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2355 MIRA MAR AVE. LONG BEACH, CA 90815-1755, (562) 986-9105 FAX (562) 986-9205

EP2500 Intelligent Controller

Installation and Specifications:

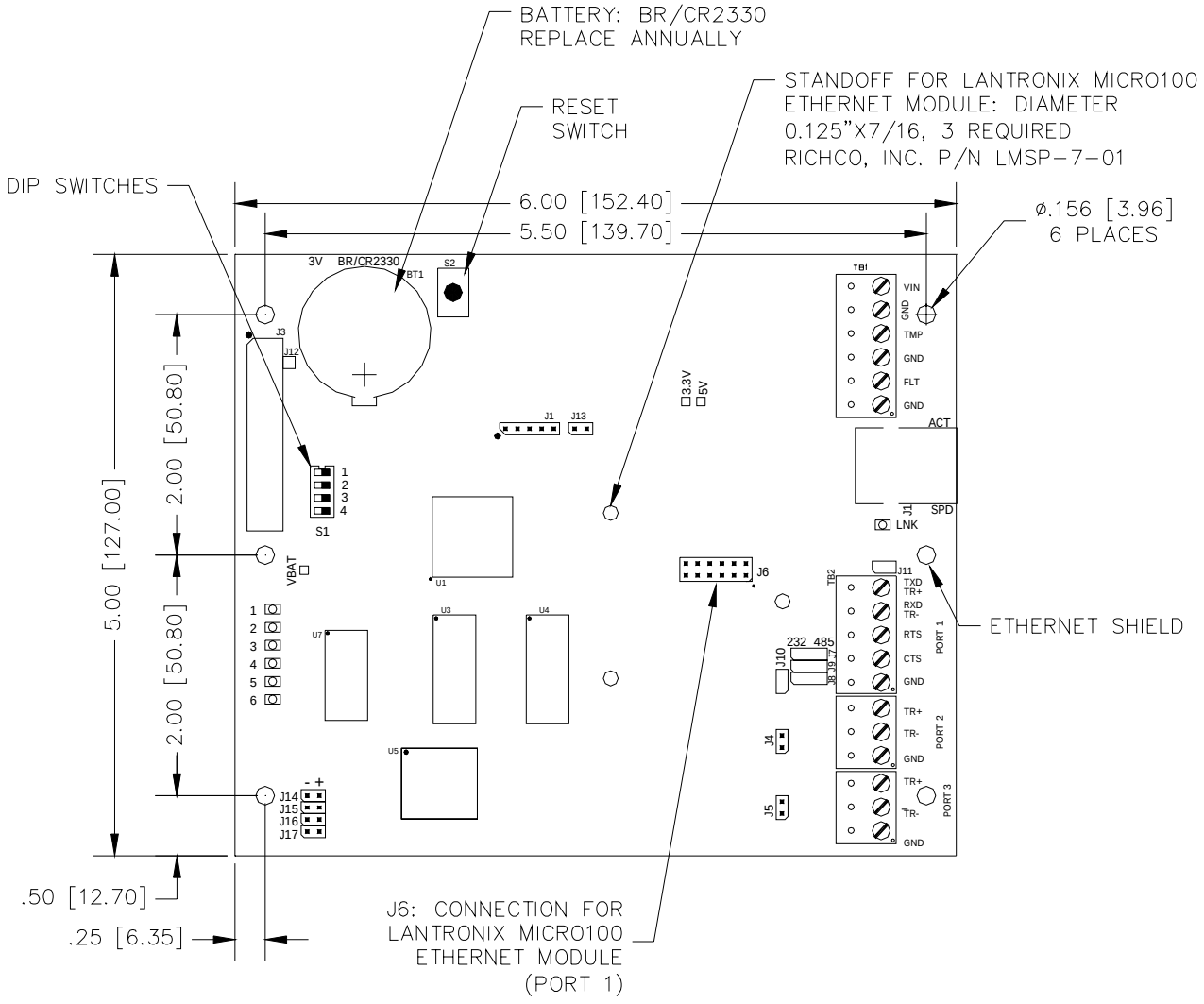
1. General:

The EP2500 intelligent controller provides decision making, event reporting, and database storage for the Mercury hardware platform.

It communicates with the host via on-board 10-BaseT/100Base-TX Ethernet port or port 1. Port 1 may be set up as RS-232, 2-wire RS-485 or an optional 10-BaseT/100Base-TX using a Lantronix Micro100 interface daughter board. Subcontrollers are connected via ports 2 and 3 using 2-wire RS-485.

It is recommended that the EP2500 be mounted .25" above any conductive surface.

2. Setting Up the EP2500 Hardware:



Jumpers:

The EP2500 processor hardware interface is configured using jumpers to setup the port interface and end of line termination.

