

MICROSTAR

DRTU-MS15

Energy Remote Terminal

Smart Grid Electricity Data Acquisition



FEATURES

- Fully IEC-61850 compliant. Support bi-directional communication with Control Center and meters via IEC-61850 protocol.
- System profiles and data items available as IEC-61850 logical devices and nodes for easy access.
- System configuration managed by IEC-61850 compatible SCL files
- Real-time clock synchronization by SNTP server and/or client mode
- Multi-protocol support: IEC-61850/ IEC 870-5-102/ MODBUS/ DLMS
- Multi-channel support: F/O, Ethernet, GPRS/3G/4G, PSTN, RS485/232
- Third-party meter integration with multiple meter vendors
- Real-time preemptive mission-critical operating system
- Flexible operation modes & supports multiple concurrent user tasks
- Powerful data processing capability for high throughput & low latency
- Event registration for power quality monitoring and error replay
- Stainless steel panel with standard server rack mount
- Large screen dot-matrix LCD display with dual language support
- Large non-volatile data storage enough to keep data for 20+ years
- A/C & D/C online switch without interruption

OPTIONS

- Dual redundancy power source for high availability
- Up-to 8x RS485 Ports
- Up-to 4x 100M Fiber Optics Channel
- Up-to 2x GSM/GPRS modems
- Up-to 2x PSTN modems
- Extended hard-drive space (up-to 2GBytes)
- GPS clock for time synchronization

APPLICATION

- Power Plants Monitoring
- Digital Substation Automation
- Advanced Metering Infrastructure

BENEFITS

- IEC-61850 IED for easy integration
- High reliability and availability design with redundancy (MTBF > 60,000 hours)
- Mission critical real-time operating system to ensure high reliability in multi-tasking
- Rich features designed for substation metering and automation
- Multi-user and multi-tasking environment
- Supports a wide range of meter and substation communication protocols
- Multiple communication channels
- 19" standard case for server rack mount
- Easy to use interactive LCD display with LED to indicate system status
- Customizable features and protocol support
- Good performance to price ratio
- Proven track record for reliable operation in smart substation, generation and transmission projects

ELECTRICAL

Power Supply	A/C 85 - 265V, 47 - 63 Hz D/C 88 - 375V
Power Consumption	20W (standard), 55W (maximum)

MECHANICAL

Dimensions	483mm x 320mm x 132mm
Case	Standard 19" 3U case
Weight	7.25 kg
Shock Resistance	IEC 68-2-6
Mechanical Strength	IEC 69-2-27

ENVIRONMENT

Operation Temp.	-25°C to +70°C
Storage Temp.	-30°C to +80°C
Humidity	0 - 90% non condensing

INSULATION

AC Voltage Withstand	2500 VAC
DC Voltage Withstand	Power-Ground: 5kV DC Signal-Ground: 3kV DC RS485-Ground: 4kV DC

CPU & MEMORY

CPU	ARM9 Core 300MHz
Memory	256 MB DDR2
Storage	1GB Nand Flash (Up-to 2GB)

DISPLAY

LCD Display	320x240 matrix TFT LCD
Display Mode	Interactive menu driven display
Display Items	Fully configurable

REAL-TIME CLOCK

Accuracy	< 0.5 seconds / 24 hours
Backup Battery	Lithium Battery (20 years life)
Backup Time	≥ 15 years without power
Clock Synchronization	IRIG-B / SNTP / GPS / Host protocol
Meter Clock Sync	Via Meter Communication Protocol
GPS Clock	Supported (Optional)

METER COMMUNICATION

Meter Reading	Up-to 8xRS485 port (default 4x), Supports up-to 255 meters.
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SERVER COMMUNICATION

Ethernet	4x 10/100M Ethernet Adapters
Fiber Optics	Up-to 4x 10/100M Fiber Channel
Dial-up	Up-to 2x V90/56K Modems
Cellular	Up-to 2x GSM/GPRS/3/4G Modules
Serial Port	2x RS232 Port

COMMUNICATION PROTOCOLS

Control Center Communication Protocols	IEC61850, IEC60870-5-102
Meter Communication Protocols	DLMS/COSEM, IEC62056-21, MOD-BUS, Vendor Specific Protocols

CONTROL CENTER COMMUNICATION VIA IEC 61850

Instant Data Query	Via dataset reading or data reports
History Data Query	Query history data and event log
REPORT Message	Publish customizable data and event via REPORT message
GOOSE Message	Publish customizable data and event in real-time via GOOSE message
SAMPLED VALUE	Publish customizable data and event via SAMPLED VALUE

METER COMMUNICATION VIA IEC 61850

Acquire Meter Data	Via variable READ service
Subscribe to REPORT Messages	Subscribe to meter data via REPORT service
Subscribe to GOOSE Messages	Subscribe to meter data via GOOSE message
Subscribe to SAMPLED VALUE	Subscribe to meter data via SAMPLED VALUES

DATA ACQUISITION

Energy Data	Energy data collection from meter in real-time
Load Profile Recording	Configurable load profile recording, integration cycle 1 - 1440 minutes
Instrumentations & Sampling Data	Collects various instantaneous value and sampling data from meter

EVENT REGISTRATION

Event Log	Collect meter event records
RTU Events	Extensive RTU software/hardware/running/user operation event logs.
Event Storage	10,000+ event records

SYSTEM INTEGRATION

DRTU-MS15 can be integrated into AMR/AMI systems, such as Microstar TMR-2012 software, and Microstar Class 0.2s, 0.5s smart meters, or main-stream third-party meters

EXTENSIBILITY

Modular hardware design
Remote and local firmware upgrade

SECURITY

User access control with different levels
System security with password protection

RELIABILITY

Real-Time Operating	Real-time mission critical operating
Self-Diagnostic	Self-diagnostic capability
MTBF	> 60,000 hours
Service Time	> 15 years