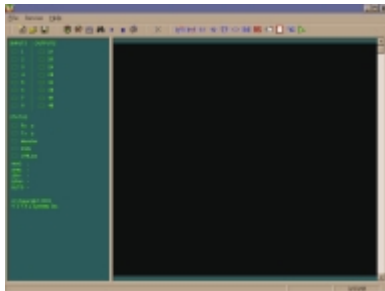


OMNIACCUM-DNET88

INSTALLATION AND TECHNICAL MANUAL




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1.0 Product Overview

The OmniAccum-DNET88 is a 24 VDC accumulation control device for brushless motorized roller conveyor. The OmniAccum is equipped with 8 sourcing inputs and 8 open collector outputs. The OmniAccum controller can control up to 8 zones of accumulation conveyor. It is embedded with an accumulation program that can be configured through software for specific accumulation applications. The OmniAccum physical design allows it to be mounted directly in the channel of most conveyors. This feature enables a conveyor's controls to be more secure and modular. The OmniCon-DNET88 is compatible with all DeviceNet devices and networks. The OmniAccum is the ideal control solution for straight accumulation sections of brushless motorized roller conveyor. In areas where your motorized roller conveyor application is more complicated the programmable OmniCon-DNET88 model can be used to complement the OmniAccum.

2.0 Package Contents and Options

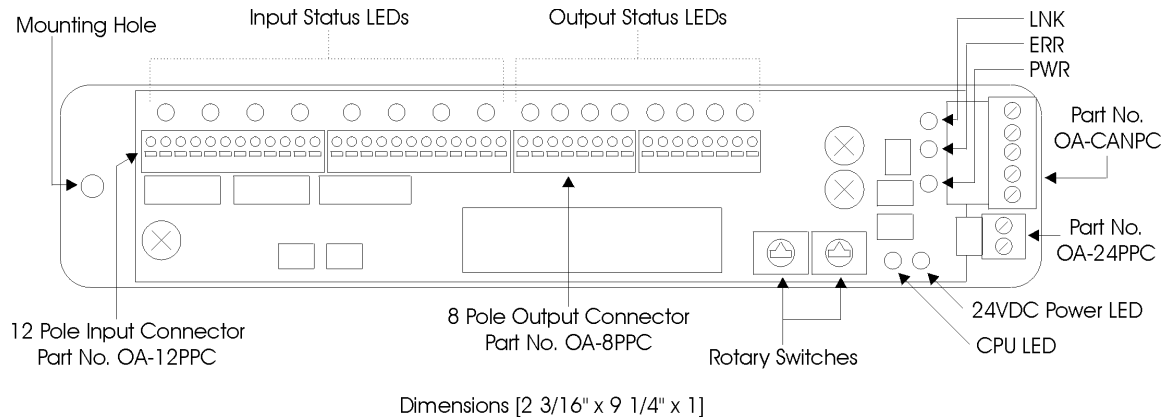
The following should be enclosed in your box:

1. One OmniAccum-DNET88 control device w/ mounting plate.
2. Instructions for the installation of the OmniAccum-DNET88 device.

Optional components:

Part Number	Description
OA-8PPC	8 pole, gold plated output plug connector.
OA-12PPC	12 pole, gold plated input plug connector.
OA-CANPC	5 pole, plug for DeviceNet network.
OA-24PPC	2 pole, plug for board power.

3.0 OmniAccum-DNET88 Hardware Layout and Properties



Outputs

1. 8 independent control outputs (common ground).
2. NPN open-collector type.
3. Maximum switching current of 0.5A at 24VDC.
4. Voltage drop; 0.06VDC @ 100mA, 0.35VDC @ 500mA

Inputs

1. 8 normally open type.
2. Sourcing signal required from sensor, 12 – 24VDC.
3. Signal current is 0.1mA nominal.
4. Sensor current from module limited to 1.25A.