JUMPERS	SET AT	DESCRIPTION
J2	N/A	Factory use only
J3	N/A	Factory use only
J4	OFF	Port 2 RS-485 EOL Terminator is off
	ON	Port 2 RS-485 EOL Terminator is on
J5	OFF	Port 3 RS-485 EOL Terminator is off
	ON	Port 3 RS-485 EOL Terminator is on
J6	N/A	Lantronix Micro100 connection - Port 1
J7, J8, J9	232	Port 1 is RS-232
	485	Port 1 is RS-485
J10	OFF	Port 1 RS-485 EOL Terminator is off
	ON	Port 1 RS-485 EOL Terminator is on
J11	N/A	Factory use only
J12	N/A	Factory use only
J13	N/A	Factory use only
J14	N/A	Remote status LED # 1, see note 1
J15	N/A	Remote status LED # 2, see note 1
J16	N/A	Remote status LED # 3, see note 1
J17	N/A	Remote status LED # 4, see note 1

NOTE 1: Observe polarity connection to LED. External current limiting is not required.
NOTE 2: Jumpers J7, J8, J9, and J10 to do not effect the operation of the Lantronix unit.

DIP Switches:

The four switches on S1 DIP switch configure the operating mode of the EP2500 processor. DIP switches are read on power-up except where noted. Pressing switch S2 causes the EP2500 to reset.

1	2	3	4	Definitions
OFF	OFF	X	OFF	Normal operating mode
ON	X	X	X	After initialization, enable default User Name (admin) and Password (password). The switch is read on the fly, no need to re-boot.
OFF	ON	X	OFF	Use factory default communication parameters.
ON	ON	X	OFF	Use OEM default communication parameters. Contact system manufacture for details. See Bulk Erase below.
X	X	ON	X	Disable TLS secure link. Switch is read only when logging on.

All other switch settings are unassigned and are reserved for future use.

Factory Default Communication Parameters:

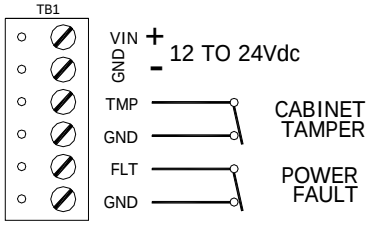
Network: static IP address = 192.168.0.251
Communication address: 0
Primary Host port: IP server, no encryption, port 3001.
Alternate Host port: RS-232, 38400 baud, no encryption, no flow control.

Bulk Erase Configuration Memory:

Use the bulk erase function to erase all configuration and cardholder databases. When power is applied with S1 switches set to 1 & 2 ON and 3 & 4 OFF, there is a 10-second window that if switch 1 or 2 is changed to the OFF position, memory is erased. The LEDs flash the following pattern when in the reset window: LED 1 & 2 and LED 3 & 4 flash alternately at .5 second rate. When erasing memory, LED 2 flashes at a 2 seconds rate. **DO NOT CYCLE POWER.** Erasing memory takes approximately 60 seconds. LEDs 1 and 4 flash for 10 seconds after the memory has been erased, then the EP2500 will re-boot.

3. Input Power, Cabinet Tamper and UPS Fault Input Wiring:

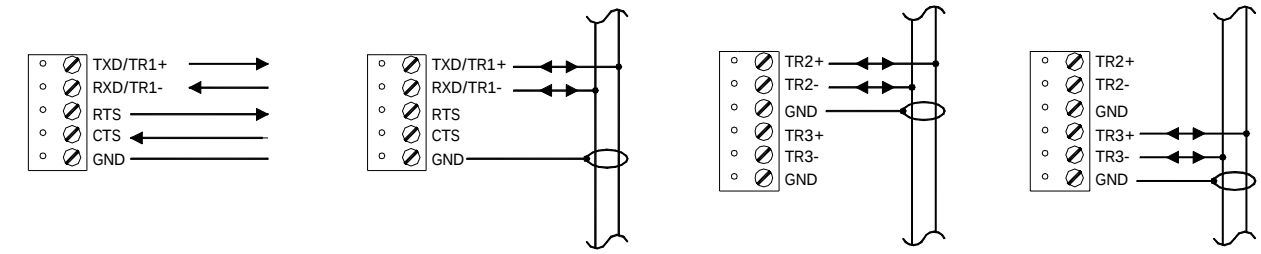
The EP2500 requires 12-24Vdc power. Locate power source as close to the unit as possible. Connect power with minimum of 18 AWG wire. **Connect the GND signal to earth ground in ONE LOCATION within the System! Multiple earth ground connections may cause ground loop problems and is not advised.**
Observe POLARITY on 12-24Vdc input!
There are two dedicated inputs for cabinet tamper and UPS fault monitoring. Normal (safe) condition is a closed contact. If these inputs are not used, install a jumper wire.



4. Communication Wiring:

The EP2500 processor communicates to the host via: on-board Ethernet 10-BaseT/100Base-TX port or on port 1. Port 1 may be configured as RS-232, 2-wire RS-485 or optional Lantronix Ethernet 10-BaseT/100Base-TX Micro100 interface. RS-232 interface is for direct one to one connection to a host computer port, or a modem.

