SITRANS RD500

Overview

The SITRANS RD500 is a remote data manager providing integrated web access, alarm event handling, and data capture for instrumentation.

Benefits

- RD500 supports report and alarm events via email, SMS, and FTP transfer
- Web server provides worldwide access to instrument data log and RD500 configuration and setup
- Offers scalability with optional I/O modules for current (4 to 20 mA), voltage (0 to 10 V), thermocouple (TC), resistance temperature detector (RTD), and digital I/O
- 10 base-TI 100 Base-TX ethernet and support for GSM, GPRS, and PSTN provide flexible remote communications options
- Supports up to 128 devices with the flexible I/O modules and up to 247 Modbus serial devices
- Integrated FTP server and client supports FTP data synchronization to central servers
- Compact flash slot supports up to 2 Gigabytes of expandable memory for data capture and storage.
- Log files formats are CSV (comma separated values) for data files and HTML for report files

Application

The RD500 is an easy-to-use remote data manager, using a web-based application and hardware modules. The unique modular approach allows a variety of process signals to be monitored, while the serial ports allow data to be collected from any Modbus RTU device.

The RD500 comprises a master communications module, and up to 16 slave modules. Various module types are available, allowing up to a maximum of 128 conventional inputs and outputs. The RD500's serial ports can collect data from up to 247 Modbus RTU slave devices including field instruments.

The RD500's built-in web server, FTP, and email client allows the process to be monitored remotely. Alarm notifications are communicated through email and SMS text messages to one or more recipients to ensure that appropriate actions are taken by personnel.

The RD500 supports external modems, providing flexibility for applications in which GSM/GPRS cellular or landline connectivity is desired.

The RD500 is configured via a web-based interface - a standard browser is all the software you need to configure your system.

- Key Applications: Remote monitoring, inventory management, web enabled instrumentation or other devices

Technical specifications

Mode of operation	
• Measuring principle	Remote data manager
• Measuring points	• up to 128 standard input/outputs
	• 247 Modbus serial devices
Input	See table on page 5/311
Output	See table on page 5/311
Accuracy	See table on page 5/311
Rated operating conditions	
Storage temperature range	-30 to +70 °C (-22 to +158 °F)
Operating temperature	0 to +50 °C (+32 to +122 °F)
Operating and storage humidity	80% max relative humidity, non-condensing, from 0 to +50 °C (+32 to +122 °F)
Design	
Material (enclosure)	High impact plastic and stainless steel
Installation category	I
Pollution degree	2
Weight	456.4 g (15.1 oz)
Mounting	Snaps onto standard DIN style top hat (T) profile mounting rails according to EN50022 -35 x 7.5 and -35 x 15
Power	24 V DC ± 10%
	400 mA min. (1 module)
	3.5 Amps max. (16 modules)
	Must use Class 2 or SELV-rated power supply
Display	
Status LEDs	• STS - Status LED indicates condition of master
	• TX/RX - Transmit/Receive LEDs show serial activity
	• Ethernet - Link and activity LEDs
	• CF - CompactFlash LED indicates card status and read/write activity
Memory	
On-board user memory	4 Mbytes of non-volatile Flash memory
On-board SDRAM	2 Mbytes
Memory card	Compact Flash Type II slot for Type I and Type II cards; 2 Gbytes
Certificates and approvals	
• Safety	• UL Listed to U.S. and Canadian safety standards UL508 and CSA C22.2 No. 14-M05 (File No. E302106)
	• IEC 61010-1, EN 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory use, Part 1.

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Communication

• USB/PG port	Adheres to USB specifications 1.1. Device only using Type B connection.
• Serial ports	Format and baud rates for each port are individually software programmable up to 115, 200 baud
• RS232/PG port	RS232 port via RJ12
• Comms ports	RS422/485 port via RJ45 and RS232 port via RJ12
• Ethernet port	10 BASE-T/100 BASE-TX; RJ45 jack is wired as a NIC (Network Interface Card)

®Modbus is a registered trademark of Schneider Electric.