Network

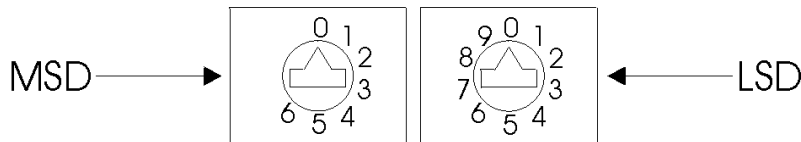
1. 18 – 24VDC network bus power.
2. CAN Controller – Philips SJA1000.
3. Optically isolated driver circuits with fast opto-couplers.

4.0 Mounting of OmniAccum-DNET88

The device can be mounted in an enclosure or directly into the conveyor channel. The mounting holes can accommodate #10-32 screws.

5.0 MacID or Node Address Setting

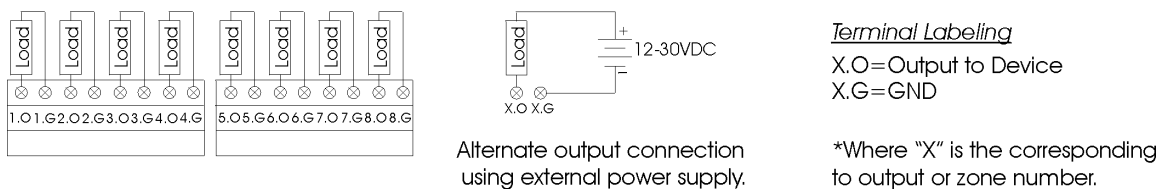
Set the device node address by adjusting the two rotary switches located. A device on a DeviceNet network must have a node address between 0 and 63. The factory default rotary switches and node address is 63. To set node address with the rotary switches adjust the switches with a small screwdriver to desired setting, and then cycle the power to the device. The rotary switches are read at power-up.



**The rotary switches are shown in the “0” position, corresponding to node address “0”.

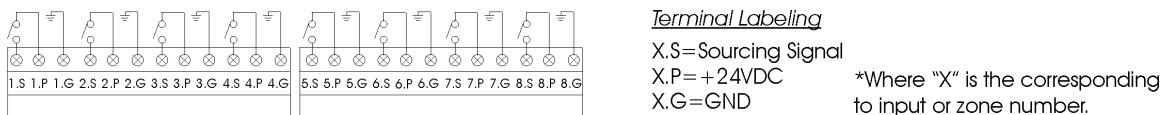
6.0 Wiring Connections

Outputs Wiring Diagram



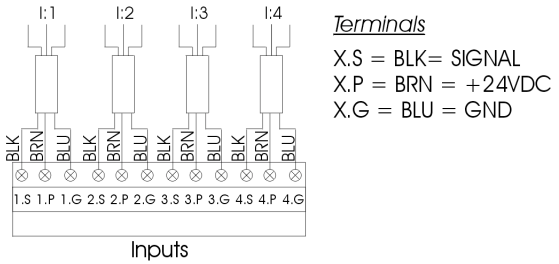
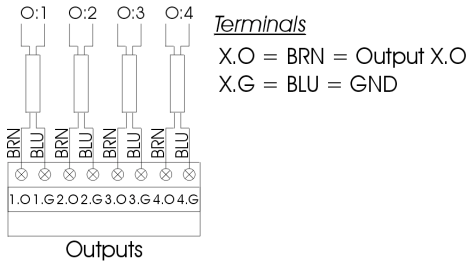
20 to 24 AWG Recommended for Spring Loaded Input/Output Terminals.
Terminal Labels can be changed to reflect user's application.