Ports 2 and 3 utilize 2-wire RS-485 interface. The interface allows multi-drop communication on a single bus of up to 4,000 feet (1,200 m). Use twisted pair (minimum 24 AWG) with shield for the communication with 120 ohm impedance. Install termination jumpers only on the units at each end of the communication line.



PORT 1 CONFIGURED as RS-232

PORT 1 CONFIGURED as 2-WIRE RS-485

PORT 2 2-WIRE RS-485

PORT 3 2-WIRE RS-485

5. Memory Backup Battery:

The static RAM and the real time clock device are powered by a lithium battery when input power is removed. This battery should be replaced annually. If the data in the static RAM is determined to be corrupt after power up, all data, including flash memory, is considered invalid and is erased. All configuration data must be re-downloaded. Battery type: BR2325, BR2330, or CR2330.

6. Status LEDs:

Power-up: All LED's **OFF**.

Initialization: LED's 1 through 6 are sequenced during initialization. LED's 1, 3, and 5 are turned ON for approximately 4 seconds after the hardware initialization has completed, then the application code is initialized. The amount of time the application takes to initialize depends on the size of the database, about 3 seconds without a card database. Each 10,000 cards will add about 3 seconds to the applica tion initialization. When LED's 1 through 4 flash at the same time, data is being read from or written to flash memory, do not cycle power when in this state. If the sequence stops or repeats, perform one of the steps below.

1. Power-up and tag database as invalid:
   Remove input power to the EP2500, place an insulator under the battery clip, wait 5-10 seconds, remove insulator, reapply input power.
2. Power-up without loading database into RAM:
   Remove input power to the EP2500, set DIP to a default mode (in a default mode, the database is not loaded into RAM), reapply input power.
3. Erase all of the configuration and databases (also erases card database for security reasons):
   See procedure in DIP switch note in section 2.

If clearing the memory does not correct the initialization problem, contact technical support.

Running:

LED	DESCRIPTION
1	Off-Line / On-Line and Battery Status
	Off-Line = 20% ON, On-Line = 80% ON
	Double Flash if Battery is Low
2	Host Communication Activity (Ethernet or Serial Port 1)
3	Port 2 Communication Activity
4	Port 3 Communication Activity
5	Unassigned
6	Unassigned
D7	Host Communication (Ethernet Port 0)
YEL	On-board Ethernet Speed: OFF = 10Mb/S, ON = 100Mb/S (Yellow LED)
GRN	OFF = No Link, ON = Good Link (Green LED), Flashing = Ethernet Activity

7. Specifications:

****** The processor is for use in low voltage, class 2 circuits only.

Primary power:	12 to 24Vdc ±10%, 300mA maximum 12Vdc @ 240mA (325mA with Micro100) nominal 24Vdc @ 135mA (175mA with Micro100) nominal
Memory and Clock Backup:	3 Volt Lithium, type BR2325, BR2330, CR2330
Ports:	
Port 1	RS-232 or 2-wire RS-485: 9,600 to 115,200 bps, async
Port 2 & 3	2-wire RS-485: 2,400 to 38,400 bps, async
Inputs:	2 non-supervised, dedicated for cabinet tamper and power fault monitoring

Cable requirements:

Power:	1 twisted pair, 18 AWG
RS-485:	24 AWG, 4,000ft (1,200m) maximum, twisted pair with shield. 120 Ohm
RS-232:	24 AWG, 25ft (7.6m) maximum
Ethernet:	Cat 5
Alarm input:	1 twisted pair, 30 ohms maximum

Environmental:

Temperature:	0 to 70°C, operating
	-55 to +85°C, storage
Humidity:	0 to 95% RHNC

Mechanical:

Dimension:	5 in. (127mm) W x 6 in. (152.4mm) L x 1 in. (25mm) H
Weight:	4.1 oz (115 gm) nominal

Lantronix NIC support:	Standoff size - Diameter .125 inch x 7/16 inch long
	Richco, Inc. part number LMSP-7-01, 3 pieces (Not supplied)

Specification subject to change without notice.

Warranty

Mercury Security Corporation warrants the product is free from defects in material and workmanship under normal use and service with proper maintenance for one year from the date of factory shipment. Mercury Security Corporation assumes no responsibility for products damaged by improper handling or installation. This warranty is limited to the repair or replacement of the defective unit.

There are no expressed warranties other than set forth herein. Mercury Security Corporation does not make, nor intends, nor does it authorize any agent or representative to make any other warranties, or implied warranties, and expressly excludes and disclaims all implied warranties of merchantability or fitness for a particular purpose.

Returned units are repaired or replaced from a stock of reconditioned units. Returns must be accompanied by a return authorization number (RMA) obtained from customer service, and prepaid postage and insurance.

Liability

The Interface should only be used to control exits from areas where an alternative method for exit is available. This product is not intended for, nor is rated for operation in life-critical control applications. Mercury Security Corporation is not liable under any circumstances for loss or damage caused by or partially caused by the misapplication or malfunction of the product. Mercury Security Corporation's liability does not extend beyond the purchase price of the product.