Bristol® ControlWave®

CW_10 and CW_30 CPU Kits

ControlWave
CW_10 CPU Kit
CW_30 CPU Kit
CW_35 CPU Kit
CW_31 CPU Kit

Overview

Introduced initially in 1988, the 3330, 3335 and 3310 have retained their status as the RTU of choice by many loyal customers. However, with the growing popularity of Bristol® ControlWave®, from Emerson Process Management, the latest generation hybrid PLC/RTU products, customers have expressed interest in an inexpensive migration path to allow them to realize all of the benefits of the new ControlWave technology without replacing their entire SCADA system.

The new CPU products, named CW_10, CW_30, CW_35 and CW_31 (generically CW_XX), are intended to offer a cost-effective upgrade path to the ControlWave architecture for existing 33XX systems by allowing you to maintain your investment in I/O, wiring, cabinets and enclosures, communication infrastructure and application program development. The CW_XX CPUs are direct replacements for the 33XX CPUs. You can easily remove the existing CPU and communication cards and replace them with the new ControlWave architecture cards.

The CW_XX CPUs support all of the commonly used analog, discrete and counter I/O cards, as well as modems and radios currently installed in the RTUs. Communication compatibility is maintained through the same use of BSAP and Modbus protocols as were used in the 33XX.

Benefits

The ControlWave architecture offers several advantages over existing 3310/3330/3335s including increased compatibility with industry standards such as IEC 61131-3 programming, Ethernet, IP and FTP communication, support for 56 bit encrypted User Name/Password security sign-on and multiple user access levels. It also offers much greater execution speed, lower power consumption and a larger and more flexible memory model.

- Faster performance allows more demanding applications
- More memory allows larger applications and data storage
- Lower power consumption minimizes solar and battery requirements
- ControlWave Designer offers increased programming flexibility
- Historical data is maintained on application download for higher data integrity
- CW_XX dual Ethernet option allows network segmentation without expensive external routers
- Enhanced security protection
- Buffered communication ports enhance throughput and allow multiple slave ports

Features

- 150 MHz, ARM CPU
- Real-time clock
- Conforms to DPC3330, 3335 and RTU3310 chassis design
- Supports most existing 33XX I/O cards
- ControlWave Designer IEC 61131-3 programming
- ControlWave Designer ACOLL III function block library
- 16MB of Flash storage memory

- Permit access to onboard FLASH RAM (33XX has FLASH for boot project only)
- Optional one or two 10/100 Mbit Ethernet ports
- CW_10 MFIB with four serial ports
- CW_30 with two BIP serial ports
- CW_35 with two serial ports
- CW_31 with one Ethernet port
- New Communication card or 3310 MFIB for high speed ports & IP/PPP serial communication
- CPU speed increase of up to 1000%
- New Protocols – DNP3.0 & CIP

Software Migration

In order to preserve most of your ACCOL program development time and expense, the ACCOL Translator utility will allow application program conversion to ControlWave Designer IEC 1131 Structured Text. For most applications, the ACCOL Translator will reduce the conversion effort by up to 80% vs. rewriting the program.

To properly take advantage of the ACCOL Translator, one must know ACCOL, ControlWave Designer, understand the ACCOL application and have access to the ACCOL source file. Once the application is translated, it typically requires some degree of editing, depending on the complexity of the program, and thorough testing prior to deployment on-site.

Emerson Process Management can provide you with training to do the translation or you can rely on our Application Support Group to do the translation for you.

Specifications

CW_10, CW_30, and CW_35 CPU

- 32 bit, 150 MHz ARM processor
- Memory battery backup: 7000 hours
- Optional one or two independent 10/100 Base-T ports with RJ-45 connectors (CW_30 and CW_35 only)
- Ethernet port isolation: 500 Vdc
- One 3 pin Utility Port for Flash downloading system flashware
- System Watchdog relay on CW_10 MFIB
- LED status indicators – 6 failure status LEDs, Watchdog and Idle and communication LEDs

Memory

- Program execution: 4 MB SD RAM
- Data Memory : 1 MB SRAM battery backed memory
- File and Historical Archive memory: 16 MB on-board flash

CW_10 Serial Communication Ports

- 4 Serial communication ports: Located on the MFIB: 9 pin ‘D’ connectors with standard 33XX pin out
- Ports A & C: RS232 – 115.2 K baud
- Port B: Configurable Modem/RS485 – 115.2 K baud. Supports all existing 3310 private and switched network modems
- Port D: RS485 – 115.2 K baud, multi-drop up to 32 nodes
- ESD protection on RS 485 ports - IEC 801