Input Wiring Diagram

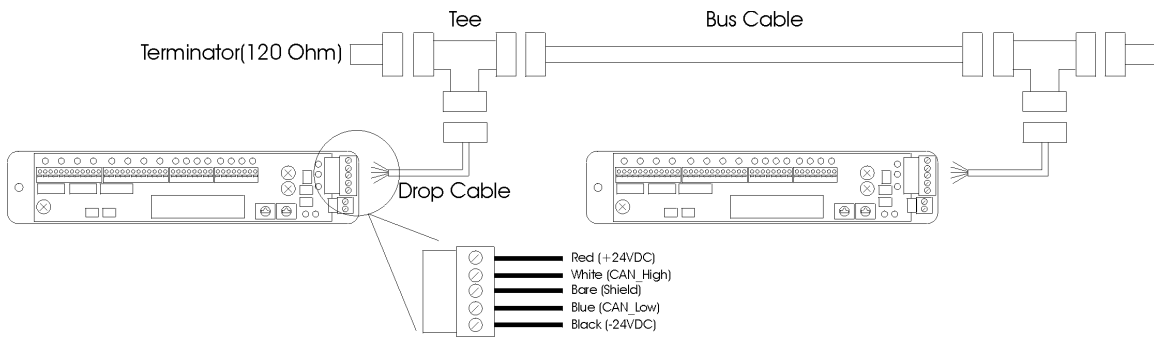


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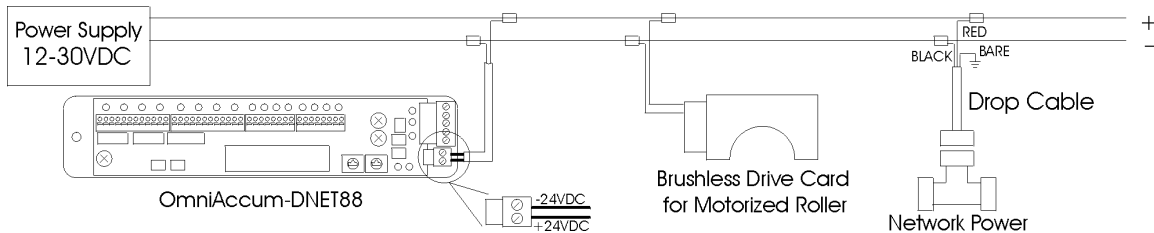
Standard Omni Automation Cable Connections



Network Wiring Connections

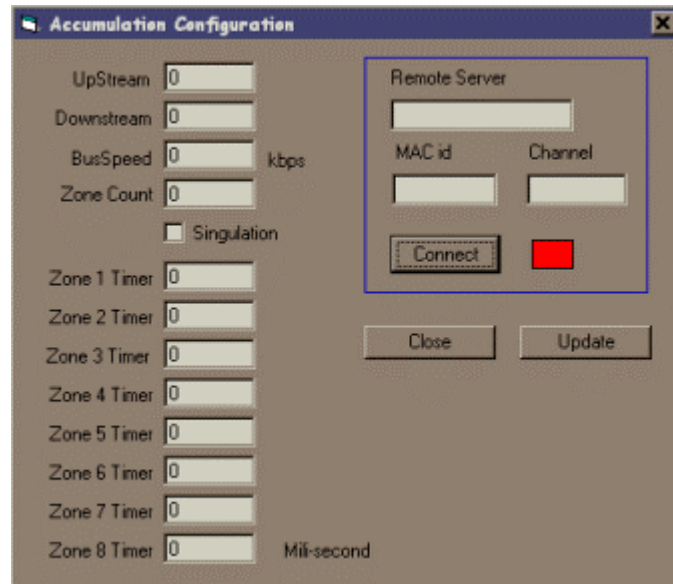


Power Wiring Connections



7.0 Accumulation Configuration Software

The following software utility is included with the OmniAccum-DNET88:



The connection to the OmniAccum devices is created through the network via an OmniPCI network card or other DeviceNet network interface. The following parameters can be configured through this software:

1. Upstream and Downstream node address of corresponding Omni devices.
2. BusSpeed: 125, 250, or 500 kbps, set this parameter to desired network speed.
3. Zone Count: The number of zones the device is controlling.
4. Mode of accumulation operation: If box is checked the OmniAccum-DNET88 device is in singulation mode, otherwise it is in slug mode.
 - a. Singulation Mode – A unit of product will not be released to the downstream zone unless it is completely empty and not running.
 - b. Slug Mode- A unit of product will be released to the downstream zone if it is running or empty.
5. Timers (1-8): These timers are adjusted accordingly for product and zone size.
6. The Mac id: The node address of the corresponding OmniAccum-DNET88 device.

