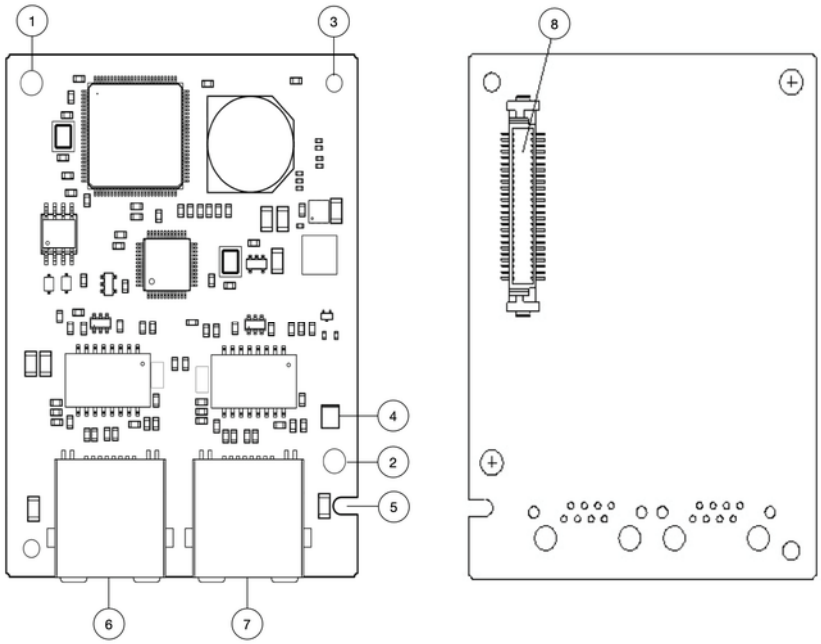
8-11 eZVFD-CC – Communication card, BACnet Ethernet/BACnet IP

8-11-1 Features

The eZVFD-CC Integration Module provides BACnet/IP and BACnet over Ethernet communication to BACnet compliant devices. When used with a Delta Controls system, you can use the module's GCL+ programs and Delta Controls internal control loops to directly control pumps and fan motors. Quickly configure and save drive parameters in enteliWEB and load the saved configuration onto other CP2000 AC motor drives over the BACnet network. Features include:

- Native BACnet firmware
- BACnet/IP, BACnet over Ethernet communication protocols
- Fully programmable in GCL+ (Delta Controls General Control Language)
- Dual port ethernet to support daisy-chaining multiple CP2000 devices
- Monitor and utilize CP2000 AC motor drive I/O terminals as BACnet I/O
- Set up and configure using enteliWEB. Use enteliWEB to read, write, save and load CP2000 AC motor drive parameters.

8-11-2 Product Profile



1. Screw fixing hole 1
2. Screw fixing hole 2
3. Positioning hole
4. Status and Power LED
5. Fool-proof groove
6. RJ45 Ethernet Port 1
7. RJ45 Ethernet Port 2
8. AC motor drive connection port

MAC address is displayed in the IPS object in entelliWEB**.**

8-11-3 Specifications

Network Interface

Interface	RJ45
Number of ports	2 ports
Daisy chaining	Up to 30 devices (daisy chain is discontinued if drive is not powered)
Transmission method	IEEE 802.3
Transmission cable	10/100BaseT CAT5E/CAT6
Maximum length	100m (port-to-port)
Transmission speed	10/100 Mbps auto-negotiate
Network protocol	BACnet/IP or BACnet/Ethernet

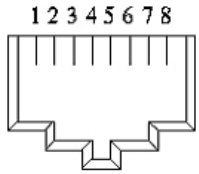
Electrical Specification

Power supply voltage	5 V_{DC} (supplied by AC Motor Drive)
Power consumption	< 2 W
Insulation voltage	500 V_{DC}
Weight (g)	2.6g
Technology	32-bit CPU, field upgradeable firmware, real-time clock with supercapacitor backup

Environment

Compliance	CE IEC 61800-3, EMC Standard for Variable Speed Drives LVD IEC 61800-5-1 Safety Requirements for Electrical Power Drive Systems
Operation	0°C to 55°C (temperature), 10% to 95% RH (non-condensing)
Storage	-25°C–70°C (temperature), 95% RH

8-11-4 RJ45 PIN Definition

RJ45	PIN No.	Signal	Definition
	1	Tx+	Positive pole for data transmission
	2	Tx-	Negative pole for data transmission
	3	Rx+	Positive pole for data receiving
	4	--	N/C
	5	--	N/C
	6	Rx-	Negative pole for data receiving
	7	--	N/C
	8	--	N/C

8-11-5 Communication Parameters for CP2000 Connected to eZVFD-CC BACnet Controller

When operating the CP2000 using the eZVFD-CC card you must set the parameters according to the table below:

Parameter	Function	Set value (Dec)	Explanation
Pr.00-20	Source of frequency command setting	8	The frequency command is controlled by communication card.
Pr.00-21	Source of operation command setting	5	The operation command is controlled by communication card.
Pr.09-30	Decoding method for communication	1	Decoding method 2 (Refer to address: 6000h – 60FFh)
Pr.09-60	Identification for Communication Card	Read-only	When eZVFD-CC is connected, Pr.09-60 will show value 8 (BACnet IP)

The following parameters should be set according to your desired network configuration. The table below shows default values:

Parameter	Function	Default value (Dec)	Explanation
Pr.04-50	UDP port number	47808	UDP/IP communication port
Pr.04-51	BACnet network number	BACnet/Ethernet: 19999 BACnet/IP: 49999	Depends on setting of Pr.09-91
Pr.09-52	BACnet device address, low word (range 0-65535)	4100000 + (last 4 hex in MAC address in decimal)	This value is added to the value of Pr.09-53 * 65536
Pr.09-53	BACnet device address, high word (range 0-63)	-	This value is multiplied by 65536 and added to the value of Pr.09-52
Pr.09-75	IP setting	0	0: Static IP 1: Dynamic Distribution IP (DHCP)
Pr.09-91	BACnet IP or Ethernet	1	0: BACnet/ Ethernet 1: BACnet/IP

If static IP is chosen (Pr.09-75 = 0), then the following parameters must be set according to your local network configuration:

Parameter	Function	Set value (Dec)	Explanation
Pr.09-76	IP address -1	192	IP address 192.168.1.5
Pr.09-77	IP address -2	168	IP address 192.168.1.5
Pr.09-78	IP address -3	1	IP address 192.168.1.5
Pr.09-79	IP address -4	5	IP address 192.168.1.5
Pr.09-80	Netmask -1	255	Netmask 255.255.255.0
Pr.09-81	Netmask -2	255	Netmask 255.255.255.0
Pr.09-82	Netmask -3	255	Netmask 255.255.255.0
Pr.09-83	Netmask -4	0	Netmask 255.255.255.0
Pr.09-84	Default gateway -1	192	Default gateway 192.168.1.1
Pr.09-85	Default gateway -2	168	Default gateway 192.168.1.1
Pr.09-86	Default gateway -3	1	Default gateway 192.168.1.1
Pr.09-87	Default gateway -4	1	Default gateway 192.168.1.1

8-11-6 LED Indicator

Color	LED Pattern	Indication
Red	On	Hardware startup before system is running
Red	Blinks in a regular repeating pattern 1 second on, 1 second off.	Hardware failure
Green	Blinks in a regular repeating pattern 1 second on, 1 second off.	OK
Amber	Blinks at approx. 100 Hz	Flash loading Main from Boot
Amber	On	Database saving or restoring from Flash