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REPORT

on

TELEMETERING EQUIPMENT FOR USE IN  
HAZARDOUS LOCATIONS

Bristol Babcock Inc.  
Watertown, CT

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## DESCRIPTION

## PRODUCT COVERED:

USL, CNL Class I, Division 2, Groups A, B, C and D Hazardous Locations.

Remote Terminal Unit, "RTU Module" Model 3340 followed by 10 A; followed by additional suffixes.

\*Process Automation Controller, "ControlWave LP" Model CWLP followed by additional suffixes.

## GENERAL:

The remote terminal unit is comprised of a three board set (CPU Board, Fixed Multifunction I/O Board and the Power Supply/Sequencer Board). The CPU Boards employs an Intel 486 microprocessor with Core logic support. The Fixed Multifunction I/O Board provides the circuitry and field interface hardware required to interface up to 16 discrete inputs, 8 discrete outputs, 8 analog inputs and 4 high speed counter inputs. Isolated power is generated and regulated by the Power Supply/Sequencer Board that provides +5 V dc, +12 V dc and -12 V dc from a 9-32 V dc source.

\*The process automation controller uses the remote terminal unit as its basic platform. The CPU and Multifunction I/O Board has minor changes in low level logic. Two new printed circuit board assemblies were added, the PC 104 Analog Output Board (2 max per system) and PC 104 Display Board (1 max per system).

\* Model 3340 RTU and CWLP are not furnished in a housing. The three \*PCB's, that comprise the system, along with the analog output board and \*display board on the CWLP, are assembled and mounted to an aluminum plate ready for user supplied backplate mounting.

## ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

USL indicates United States Listing. Products evaluated to US Standards, UL 508 and UL 1604 for Listing.

CNL indicates Canadian Listing. Products evaluated to the Canadian National Standard, CSA 22.2 No. 213-M1987 (Div. 2).

## MARKING:

The following information is provided on an adhesive-backed label or ink-stamped to the unit.

1. Manufacturer's name or trademark.
2. Model number.
3. Electrical (Voltage Only) and environmental ratings.
4. Hazardous locations classes, groups, and divisions as found under "Product Covered".
5. Located near supply terminals, "Warning - Explosion Hazard - Do Not Disconnect While Circuit Is Alive Unless Area Is Known To Be Non-Hazardous.
6. Located near power switch, "Warning - Class I, Div. 2 requires power switch restraint in Hazardous Environments".
7. Date Code of Manufacturer - Provided by Serial Number.
8. Temperature Code: T4A

## RATINGS:

Electrical -

Supply: 9 - 32 V dc, 16.5 W max.

Environmental -

Ambient: -40 to 70°C

## NOMENCLATURE:

*	<u>3340-10</u>	<u>A</u>	<u>0</u>	<u>1</u>	<u>11</u>	<u>1</u>	<u>0</u>	<u>4</u>	<u>0</u>	<u>1</u>
*	3340-10	A	A	B	CD	E	F	G	H	J

3340-10 A - Basic Model

A - Basic Unit

0 - Without Enclosure

B - Certification

\*

1 - UL/CUL

CD - CPU Option

11 - 486 ULP 2 MEG RAM

12 - 486 UL 4 MEG RAM

13 - 486 DX 2 MEG RAM

14 - 486 DX 4 MEG RAM

E - I/O Card

1 - Fixed Mixed I/O Board

2 - Fixed Mixed I/O Board Without DI, DO, AI, HSC

F - Relay Options

0 - None

G - Power Supply Options

0 - None

1 - +12 V dc

2 - +24 V dc

3 - +12 V dc W/WD MOSFET SW

4 - +24 V dc W/WD MOSFET SW

H - Surge Sup.