8.0 DeviceNet™ Specifications

The OmniAccum-DNET88 applies the DeviceNet communication protocol. The OmniAccum-DNET88 is defined as a slave device on the DeviceNet network. Furthermore, it utilizes the explicit messaging set to communicate peer-to-peer to other OmniAccum-DNET88 and OmniCon-DNET88 devices. This feature enables the OmniAccum-DNET88 to be polled by a master DeviceNet device for status information without compromising the network interlocking capabilities between OmniAccum-DNET88 devices.

8.1 Polled Messaging

The OmniAccum-DNET88 supports the polled messaging connections between itself and the master device on the DeviceNet network. A master device initiates the polled message connection by sending a poll data message to the OmniAccum-DNET88 device. The master device can poll the OmniAccum-DNET88 for I/O condition status, communication interlocking data, mode of device, and start state.

Polled Data Format

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	In 8	In 7	In 6	In 5	In 4	In 3	In 2	In 1
Byte 1	Out 8	Out 8	Out 8	Out 8	Out 8	Out 8	Out 8	Out 8
Byte 2	1	1	Ready to Upstream	Dnstream Ready	Package Exiting	Package Arriving	Start Mode	Program Mode

9.0 Status LEDs

The OmniAccum-DNET88 features status LEDs for visual condition verification and troubleshooting inputs and outputs.

I/O LEDs	Illumination	Description
Input LEDs (1 - 8)	Green	The corresponding input state is being energized.
	Off	The corresponding input state is not being energized.
Output LEDs (1 – 8)	Green	The corresponding output is being enabled.
	Off	The corresponding output is not being enabled.

Mainboard LEDs	Illumination	Description
PWR	Green	Correct power supplied to OmniAccum.
	Off	Power not supplied to the OmniAccum.
CPU	Blink green rapidly	OmniCon-DNET88 is in “RUN” mode.
	Blink green in Heartbeat rhythm	OmniCon-DNET88 is in “PROGRAM” mode.

Network LEDs	Illumination	Description
LNK	Blink green	Transmit or Receive a message via the network.
	Off	Idle communication state.
ERR	Red	Network at device down, network communication is not possible.
	Blink Red	Device failed duplicate MacID test for network.
PWR	Green	Correct Power supplied to DeviceNet network.
	Off	Power not supplied to DeviceNet network.

10.0 Hardware Protection

Hardware Components	Protection Description
Board Power Circuitry	Reverse polarity protection.
Output Circuitry	Back EMF distortion protection.
Input Circuitry	Short circuit protection.
CAN Circuitry	Reverse polarity protection.

11.0 Specifications

Product Type	Digital I/O field device
Function	Accumulation controller for brushless motorized roller conveyor.
Network	DeviceNet
Voltage Range	Module: 12 – 30VDC; Network 18 – 30VDC
Current Consumption	Module: 210mA Max @ 24VDC, excluding motor or sensor current; Network: 40mA max.
Operating Temperature Range	-30 °C to 70 °C { -22 °F to 158 °F }
Storage Temperature Range	-55 °C to 85 °C { -67 °F to 185 °F }
Humidity	95% RH, non-condensing
Standards	Pending
Shock	10 g
Vibration	2 G, 10 to 50 Hz
Dimensions	2 3/16" x 9 1/4" x 1"
Housing Material	Steel mounting plate
Weight	0.5 lbs.
Mounting	#10-32 screws
Inputs	8 N.O., sourcing sensors required; 12 – 24VDC
Input Signal Current	0.1mA nominal
Sensor Input Power	Powered from module, sharing common power. Module input current limited to 1.25A
Outputs	8 independent control outputs (common ground)
Output Type	NPN open collector outputs
Output Voltage Drop	0.06VDC @ 100mA, 0.35VDC @ 500mA
Max. Output Current	500mA maximum
Output Leakage Current	10µA maximum
Serial Port	1 RS232 port. 9600, 8bits, no parity, 1 stop bit; Modem cable compatible.
Wire Size (Recommended)	18 to 24 AWG stranded or solid
I/O Connectors	Spring loaded terminals with quick disconnect