

General

Introduced for 2004, our next generation plug-in controller and remote interface module, Series C710 offers many new features and is compatible with all newer switching systems from Universal Switching Corporation. The new processor provides faster control response, built-in Ethernet (10baseT), **TCP/IP**, plus a powerful new IEEE-488.2 compliant control protocol. The plug-in controller is available in three types to meet most control scenarios, plus it is compatible with our RouteWarePRO software package.

Our products utilize a distributed multi-processor design where each module installed in the system has an embedded processor to handle all function and status reporting required. This includes major functions of the mainframe it's installed into such as the front panel display and keypad functions.

One unique feature of the Series C710 controller card is the fact that the firmware can be updated while in the field. This is done via a standard RS-232 port on PC running our special software (provided with an update) connected to the serial service port (J9A). This port is a 10-position modular connector shared with the **US-Link** port on the face of the controller card. An "flash" cable is provided with each system ordered.

Also included with the C710 controllers is our high-speed **US-Link** remote control link. This link interconnects various products offered by Universal Switching Corporation to provide individual control of the system via remotely located control panels, or for Master/Slave configurations. Slave control configurations are "special order".

Applications

- System controller
- Remote control interface
- Standard remote panel control interface (**US-LINK**)
- GPIB interface functions
- Standard serial interface operation
- Compatible with RouteWarePRO control software

Model Number Assignment

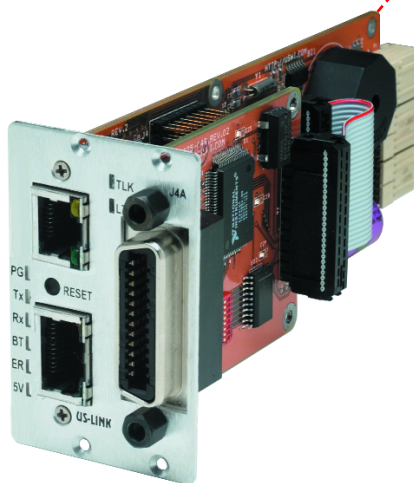
Model	Definition
C710-E10	Ethernet only (10baseT)
C710-488	Ethernet and GPIB port
C710-S3	Ethernet and Serial port



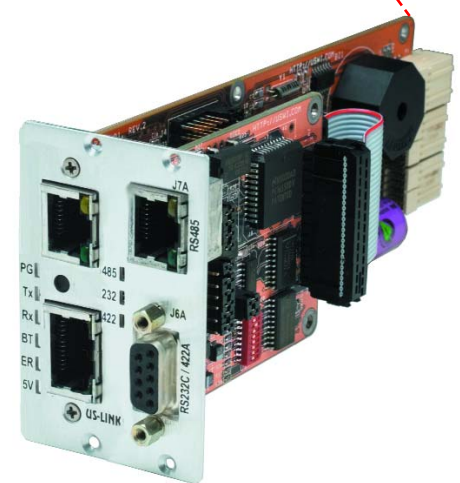
All Include TCP/IP



C710-E10
- Ethernet (10baseT)
- **US-Link**
- Flash Service Port



C710-488
- GPIB (IEEE-488.2)
- Ethernet (10baseT)
- **US-Link**
- Flash Service Port



C710-S3
- Serial (RS-232C/422A/484)
- Ethernet (10baseT)
- **US-Link**
- Flash Service Port

