TBOX MS

Market leading fully modular remote control and automation solution

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-PS230V 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-48DI 48 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/+10 V, -20 mA/+20 mA, 4-20 mA, 24-bit MS-8RTD 8 RTD temperature inputs, 24 bit MS-4AI420 4 analogue inputs 4-20 mA, 14-bit, Isolated 1/1 MS-8AI420 8 analogue inputs 4-20 mA, 14-bit, Isolated 1/1 MS-4AOVC 4 analogue outputs, 12-bit, 4-20 mA, -10 V/+10 V, Active, Isolated 1/1 MS-COMBO 8 DI (12-60VDC) + 4 DO (12-60VDC, max 200mA) + 3 AI (4-20mA)
Comms cards	MS-PSTN 56K modem + 1 RS-232/RS-485 MS-GSM-4W 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-IO-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, CITECT, 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, MQTT(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

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