



CM1000 Automatic ID PLC Module

Features

- Controls up to Four Read/Write RFID Antennas
- Eight Serial Ports for Interface to Bar Code Scanners or Other Serial Interface Devices
- C Programmable
- Three Microprocessors for Maximum Performance
- 32KB Battery-Backed RAM for System Storage
- 32KB EEPROM for Program Storage
- 32KB Serial Buffer
- Direct Connection to Modicon 800-Series I/O Products

Applications

- Material Handling
- Sortation Systems
- Work-in-Progress Monitoring
- Quality Control

Use With

- EMS Passive Read Only
- EMS Active Read/Write
- RS232 and RS422 Serial Devices

EMS, a Datalogic Group Company, is the field-proven leader in the development and application of Radio Frequency Identification (RFID) Tags/Labels/PCBs, Antennas, Controllers and network interface modules for tough industrial environments. With over a dozen years of RFID successes in the automotive, electronics, material handling and food processing industries, EMS has built a global reputation in providing customers with complete supply chain solutions – from production to retail EMS has the complete solution!

The CM1000 Module, developed together with AEG Modicon, allows all serial devices as well as bar code and Read/Write Radio-Frequency Identification (RFID) products to be connected directly to the backplane of Modicon 800-Series I/O Housings. In addition to four RFID ports for connection to EMS RFID Antennas, eight serial ports have been incorporated to allow direct connection with bar code scanners or third-party serial interface devices.

The CM1000 can be operated with a standard interface program (included with the module) and a software loadable function block which is available from EMS. Alternatively, the Module can be custom-programmed by the user using the optional C language development system. The development system allows the application program to modify the data before it is passed to the PLC backplane and to fully control the routing of data to and from the RFID or serial ports.

Technical Description

The CM1000 achieves high data exchange rates by using three independent high-speed microprocessors in an advanced multiprocessor architecture. A master microprocessor executes the standard program or the user written application program while communicating with the backplane and with the two slave microprocessors. The master microprocessor system provides 32KB of battery backed RAM for storage of runtime variables, pointers, and in-process data transactions, as well as 32KB of ultra-reliable non-volatile EEPROM for program storage.

The RFID slave microprocessor is dedicated to communications with the RFID data collection ports. The use of a separate microprocessor for this function insures maximum performance. The RFID subsystem has its own 32KB of RAM for data buffering and a dual port RAM for communication with the master microprocessor, and can control up to four Read/Write Antennas. Connection to the RFID Antennas is via a Phoenix-type plug-in terminal strip.

The second slave microprocessor system is dedicated to control of the eight bi-directional serial ports, which can be used to interface to bar code scanners or other serial interface devices. Each serial port is software-selectable for RS232 or RS422 interfaces.

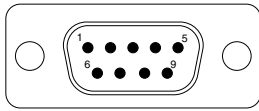
**DIRECT
CONNECTION
TO
MODICON
PLC's**

CM1000 Automatic ID PLC Module

Electrical	Backplane—Supplied by PLC	
	Supply Voltage	5VDC \pm 5%
	Maximum Current	500mA
	Front End—External Supply Required	
	Supply Voltage	24VDC \pm 15%
	Maximum Current	500mA
	Maximum Ripple	2.0% of DC voltage
Internal Memory	Serial Port Buffer	32KB Static RAM, 2KB for Each Receive Channel
	RFID Port Buffer	32KB Static RAM
	Master Microprocessor	32KB Battery-Backed Static RAM
	Application Program Storage	32KB EEPROM, 2K Used by System
Communication		Modicon 800-Series I/O, Direct-Connect to OURBUS Backplane Modicon OURBUS Proprietary Interface
Ports	COM1	RS232/RS422
	COM2	RS232
	RFID Port Name	ANT
Interface to RFID Devices	Compatibility	All EMS Read/Write RFID Antennas
	Maximum Cable Length	4000ft. (1200m)
Interface to Serial Devices	Serial Port Names	COM1 through COM8
	Interface	RS232, RS422
	Baud Rate	300, 600, 1200, 2400, 4800, 9600, 19200
	Parity	Odd, Even, None
	Data Bits	7 or 8
	Stop Bits	1 or 2
	Max. Throughput	4800 Baud on All Ports Simultaneously, Sustained
Mechanical Specifications	Dimensions (W x H x D)	2.2 x 10.5 x 8.6in. (56 x 266 x 217mm)
	Weight	2.8lbs. (1.26kg)
	Connectors	
	Backplane	Direct Plug-in to Modicon 800-Series I/O Rack
	Serial Ports	Separate DE-9S for COM 1 through 5, Single DB-25S for COM 6 through 8
	RFID Port/Front End Power	20-Position Plug-in Terminal Strip (Mating End Furnished)
	LED Indicators	Power, Active, Program, RunMode, Serial Ports, RFID Ports
Environment	Operating Temperature	32° to 120°F (0° to 49°C)
	Storage Temperature	-40° to 185°F (-40° to 85°C)
	Humidity	95% Non-Condensing
	Shock Resistance	30G for 11ms
	Vibration Resistance	1G at 3-500 Hz for 23 Minutes Per Plane, 1Octave/Minute in All Three Planes Per IEC 68-2-6, Test Fc
	Altitude	15000ft. (4540m), Per MIL-STD-810, Method 500.2, Low Pressure
	ESD Immunity	8kV to All Surfaces Per IEC 801-2, Level Test
	Magnetic Immunity	Per IEC 801-3, Level 3
	Noise Emissions	FCC Part 15, Subpart B, Class A; CDC Class B