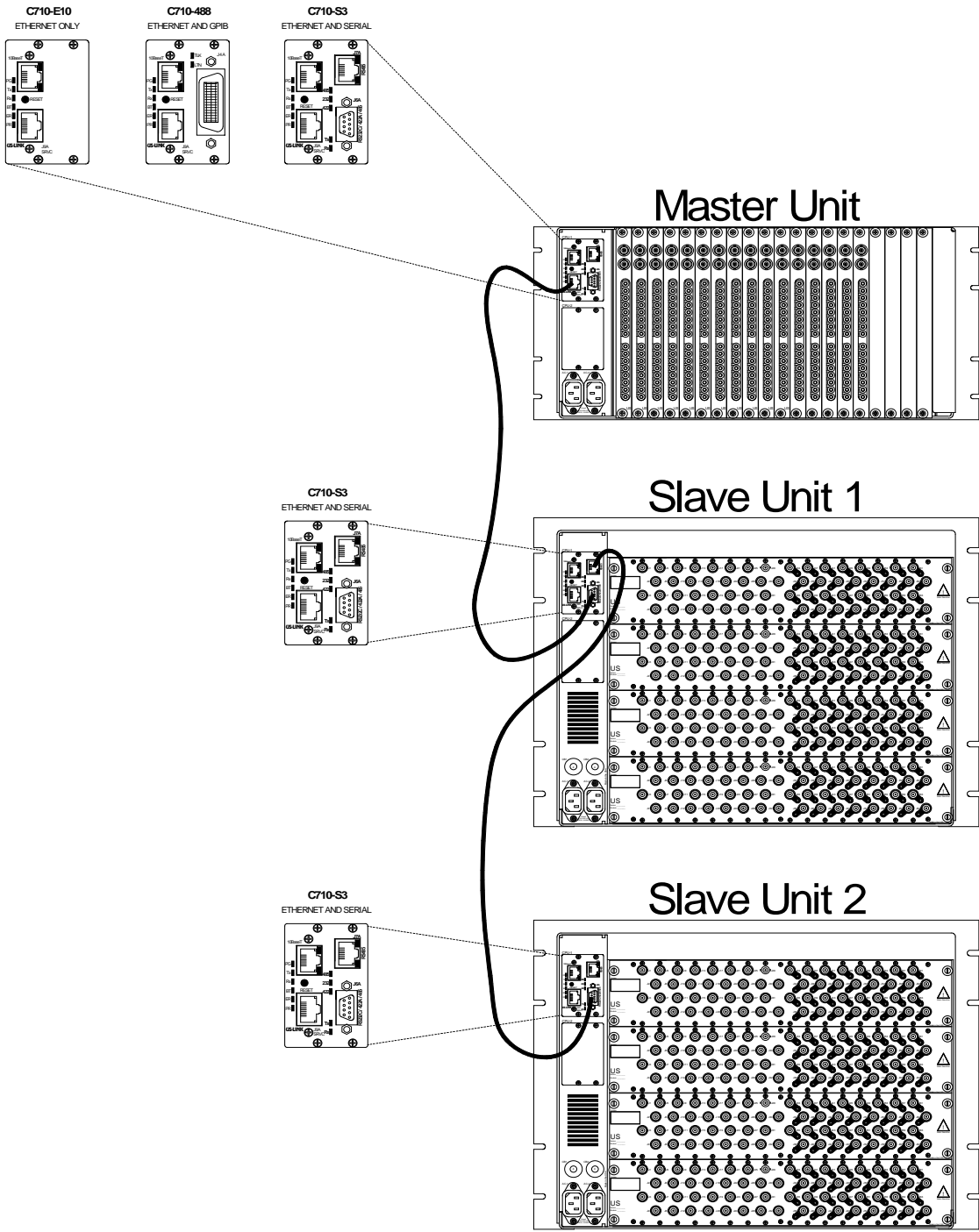
Master / Slave Configurations

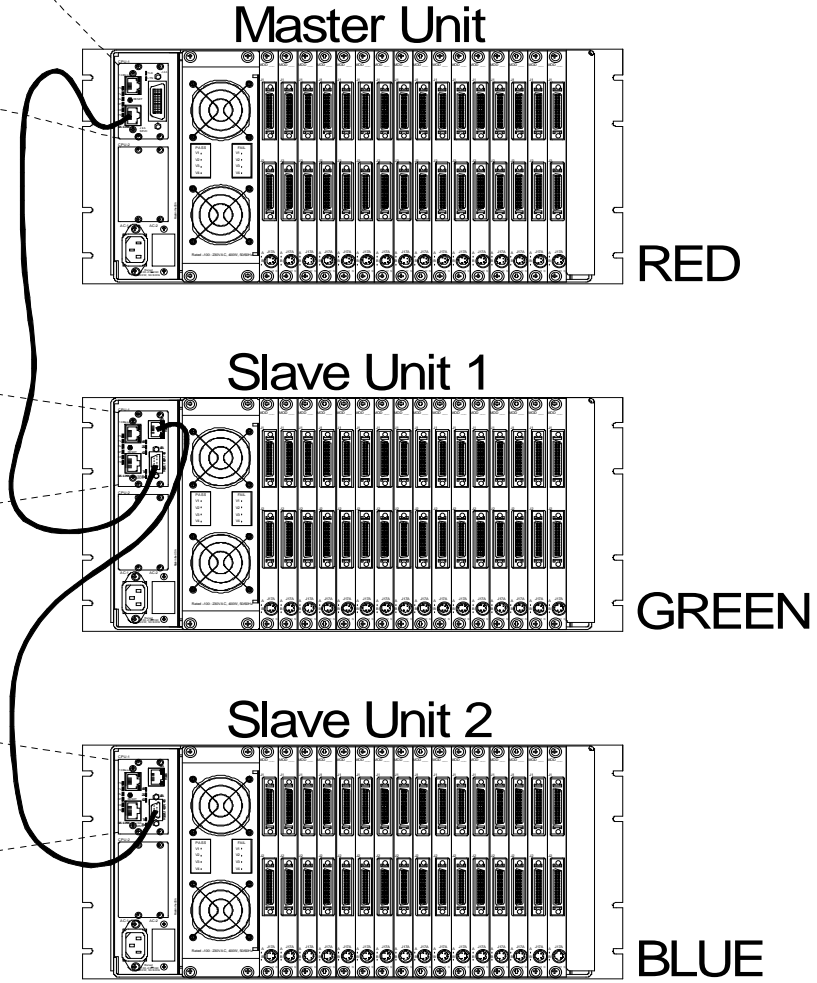
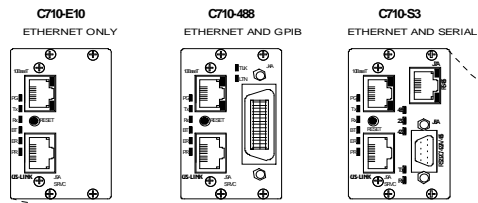
For larger configurations needing more than one mainframe unit, special firmware can be provided to simplify the programming of the "system". The system can be controlled as "one box" rather than the user addressing multiple units. Firmware is provided on a case-by-case basis.

In the example below, one unit is considered the "master" unit and can contain any of the three types of plug-in controllers. This is where the user connects their control cable (Ethernet, GPIB or Serial). The "slave" units must use the

C710-S3 plug-in controller since the **US-Link** is a serial type (485) port. The 8-foot control looping cables (#CA340-008) are provided, and the end of the link must be terminated (#CA122-T).

The example on the adjacent page shows three units tied together. This is another example of a Master/Slave control configuration. The idea is that one command will control three crosspoints (RGB) making it simpler for the user to control and status.





The Serial Service and US-Link Port (J9A)