SITRANS RD500 Module Specifications

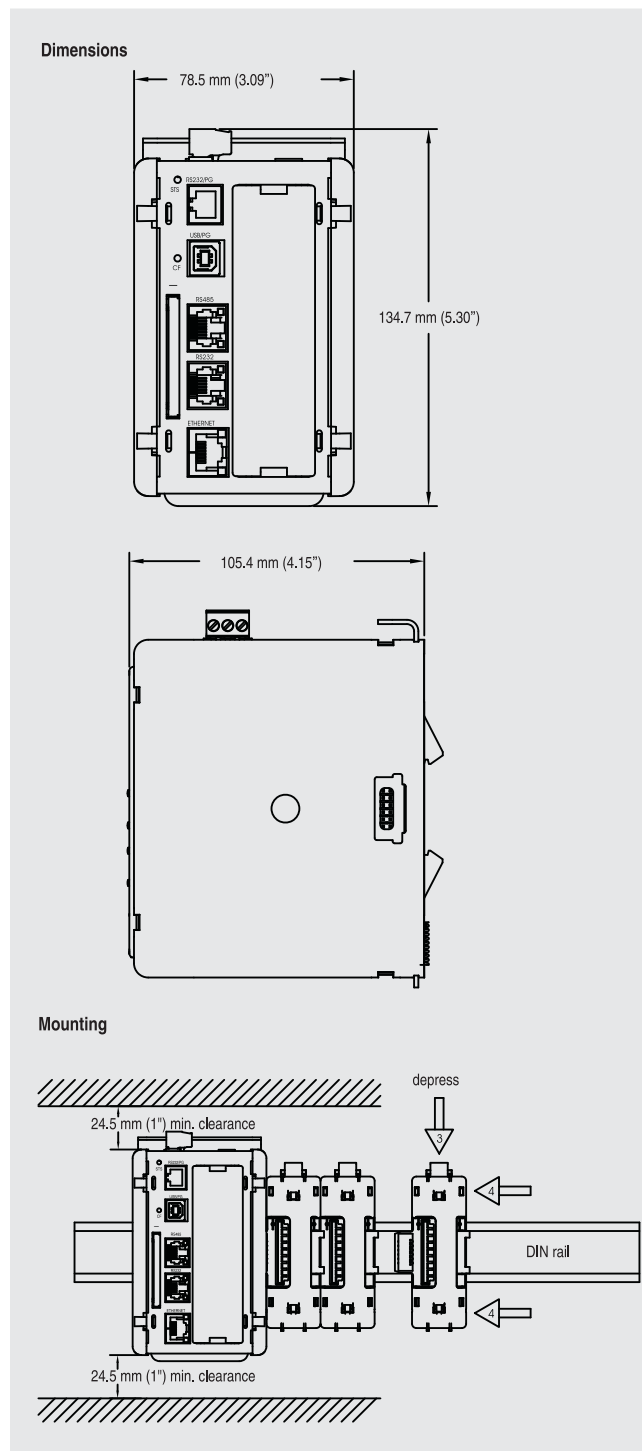|	8 Inputs, 6 Solid State Outputs	8 Inputs, 6 Relay Outputs	8 Channel, 4-20 mA	8 Channel ± 10 V	6 Channel, RTD	8 Channel Thermocouple Module
Order number	7ML1930-1ES	7ML1930-1ER	7ML1930-1EP	7ML1930-1EQ	7ML1930-1ET	7ML1930-1EU
Application	8 inputs, 6 outputs used to monitor contact or sensor inputs	8 inputs, 6 outputs used to monitor contact or sensor inputs	16 bit analog input module provides high density signal measurement for data monitoring applications and accepts 0/4-20 mA process signals	16 bit analog input module provides high density signal measurement for data monitoring applications and accepts ±10 V process signals	16 bit analog input module provides high density signal measurement for data acquisition applications and accepts various RTD inputs	16 bit thermocouple input module provides high density signal measurement for data acquisition applications and accepts wide range of thermocouple types
Accuracy	Not applicable	Not applicable	±0.1% of span	±0.1% of span	± (0.2% of span, +1 °C) 0 to 50 °C (32 to 122 °F); ± (0.1% of span, +1 °C) 18 to 28 °C (64 to 82 °F); includes NIST conformity, A/D conversion errors, temperature coefficient and linearization conformity at 23 °C after 20 minute warm-up	± (0.3% of span, +1 °C); includes NIST conformity, cold junction effect, A/D conversion errors, temperature coefficient and linearization conformity at 23 °C after 20 minute warm-up
Mounting	Snaps onto standard DIN style top hat (T) profile mounting rails according to EN50022 -35 x 7.5 and -35 x 15					
Inputs	Dip switch selectable for sink or source	Dip switch selectable for sink or source Max. voltage: 30 V DC, reverse polarity protected Off voltage: <1.2 V On voltage: >3.8 V Input frequency: - Filter switch on: 50 Hz - Filter switch off: 300 Hz	8 single-ended Ranges: 0-20 mA or 4-20 mA Resolution: Full 16-bit Sample time: 50 msec-400 msec depending on number of enabled inputs	8 single-ended Ranges: 0 to 10 V DC or ±10 V DC Resolution: Full 16-bit Sample time: 50 msec-400 msec depending on number of enabled inputs	6 single-ended Resolution: Full 16-bit Sample time: 67 msec-400 msec depending on number of enabled inputs	8 single-ended Resolution: Full 16-bit Sample time: 50 msec-400 msec depending on number of enabled inputs
Outputs	Solid state output, switched DC, contact rating 1 A DC max.	Form A, NO Pairs share common terminals: 1&2, 3&4, 5&6 Current rating by pair: 3 Amps@ 30 V DC/125 V AC resistive 1/10 HP@125 V AC	Not applicable	Not applicable	Not applicable	Not applicable

