

D77D-DNA DeviceNet Adapter to QCPort Installation Leaflet**D77D-DNA Installation**

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

Mount the D77D-DNA to a DIN Rail

To mount the D77D-DNA 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-DNA module.
- Insert the D77D-DNA module on to the DIN rail.
- Depress the locking tab to secure the D77D-DNA to the DIN rail.

Connect the D77D-DNA to DeviceNet

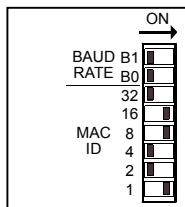
Connect the DeviceNet cable to the 5-position connector located at the top of the D77D-DNA.

- The D77D-DNA will work with thick and thin media.
- The DeviceNet cable is color-coded and matches the colors on the 5-position connector located at the top of the D77D-DNA. The connector has screws for positive retention to eliminate accidental unplugging.
- Use one wire per terminal and torque to 0.5 Nm (4.5 lb-in).

Set the DeviceNet MAC ID and Baud Rate of the D77D-DNA

The MAC ID and baud rate can only be set through the hardware. A software tool (such as CH Studio) can view the settings for the D77D-DNA MAC ID and baud rate, but cannot be used to modify them.

The MAC ID and baud rate are set using DIP switches on the face of the D77D-DNA. Moving a DIP switch away from the DeviceNet connector is ON and moving the switch towards the DeviceNet connector is OFF. The MAC ID is in binary with the major units numbered to the left of the switch on the side label. Adding up the major units set to ON determines the MAC ID of the D77D-DNA.



Example: To set the MAC ID to 25, start from the top (or 32) and set the switches to OFF(32), ON(16), ON(8), OFF(4), OFF(2), ON(1) (16+8+1=25).

The baud rate is set using the configuration switches B0 and B1.

B1	B0	Baud
OFF	OFF	125K
OFF	ON	250K
ON	OFF	500K
ON	ON	Not Allowed

DeviceNet Setup and Configuration of the D77D-DNA

The IT. D77D-DNA requires no extra setup or configuration for normal operation other than setting the MAC ID and Baud Rate for DeviceNet. For more information on the DeviceNet attributes and how to modify them refer to the user manual **MN05004002E**.

Performing a Soft Auto Configuration on the D77D-DNA

The Auto Configure button is labeled AC and is located on the left side of the RS232 connector above the A and B LED's. The Soft Auto Configure will erase the existing I/O data map to DeviceNet 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 three 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 at any time the Soft Auto Configuration is not successful in completion, 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 of the QCPort devices will be placed in the produced (to the controller) and consumed (to the D77D-DNA) poll messages on DeviceNet. The first words of the poll messages will include the Control Word (consumed) and Status Word (produced) as described on the other side of this sheet. Following the Control and Status words will be the I/O data of the QCPort devices in order of the Group ID settings on the QCPort devices from lowest to highest.

Performing a Hard Auto Configuration on the D77D-DNA

A Hard Auto Configuration is similar to the Soft Auto Configuration except the AC button is held prior and during (for 3 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 set by a tool to Out of Box defaults.** A Hard Auto Configuration will then remap all the I/O data the same as in the Soft Auto Configuration section.

Environmental Ratings of the D77D-DNA

Transportation and Storage	Temperature	-50°C to 80°C (-58°F to 176°F)
	Humidity	5-95% non-condensing
Operating	Temperature	-25°C to 55°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
	Pollution Degree	2

Approvals/Certifications of the D77D-DNA

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-ground +/- 2kV line-to-line
• RF Conducted (IEC61000-4-6)	10V, 0.15 – 80MHz
• Magnetic Field (IEC61000-4-8)	30 A/m, 50Hz
Ingress Protection Code	IP20
Radiated and Conducted Emissions	EN5011 Class A
Agency Certifications	UL 508 CUL (CSA C22.2 No. 14) CE (Low Voltage Directive) ODVA Conformance Tested

Status Word for the D77D-DNA

Bit	Low Byte	High Byte	Description
0	CHA Active	CHB Active	0 – selected channel not scanning
1	CHA Ready to Scan	CHB Ready to Scan	0 – Selected channel scan list registry requirements have been met
			1 – Selected channel scan list registry requirements have not been met
2	Faulted Device CHA	Faulted Device CHB	0 – selected channel does not have any faulted or missing devices
			1 – selected channel has at least one faulted or missing device
3	Reserved	Reserved	Must be 0
4	Duplicate Group ID CHA	Duplicate Group ID CHB	0 – no two devices on the selected channel have the same group ID
			1 – more than one device on the selected channel has the same group ID
5	QCPort Config Corrupt CHA	QCPort Config Corrupt CHB	0 – selected channel has a valid registry
			1 – selected channel has a corrupt registry
6 – 7	reserved	reserved	Must be 0

Control Word for the D77D-DNA.

Bit	Low Byte	High Byte	Description
0	Activate Scan CHA	Activate Scan CHB	0 – IO scan will not occur on the selected channel. All devices at this time on the QCPort channel will be in their "safe state" and offline.
			1 – IO scan will occur on the selected channel. All devices will be online and operating in an online state.
1 – 7	reserved	reserved	Must be 0

DeviceNet Codes for the D77D-DNA

Vendor ID 0x44 (68 Dec)
Product Code 0x1000 (4096 Dec)
Device Type 0x0C (12 Dec)

Module Current Draw for the D77D-DNA

DeviceNet	70 mA
Channel A QCPort	50 mA
Channel B QCPort	15 mA

Communication Specifications for the D77D-DNA

IO DeviceNet Size Max	128 bytes input 128 bytes output
DeviceNet Baud Rates	125K, 250K, 500K
QCPort Channels	Channel A and Channel B (independent from each other)
Max QCPort Devices	63 CH A 63 CH B

Sample DeviceNet Input/Output Assembly for the D77D-DNA.

Input Assembly		Output Assembly	
Byte	Data	Byte	Data
0	Low Byte of Status Word (reserved)	0	Low Byte of Control Word (reserved)
1	High Byte of Status Word (reserved)	1	High Byte of Control Word (reserved)
2	First QCPort Device's Input Data	2	First QCPort Device's Output Data
...		...	
N	Last QCPort Device's Input Data	N	Last QCPort Device's Output Data