The Series C710 contains a serial service port for downloading new firmware drivers to the FLASH program area of the CPU. This same connector is used for the **US-Link** port. The connector is a standard 10-position modular connector that mates with the cable supplied with your firmware upgrade kit.

Upgraded firmware enhancements can easily be added to the system by downloading the new version to this port. A cable is provided with all upgrade kits and connects to your PC computer or other serial control device. The port is fixed at 9600 baud, 8 bits, no parity, 1 start bit and 1 stop bit.

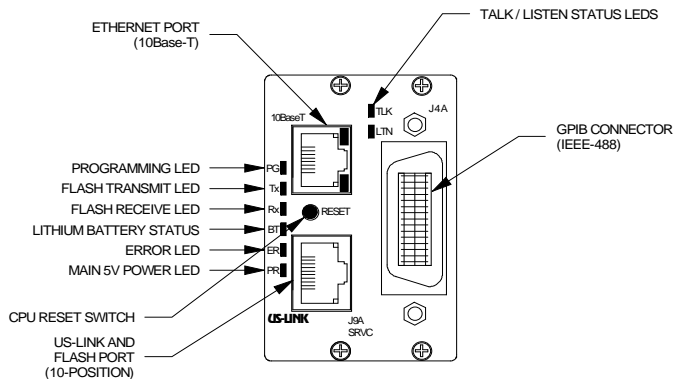
Connector	Service Port	US-Link Port
1	Program Enable	Empty
2	Program RD	Not Used
3	Program TD	Not Used
4	GND	GND
5	GND	GND
6	Not Used	Data +
7	Not Used	Data -
8	Program DSR	Not Used
9	Program DTR	Not Used
10	Not Used	Empty
Case	GND	GND

Model C710-488

The GPIB version of the Series C710 controllers offers a high performance GPIB (IEEE-488.2) port in addition to the Ethernet port. This type of parallel control port is very popular in ATE applications (automated test equipment). It is high speed and provides data handshaking. The C710-488 is designed as an IEEE-488.2 compatible device.