SITRANS RD500

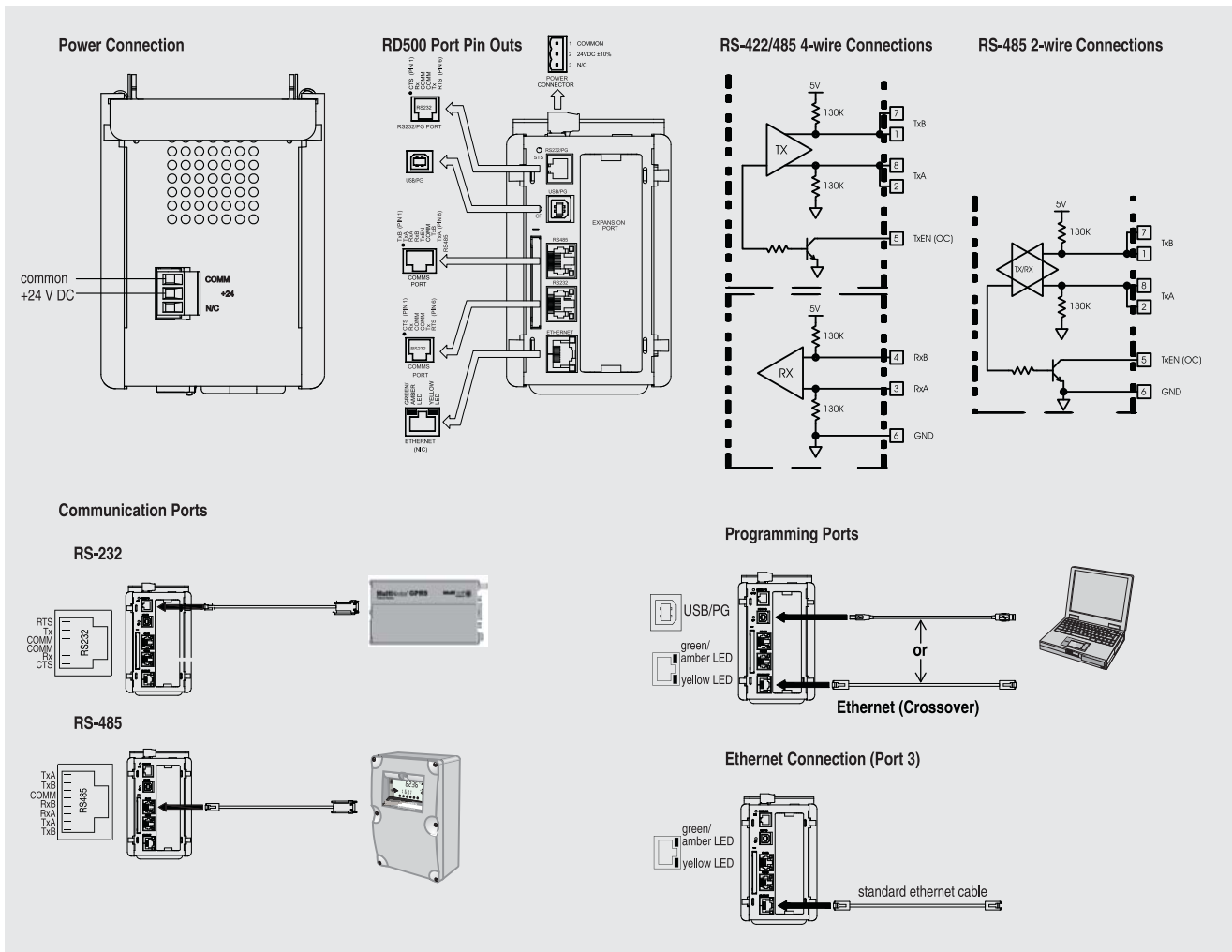| Selection and Ordering data	Order No.
SITRANS RD500 The SITRANS RD500 is a remote data manager providing integrated web access, alarm event handling and data capture for instrumentation.	C) **7ML5750-** ▩▩**A000**
Communications Connection Ethernet[1]	**1**
Digital Communications to Instruments RS-485 Modbus® RTU	**A**
Input configuration modules **Note: one RD500 supports 16 input modules**	
RD500 8 channel 0(4)-20 mA input module	**7ML1930-1EP**
RD500 8 channel ±10 V input module	**7ML1930-1EQ**
RD500 8 digital inputs, 6 relay outputs module	**7ML1930-1ER**
RD500 8 digital inputs, 6 solid state outputs module[1]	**7ML1930-1ES**
RD500 6 channel input, RTD module	**7ML1930-1ET**
RD500 8 channel thermocouple module	**7ML1930-1EU**
Operating Instructions	
Application manual, English	**7ML1998-5MA01**
Application manual, German	**7ML1998-5MA31**
Note: Additional Operating Instructions should be ordered as a separate line item.	
This device is shipped with the Siemens Milltronics manual CD containing Quick Starts and Operating Instructions.	
Other Operating Instructions	
RD500 Remote Data Manager manual, English: web access, alarm event handling, and data capture	**7ML1998-5MK01**
RD500 Remote Data Manager manual, German: web access, alarm event handling, and data capture	**7ML1998-5MK31**
RD500 8 channel 0(4)-20 mA input module manual, English	**7ML1998-5MB01**
RD500 8 channel 0(4)-20 mA input module manual, German	**7ML1998-5MB31**
RD500 8 channel ±10 V input module manual, English	**7ML1998-5MC01**