0 - Without

J - Type Mounting

1 - Wall

<u>CWLP</u>	<u>1</u>	<u>01</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>
	A	BC	D	E	F	G	H

## CWLP - Basic Model

## A - Packaging

1 - Basic Unit

## BC - CPU Option

01 - 486 ULP 2 MEG RAM

02 - 486 ULP 4 MEG RAM

## D - I/O Card

1 - Fixed Mixed I/O Board

2 - Fixed Mixed I/O Board Without DI, DO, AI, HSC

## E - Power Supply Options

1 - +12 V dc W/WD MOSFET SW

2 - +24 V dc W/WD MOSFET SW

## F - Analog Output

0 - None

1 - (1) 4 channel

2 - (2) 4 channel

## G - Display

0 - None

1 - Remote 2x16

## H - Certification

1 - UL/CUL

## INSTALLATION INSTRUCTIONS:

An installation manual shall be provided with each unit.

The following or equivalent warnings shall be included:

- A. This equipment is suitable for use in Class I, Division 2, Groups A, B, C and D Hazardous Locations and Non-Hazardous Locations only, or the equivalent.
- B. WARNING: EXPLOSION HAZARD - Do not disconnect the battery unless the area is known to be non-hazardous.
- C. WARNING: EXPLOSION HAZARD - Substitution of components may impair suitability for use in Class I, Division 2 environments.
- D. WARNING: EXPLOSION HAZARD - The area must be known to be non-hazardous before servicing/replacing the unit and before installing or removing I/O wiring.
- E. WARNING: EXPLOSION HAZARD - Do Not disconnect equipment unless power has been disconnected and the area is known to be non-hazardous.

The instruction manual shall specify that all circuits must be wired using Division 2 wiring methods as specified in Article 501-4(b) of the National Electrical Code, NFPA 70 for installations within the United States, or as specified in Section 19-152 of Canadian Electrical Code for installation in Canada.

## ASSEMBLY AND CONSTRUCTION DETAILS:

The assembly and construction details are shown in the following Figures and Illustrations. All dimensions are nominal unless otherwise noted.

Item	Fig./ILL.
CPU Board	1
Power Supply/Sequencer Board	2
Fixed Multifunction Input/Output Board	3
*PC 104 Analog Output Board	4
*PC 104 Display Board	5

Printed Circuit Boards - Any R/C (ZPMV2), rated 105°C and are used within their solder times and temperature limits specified in the R/C Directory.

Terminal Blocks - Any R/C (XCFR2), suitable for field wiring. All terminal blocks are latching or screw types.

Spacings - In accordance with Table 36.1 of UL 508, Seventeenth Edition. Spacings not less than 1.6 mm (1/16 in.) through air and 3.2 mm (1/8 in.) over the surface of insulating material are maintained between the DC line paths to all other circuits and ground.

## Mounting Plate (Not Shown)

General - Manufactured from .125 in. thick aluminum and measures a Length of 12.5 in. and width of 8.5 in. Four 0.5 in. holes are provided to accommodate installation of the CPU Board in its base position. Four mounting posts provided for mounting the RTU 3340 circuit boards. Four notches are machined; the two on the top are 0.5 in. deep and the two on the bottom are .125 in. deep. These notches accommodate the mounting of the RTU 3340 to a fabrication panel in an appropriate enclosure.

## CPU BOARD - FIG. 1

General - A multilayer board that measures 8.75 in. wide by 11.5 in. long.

## 1. Connectors -

J1 to J5 - External RS-232. Latching  
J23 - PS/2 Keyboard. Within a nonincendive circuit.  
J9 - Memory expansion. Not user accessible.  
J10, J11 - PC/104 Bus. Not user accessible.  
J12, J24 - Programmable Logic Device JTAG. Not user accessible.  
J13 - CPU JTAG. Not user accessible.  
J14 - Manufacturing test power. Not user accessible.  
J15 - Port 80 diagnostics. Not user accessible.  
J16 - Floppy disk drive. Not user accessible.  
J17 - Manufacturing test. Not user accessible.  
J25, J26 - Communication port. Not user accessible.