Pin	GPIB Assignment	Pin	GPIB Assignment
1	ID 1	13	ID 5
2	ID 2	14	ID 6
3	ID 3	15	ID 7
4	ID 4	16	ID 8
5	EOI	17	REN
6	DAV	18	GND (6)
7	NRFCD	19	GND (7)
8	NDAC	20	GND (8)
9	IFC	21	GND (9)
10	SRQ	22	GND (10)
11	ATN	23	GND (11)
12	SHIELD	24	LOGIC GROUND

C710-488 ETHERNET AND GPIB



Model C710-S3

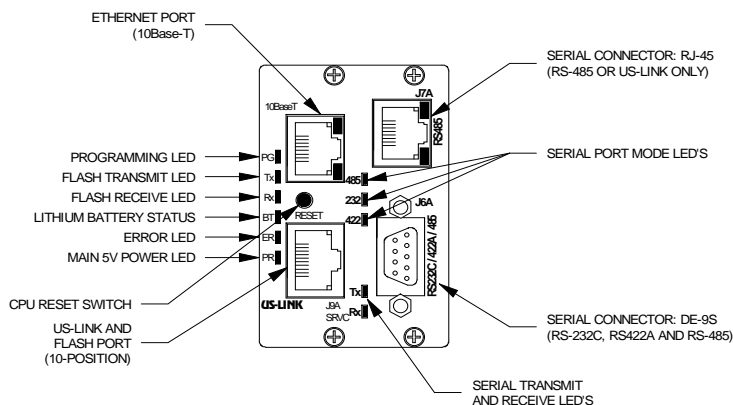
Besides having Ethernet capability, the C710-S3 also has serial as well that can be configured for either an RS-232C, RS-422A, or an RS-485 multi-drop hardware configuration. The RS-232C mode will connect to a normal serial port from most PC compatible computers.

The RS-422A configuration is less popular, however it will communicate at faster speeds and longer distances than the RS-232C configuration. The RS-422A mode is differential and is terminated in 100 ohms across the data and handshaking pairs.

The RS-485 configuration is used with multiple serial units in a multi-drop control scenario. Each unit is assigned a binary address via DIP switch settings on the plug-in. This is a high-speed and long distance control configuration.

Selection of the control mode is done via jumpers on the controller. Simply un-plug the card and change the location of the jumpers per the instruction sheet.

C710-S3 ETHERNET AND SERIAL



Pin	RS-232C Mode	RS-422A Mode	RS-485 Mode
1	Not Used	Transmit Data: out (-)	Data: (-)
2	Transmit Data: out	Transmit Data: out (+)	Data: (+)
3	Receive Data: in	Receive Data: in (+)	Not Used
4	Not Used	Receive Data: in (-)	Not Used
5	Ground	Ground	Ground
6	Not Used	Clear To Send (-)	Not Used
7	Clear To Send	Clear To Send (+)	Not Used
8	Ready To Send	Ready To Send (+)	Not Used
9	Not Used	Ready To Send (-)	Not Used

General Specifications

Internal control typeG2 compatible ("D" type)
 MemoryLithium-backed RAM
 Memory retention>10 years
 FLASH program areaField upgradable
 Status LED'sIncluded
 Battery monitorIncluded
 DC power+5V, 750mA
 Soft-Load port (J9A)Modular 10 position
 Ethernet port10baseT with TCP/IP

Remote control link**US-Link** (RJ-45 compatible)
 BITEIncluded
 Weight8oz
 Operating temp0 to +70C
 Non-operating temp-20 to +85C
 Humidity0 to 95% (NC @ +25C)
 MTBF>225,000 hours
 (per MIL-HDBK-217F, N1 ground benign @ +25C)