIN rail fixing, Wall, 19" 4U cabinet

**Communication**  
Ethernet (10/100), 3 x USB, PSTN, LTE/4G Modem, Serial (RS-232/RS-485), and many more

**Power supplies**  
- MS-PS-AC30W 30W 85 to 265 VAC (50/60Hz) and +90 to +375 VDC  
- MS-PS20CV 15W 85 to 265 VAC (50/60Hz) and +90 to +375 VDC  
- MS-PS-DCN 30W +8 to +30 VDC and -60 to -24 VDC (railways -48VDC)  
- MS-CHARGER Intelligent battery charging

**I/O cards**
- MS-16DI 16 digital inputs, 12-60VDC  
- MS-16DI 16 digital inputs, 12-60VDC — no LED  
- MS-10DI-HS 10 digital inputs, 5-30VDC, Counting (50KHz), Quad inputs, SOE, Debounce filter, Isolated 1/1  
- MS-16DO 16 digital outputs, 12-60VDC, max 200 mA, Current Sinking, Protected  
- MS-16DIO 16 digital inputs + outputs, 12-60VDC, max 200 mA, Current Sinking, Protected  
- MS-RELAY 8 digital outputs relay, 230VAC or 30VDC max 3A, Isolated 1/1  
- MS-8AIVC 8 analogue inputs -10/+10V, -20 mA/+20 mA, 4-20 mA, 24-bit  
- MS-BRTD 8 RTD temperature inputs, 24 bit  
- MS-4AIA20 4 analogue inputs 4-20 mA, 14-bit, Isolated 1/1  
- MS-8AIA20 8 analogue inputs 4-20 mA, 14-bit, Isolated 1/1  
- MS-4AOVC 4 analogue outputs, 12-40 mA, max 200mA, Maximum Current Sinking, Protected  
- MS-16DO 16 digital outputs, 12-60VDC, max 200 mA, Current Sinking, Protected  
- MS-16DIO 16 digital inputs + outputs, 12-60VDC, max 200 mA, Current Sinking, Protected  
- MS-RELAY 8 digital outputs relay, 230VAC or 30VDC max 3A, Isolated 1/1  
- MS-8AIVC 8 analogue inputs -10/+10V, -20 mA/+20 mA, 4-20 mA, 24-bit  
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- MS-4AOVC 4 analogue outputs, 12-40 mA, max 200mA, Maximum Current Sinking, Protected  
- MS-16DO 16 digital outputs, 12-60VDC, max 200 mA, Current Sinking, Protected

**Comms cards**
- MS-PSTN 56K modem + 1 RS-232/RS-485  
- MS-GSM-AW 12 bands LTE(4G), 7 bands UMTS/HSPA+ (3G), 4 bands GPRS/EDGE (2G) + 1 RS232/RS485  
- MS-ETHER-4 Ethernet (10/100) with 4 ports embedded industrial switch  
- MS-SERIAL 2 RS-232/RS-485 ports

**Special cards**
- MS-I0-SIMUL Simulation + test: 8 DI (switches), 8 DO (LEDs), 4 AI (potentiometers), 4 AO (LEDs)

**Hot swapping protection**
- All cards

**Operating System**
Linux Kernel with TBox Telecontrol stack

**Programming**
Via TWinSoft Suite (including WebForm Studio 2.0 and Report Studio)

**Languages**
Ladder logic, Basic & Function blocks (IEC 61131-3) and optional C/C++ add-ons

**Alarm handling**
Smart alarm management with embedded calendar

**Data logging**
Smart data logging: Sampling tables (periodic) + digital & analogue chronologies (event).  
Up to 250 000 timestamp data. Possible expansion on SD card.

**SCADA compatible**
TView, InTouch, ifix, Control Maestro, CITEC, Topkapi, Cube, Labview, Panorama, Scope-X, VTScada

**Remote upload**
Up to firmware level

**IT features**
HTTP(S), FTP(S), SMTP(S) & POP3(S), SNMP, IP forwarding, DynDNS, NTP, SSH/SCP/SFTP

**Protocol support**
Support for over 40 protocols, including Modbus (master/slave, RTU/TCP/ASCII), DNP 3.0, IEC 60870-5-101/104, OPC UA, MMTT(S), Siemens ISO-on-TCP, Allen Bradley DF1 & EtherNET/IP, IEC-61850 (MMS) and many more

**Security**
Firewall, 4 levels of authority, HTTP Session Authentication, SSL/TLS & X.509 Certificates, IEEE802.1X

**Temperature**
Storage: -40°C to +80°C / -40°F to 176°F  
Working: -40°C to +70°C / -40°F to +158°F

**Humidity**
0-95% non-condensing

**Altitude**
Max. 4000m

**Material**
Proprietary aluminum enclosure, Alodine coating against corrosion

**Approvals**
CE, UL/CSA, FCC, IC, RCM, RED

**MTBF**
>400,000 hours, statement available upon request