RD500 8 channel ±10 V input module manual, German	**7ML1998-5MC31**
RD500 8 inputs, 6 relay outputs module manual, English	**7ML1998-5MD01**
RD500,8 inputs, 6 relay outputs module manual, German	**7ML1998-5MD31**
RD500 8 inputs, 6 solid state outputs module manual, English	**7ML1998-5ME01**
RD500 8 inputs, 6 solid state outputs module manual, German	**7ML1998-5ME31**
RD500 6 channel input, RTD module manual, English	**7ML1998-5MF01**
RD500 6 channel input, RTD module manual, German	**7ML1998-5MF31**
RD500 8 channel thermocouple module manual, English	**7ML1998-5MJ01**
RD500, 8 channel thermocouple module manual, German	**7ML1998-5MJ31**
Optional equipment	
Multitech GPRS modem, external	**7ML1930-1EX**
Industrial CompactFlash card, 2 Gigabytes	**7ML1930-1FB**
Industrial CompactFlash card, 1 Gigabyte	**7ML1930-1FC**
RJ11 serial to terminal block RS-232	**7ML1930-1FD**
RJ45 serial to terminal block RS-485	**7ML1930-1FE**
GPRS Modem antenna	**7ML1930-1FF**
RD500 Spare Module base	**7ML1930-1FG**
RD500 Spare End terminator	**7ML1930-1FH**
5' Ethernet Cat 5e Red X/O cable for configuration	**7ML1930-1FM**
USB cable type A to B	**7ML1930-1FN**

[1] Configuration limited to 16 modules.

C) Subject to export regulations AL: N, ECCN: EAR99

Dimensional drawings

SITRANS RD500 dimensions

Schematics

Power Connection

RD500 Port Pin Outs

RS-422/485 4-wire Connections

RS-485 2-wire Connections

Communication Ports

RS-232

RS-485

Programming Ports

USB/PG

or

Ethernet (Crossover)

Ethernet Connection (Port 3)

standard ethernet cable

SITRANS RD500 connections

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