CM1000 Automatic ID PLC Module

Serial Port Connectors Electrical Connections



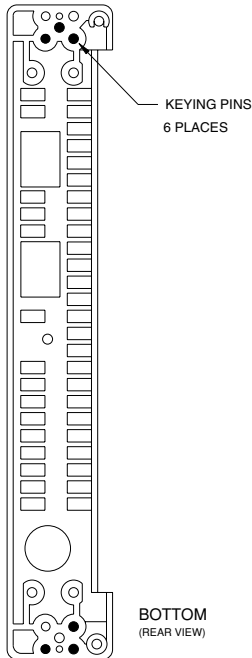
DE-9S (Female)

COM1-COM5 Pinouts (6 Connectors)

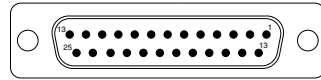
Pin#	Interface	Function
2	RS232	RS232RX
3		RS232TX
5		Signal Ground
6	RS422	RS422RX+
7		RS422RX-
8		RS422TX+
9		RS422TX-

Pins 1 and 4 are no connection

Keying Diagram



RFID Port/Power Connector Electrical Connections



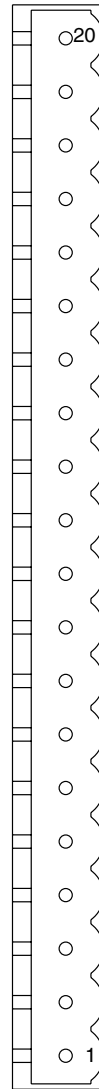
DB-25S (Female)

COM6-COM8 Pinouts (1 Connector)

Pin#	Port #	Function
1	COM6	Signal Ground
3	RS232	RS232RX
4		RS232TX
14	COM6	RS422RX+
15	RS422	RS422RX-
16		RS422TX+
17		RS422TX-
5	COM7	Signal Ground
7	RS232	RS232RX
8		RS232TX
18	COM7	RS422RX+
19	RS422	RS422RX-
20		RS422TX+
21		RS422TX-
9	COM8	Signal Ground
11	RS232	RS232RX
12		RS232TX
22	COM8	RS422RX+
23	RS422	RS422RX-
24		RS422TX+
25		RS422TX-

Pins 2, 6, 10, 13 are no connection

20-Position Terminal Strip



RFID Port/Power Pinouts

Pin#	Port	Function
1	ANT0	Antenna 0/Pin 1
2		Antenna 0/Pin 2
3		Antenna 0/Pin 3
4		Antenna 0/Pin 4
5	ANT1	Antenna 1/Pin 1
6		Antenna 1/Pin 2
7		Antenna 1/Pin 3
8		Antenna 1/Pin 4
9	ANT2	Antenna 2/Pin 1
10		Antenna 2/Pin 2
11		Antenna 2/Pin 3
12		Antenna 2/Pin 4
13	ANT3	Antenna 3/Pin 1
14		Antenna 3/Pin 2
15		Antenna 3/Pin 3
16		Antenna 3/Pin 4
17	(Power)	Antenna +24VDC*
18		Antenna Ground*
19		CM1000 +24VDC
20		CM1000 Ground

*The Antennas may be powered by local 24VDC supplies. Voltages between the Antennas and the CM1000 must conform to RS422 limits, however it is usually not necessary to maintain a common ground with the CM1000 module. See specific Antenna manual or instruction sheet for power and ground pinouts.

Available Models

Model	Description
CM1000	Automatic ID Module for Direct Plug-In to Modicon 800-Series I/O Rack. Includes Standard Program. Mating Connector Included. SP1004 Required to Run Standard Program.

Accessories

Model	Description
SP1003-LIB	Software Manual and Libraries for Use in Developing Custom Application Programs for the CM1000 Auto ID Module. Diskette includes Libraries and Standard Program Source Code. Does Not Include Compiler, Tools or Compiler Manual.
88-1001	Franklin C Compiler for CM1000 Software Development
SP1004	Software Program, Loadable for Most Models of the Modicon 984 CPU (Excluding 984-A, -B, -X), Provides for Bi-Directional Data Transfers between the CM1000 and PLC. Required to Run Standard Program.
CBL-1091	Download Cable, for Downloading Application Programs from a PC-Compatible Computer to the CM1000, 10' Long, DB-25S to DE-9P
CBL-1095	Cable Assembly, PC AT-to-CM1000 Download Cable, 10' Long, DE-9P to DE-9S
10-7098	Back Shell Kit, metal screw lock, for CM1000