EATON | Cutler-Hammer INTELLIGENT TECHNOLOGIES

D77D-EIP Ethernet IP Adapter to QCPort Installation Leaflet

D77D-EIP Installation

The D77D-EIP is designed to be used in industrial applications and installed in accordance with this document. The intended use of the D77D-EIP is for use in clean, dry environments

Mount the D77D-EIP to a DIN Rail

To mount the D77D-EIP to a DIN rail the following procedure must be performed.

- Using a screwdriver or fingernail, gently pull out the locking tab located at the right side center of the D77D-EIP module.
- Insert the D77D-EIP module on to the DIN rail.
- Depress the locking tab to secure the D77D-EIP to the DIN rail.

Connect the D77D-EIP to Ethernet IP

Connect the Ethernet IP Ethernet cable to the RJ45 connector located at the top of the D77D-EIP.

- The D77D-EIP will work with any connectorized Cat5 or Cat5e or 10BT cable.

Set the Ethernet IP Address

The TCP address is default set for BootP, CHStudio has a BootP server native. Once the TCP address is set using BootP, any Ethernet IP tool can then change the address from BootP to static so that it is permanently stored in NVRAM and will be present after a power cycle. The D77D-EIP also supports DHCP, though it has to be configured to assign the address from DHCP using CH Studio.

Ethernet IP Setup and Configuration of the D77D-EIP

The D77D-EIP requires no other setup or configuration for normal operation. For more information on the Ethernet IP configuration parameters and how to modify them refer to the user manual **MN05008003E**.

Connecting the D77D-EIP to QCPort

The D77D-EIP connects to QCPort using one or both of the two QCPort channels A or B. The connections for the channels are located on the base of the D77D-PNA and use the RJ12 style connectors. From the back of the D77D-EIP, the first port is Channel A and the next two ports are Channel B. Each channel is isolated from one another, though Channel A is used to power the D77D-EIP.

For most applications, a D77E-QPLR is used as the biasing resistor and also as the power tap for QCPort. Then using a backplane (D77E-BPx) the D77E-QPLR, D77D-EIP and other modules can be connected to a DIN rail and the QCPort at the same time. Using this type of a configuration, power is automatically routed from the D77E-QPLR to the D77D-EIP using the D77E-BPx backplane.

Performing a Soft Auto Configuration on the D77D-EIP

The Auto Configure button is labeled AC and is located on the left side of the RS485 connector above the A and B LED's. The Soft Auto Configure will erase the existing I/O data map to Ethernet IP and replace it with a new map that represents the devices on both QCPorts. To perform a Soft Auto Configuration, ensure that the QCPort system has been properly installed, the Group ID's have been set and that there is power applied to the QCPort system for both Channel A and Channel B (if used). All devices must be powered and operating without communication faults. Press and hold the AC button for five seconds. When the button is first pressed, the ST, MS and NS LED's will all go ON. When the LED's go OFF, it is safe to release the button indicating that the Auto Configuration is being performed. If the Soft Auto Configuration is not successful, the MS LED will be solid RED. This is an indication to check the QCPort devices for errors, correct the errors and attempt the Auto Configuration again.

After performing a successful Soft Auto Configuration, the I/O data will be placed in the I/O assemblies by QCPort address starting from the lowest address and going to the highest address. To keep all the devices word aligned, every device starts on an even byte boundary and stuff bytes will be inserted where needed between device data.

The two data assemblies are assembly 101 (to the system controller) and assembly 102 (from the system controller). The first two bytes of the assembly 101 will include the Status Word and the first two bytes of assembly 102 will contain the Control Word. Following the Control and Status registers will be the I/O data of the QCPort devices.

Performing a Hard Auto Configuration on the D77D-EIP

A Hard Auto Configuration is similar to the Soft Auto Configuration except the AC button is held prior and during (for five seconds) power being applied to the QCPort system. **A Hard Configuration will reset all QCPort devices to Out of Box defaults. This resets all parameters previously set by a tool to Out of Box factory defaults.** A Hard Auto Configuration will then remap all the I/O data as described in the Soft Auto Configuration section above.

Environmental Ratings of the D77D-EIP

Transportation and Storage	Temperature	-50°C to 80°C (-58°F to 176°F)
	Humidity	5-95% non-condensing
Operating	Temperature	-25°C to 65°C [-13°F to 131°F]
	Humidity	5-95% non-condensing
	Altitude	Above 2000 meters (6600 feet) consult factory
	Shock IEC 68-2-27	15G any direction for 11 milliseconds
	Vibration IEC 68-2-6	5 – 150 Hz, 5G, 0.7 mm maximum peak-to-peak

Approvals/Certifications of the D77D-EIP

Agency Certifications	UL-CUL UL 508 CSA C22.2 No. 14 CE (Low Voltage Directive) EtherNet IP Certified
Radiated and Conducted Emissions	EN5011 Class A
Electrical/EMC	
• ESD Immunity (IEC61000-4-2)	+/- 8kV air, +/- 4kV contact
• Radiated Immunity (IEC61000-4-3)	10V/m 80-1000 MHz, 80% amplitude modulation @ 1kHz
• Fast Transient (IEC61000-4-4)	+/- 2kV supply and control +/- 1kV communications
• Surge (IEC61000-4-5)	+/- 1kV line-to-line +/- 2kV line-to-ground
• RF Conducted (IEC61000-4-6)	10V, 0.15 – 80MHz
• Magnetic Field (IEC61000-4-8)	30 A/m, 50Hz
• Voltage Dips (IEC61000-4-11)	30% dip @ 10ms 60% dip @ 100 ms >95% interrupt @ 5 ms

Module Current Draw for the D77D-EIP

Ethernet IP TCP	N/A
Channel A QCPort	70 mA
Channel B QCPort	15 mA
Ethernet IP Serial	0 mA

Communication Specifications for the D77D-EIP

Assembly 101 (Input – Produced)	504 bytes
Assembly 102 (Output – Consumed)	504 bytes
Assembly 103 (Status – Response)	16 bytes
Assembly 104 (Status – Trigger)	0 bytes
Ethernet IP Baud Rates	10Megabit
QCPort Channels	Channel A and Channel B (independent from each other)
Max QCPort Devices	63 CH A 63 CH B

Status LED Indication

State	Description
CPU Status (ST)	
On Solid	CPU Fault
Blinking	CPU OK
Off	No Power
Module Status (MS)	
Blinking Green	Unconfigured
Steady Green	OK, Configured
Flashing Red	Faulted or Missing QCPort Device
Steady Red	Major Fault
Off	No Power
Network Status (NS)	
Blinking Green	Valid IP, Unconnected
Steady Green	OK, Connected
Flashing Red	Connection Timeout
Steady Red	Major Fault, Duplicate ID
Off	No IP Address
Channel Status (A or B)	
Blinking	One or more devices on QCPort are faulted, QCPort not scanning
Steady	QCPort Scanning
Off	No Power No Communication on that Channel