## 2. Jumpers - All within a nonincendive circuit.

JP1A - Expansion card battery enable.  
JP1B - On board SRAM and RTC battery enable/disable.  
JP1C - OSCOFF enable/disable.  
JP2 - IRQ15 source select.  
JP3A - Expansion SRAM relocation.  
JP3B - DX4 clock multiply select.  
JP3C - DX4 write back/write through.  
JP4A - ULP80486 enable/disable.  
JP4B - ULP HLDA  
JP4C - ULP SMIACT.

## 3. Switches - All within a nonincendive circuit.

SW1 - Configuration.  
SW2A - FLASH boot device write enable/disable.  
SW2B - Boot block recovery.  
SW2C - Force update or BIOS.  
SW2D - FLASH array write enable.  
SW3 - CPU reset.

## 4. DIP Switches - Within a nonincendive circuit.

SW4, SW5 - User configuration setting.

## 5. Lithium Battery - Designated "S2". R/C lithium battery (BBCV2).

## POWER SUPPLY/SEQUENCER BOARD - FIG. 2

General - Measures 5.5 in. by 4 in., and plugs into the bottom of the Fixed Multifunction I/O Board.

## 1. Connectors -

TB1 - Relay connections or 2 MOSFET connections. Latching.

TB2 - Three input connection for power. Latching.

J1 - Interface to FMI/OB board. Not user accessible.

## 2. Jumpers - All within a nonincendive circuit.

JP1 - Watchdog relay enabled/disabled.

JP2 - -12 V enabled/disabled.

JP3 - +12 V enabled/disabled.

JP4 - 50 mA load enabled/disabled.

JP5 - +12 V seq. monitor enabled/disabled.

JP6 - -12 V seq. monitor enabled/disabled.

## 3. Switch

SW1 - SPDT. Within a nonincendive circuit.

## 4. Fuse - Designated "F1". R/C (JDYX2), rated 10 A for a 12 V system and 3 A for a 24 V system. Cannot be removed without a tool.

## FIXED MULTIFUNCTION INPUT/OUTPUT BOARD - FIG. 3

General - A multilayer board that measures 8.5 in. wide by 11 in. long.

## 1. Connectors -

TB1 - Discrete inputs. Latching.  
TB2 - Discrete outputs. Latching.  
TB3 - Analog inputs. Latching.  
TB4 - High speed counter inputs. Latching.  
P1, P2 - Expansion. Not user accessible.  
TB5 to TB8 - Expansion I/O. Latching.  
P3 to P6 - Expansion interface. Not user accessible.  
P7, P10 - Bus interface. Not user accessible.  
P9 - Interface to PSSB board. Not user accessible.

## 2. Jumpers - All within a nonincendive circuit.

W1 to W18, W20 to W40, JP2 to JP5 - Configuration.

3. Transformer - Designated "T1 , T2". SO10-CUSTOM (38680), Part No. 391708-02-3.
4. Diode - Designated "CR108". SOT23 (MMBD4148), Part No. 391857-01-0.
5. Diode - Designated "CR138". DO214AA (SMBJ26A), Part No. 391853-19-8.

## PC 104 ANALOG OUTPUT BOARD - FIG. 4

General - Measures 3.775 by 3.550 in., and is provided with a ribbon cable which provides interconnection between connector P3 and one of four Fixed Multifunction I/O Board connectors (P3,P4,P5,P6). Four standoffs on the Fixed Multifunction I/O board are provided for mounting the output board.

1. Jumpers (JP1 to JP7) - All within a nonincendive circuit.
2. Switch (S1) - Within a nonincendive circuit.

## PC 104 DISPLAY BOARD - FIG. 5

General - Measures 3.775 by 3.550 in., and is provided with a ribbon cable that provides interconnection between connector P1 and an external display. Four standoffs on the Fixed Multifunction I/O Board are provided for mounting the display board.

1. Jumper (JP1) - Within a nonincendive circuit.