CW_30 and CW_35 Serial Communication Ports

- 2 Serial communication ports: BIP ports. (On CW_30 only BIP ports extended from CPU board and mounted on an external bracket)
- BIP ports are configurable RS232/RS485 – 115.2 K baud
- BIP ports are 9 pin ‘D’ connectors with standard 33XX pin out
- ESD protection on RS 485 ports - IEC 801

CW_30 and CW_35 Serial Communication Card

- 2 port and 4 port serial communication cards available

- 2 port comm card supports existing comm options (MIB, TIB, RDI, 1200/9600B Modems) on port B
- Configurable RS232/RS485 – 115.2 K baud
- Serial ports are 9 pin 'D' connectors with standard 33XX pin out
- ESD protection on RS 485 ports - IEC 801

Keypad/Display Support

The CW_10, CW_30, and CW_35 CPUs support the local 33XX local and remote Keypad/Display units via existing display interface connections. The CW_30 and CW_35 also support the ControlWave 2-button and 25 button Display/Keypad units via standard Cat-5 cable with RJ-45 connectors.

Environmental Specifications

- Operating Temperature range: -40 to 70oC (-40 to 158oF), storage up to 85oC
- Relative Humidity: 15-95% non-condensing
- Vibration: 1.0g for 10-150 Hz - 0.5g for 150Hz to 2000Hz
- RFI Susceptibility: 3V/m – 80 MHz to 1000Mhz (EN50082-2)

Power Consumption

- CPU without Ethernet: 2 watt
- CPU with 1 Ethernet: 3 watt
- CPU with 2 Ethernet: 4 watt
- MFIB (Watchdog off): 1 watt
- MFIB (Watchdog on): 1.9 watt
- CW_XX 2 port comm.: 0.5 watt
- CW_XX 4 port comm.: 1 watt

Hazardous Area Approvals

- FM approved as non-incendive for operation in Class I, Division 2 hazardous areas

Ordering Information

3310 Upgrade Kits

CW_10 Kit - 12 Vdc

includes CPU & MFIB: 396807-01-1-EXCH

CW_10 Kit - 24 Vdc

includes CPU & MFIB: 396807-02-0-EXCH

3330 Upgrade Kits

CW_30 CPU, 2 serial, without Ethernet:

396807-03-8-EXCH

CW_30 CPU, 2 serial, with one Ethernet:

396807-04-6-EXCH

CW_30 CPU, 2 serial, with two Ethernet:

396807-05-4-EXCH

CW_30 - 2 Port Enhanced Comm Board:

396807-06-2-EXCH

CW_30 - 4 Port Enhanced Comm Board:

396807-07-0-EXCH

3335 Upgrade Kits

CW_35 CPU, 2 serial, with two Ethernet

396807-09-7-EXCH

CW_35 - 2 Port Enhanced Comm Board

396807-12-7-EXCH

CW_35 - 4 Port Enhanced Comm Board

396807-11-9-EXCH

3331 Upgrade Kit

CW_31 CPU, 2 serial, one Ethernet

396807-10-0-EXCH

Selection Item Descriptions And Specifications

Communications	CW_10	CW_30/35
2 BIP ports (RS232/ 485 jumper selectable) replacements - full serial async ports - No sync comm	N/A	Yes
1 or 2 10/100 Ethernet ports		Yes
4 built-in serial asynchronous ports on MFIB - 1 RS232 and 3 selectable RS232/ 485	Yes	N/A
4 port communications board - no synchronous ports supported		Yes

Communications Options		
Selectable RS232/ 485 ports	Yes	Yes
Support for RDI	Yes	Yes
Support for TIB	Yes	Yes
Support for 1200 baud modem	Yes	Yes
Support for 9600 baud modem	Yes	Yes
Support for MIB		Yes
Support for fiber modem		Yes
Support for external CDMA and GSM/ GPRS Modems	Yes	Yes

I/O Boards Supported		
Analog Input - 4, 8 points	Yes	Yes
Analog Output - 2, 4 points	Yes	Yes
Low Level Analog Inputs - 4 points	Yes	Yes
Discrete Inputs - 4, 8, 16 points	Yes	Yes
Discrete Output - 4, 8, 16 points	Yes	Yes
High Speed Counter - 4, 8 points	Yes	Yes
Honeywell XMTR Interface Board	No	No
BBSTI Board - as justified	No	No
Check Before Operate	No	No
High Speed Analog	No	No

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