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Find the *MKS Instruments CDN391R* at our website: *Click HERE*



DeviceNet™ 48 Bi-Directional Digital I/O

Type CDN391

DeviceNet Classes

Class Code	Object	Type
1	(0x01)	Identity
2	(0x02)	Router
3	(0x03)	DeviceNet
4	(0x04)	Assembly
5	(0x05)	Connection
8	(0x08)	Digital Input Point
9	(0x09)	Digital Output Point
48	(0x30)	Device Supervisor Object
64	(0x40)	Configuration Object
80	(0x50)	Virtual Processor Object *
81	(0x51)	Counter Object *
82	(0x52)	Timer Object *
83	(0x53)	Comparator Object *

The DN137 DeviceNet application interface conforms to the specifications as published by the Open DeviceNet Vendor's Association.

Features and Benefits

- ☐ 100 X 220 mm X 3 U, 6 HP, DeviceNet I/O Block
- ☐ 48 Bi-directional Digital I/O (24 Vdc)
- ☐ Switch settable MacID and Baud Rate
- ☐ 96 pin DIN Interface connector
- ☐ On board Thermal monitoring/fan control
- ☐ Power monitoring
- ☐ ODVA/SemiSig Device Supervisor Object
- ☐ CCO Control Objects

Description

The CDN391 provides a high density DeviceNet Digital I/O controller. The unit may be rack mounted in standard Euro compatible card cage, used in stand alone control systems or integrated into DIN rail mounted carrier.

The CDN391 supports 48 bi-directional I/O which may be freely mixed between inputs and outputs. When used as an output the actual input state may be read to verify signal integrity.

On board monitoring of the digital supply voltages ensure that external power sources are within specification. Thermal monitoring provides both software as well as hardware control over a over temperature (FAN) output. Processor power is monitored to ensure integrity and all outputs are forced to an inactive state in cases of power degradation.

Rotary switches provide control over the DeviceNet MacID and Baud Rate settings. The DeviceNet signaling is optically isolated from all I/O. On board isolated DC-DC converters provide processor (+5 Vdc) power from the DeviceNet 11-25 Vdc supply voltage.

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DeviceNet Model

The CDN391 supports standard DIP and DOP application objects for I/O interfaces. These objects are augmented with a Device Supervisor Object, a Device Configuration object and CCO application program objects.

User selectable options within the Configuration Object allow the CDN391 to be tailored to specific applications by limiting the data transfers to exactly match the I/O requirements. The configuration object also provides access to the thermal and power monitoring status and control bits.

CCO allows user application programs to be installed on the CDN391 to provide fast, real time control over digital points. CCO provides a Boolean control language supported by counters, timers and comparators.

Hardware Configuration Options

Hardware options for the CDN391 include whether the unit has on board rotary switches for setting DeviceNet parameters.

The unit may be installed in a standard 3 U X 4HP card rack allowing very high-density I/O solutions. Alternatively the unit may be treated as a daughter board subassembly using the alternative DIN connector interface.

On board power monitoring ensures that the local processor power is within 5% of the specified 5 Vdc level. Processor power failure will force a hardware reset to the unit and force all outputs to the OFF (minimum voltage) state.

Auxiliary power monitoring on the 24 Vdc Digital supply is provided with both local LED indicators and DeviceNet alarm monitoring. On board thermal monitoring provides an indication of the current operating temperature of the unit. The thermal monitor provides an active low output signal that can provide hardware control over an external FAN or Warning system.

The digital and DeviceNet subsystems are optically isolated to ensure a minimum of cross talk and ground loop issues.

I/O Connections

The CDN391 provides 2 parallel 96 pin DIN connectors, mounted at right angles. One connector is used for rack mounting the CDN391. The second connector may be used when the CDN391 is to be treated as a daughter board. In addition to all I/O signals the DIN connectors carry the DeviceNet signals, the MacID and Baud Rate switch inputs and the auxiliary I/O power.

The CDN391 is a member of the DIP Euro Card Device Net controller family and provides a high density, low cost per point solution for a wide range of acquisition and control applications.

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96-Pin DIN Connector

PIN #	FUNCTION	PIN #	FUNCTION	PIN #	FUNCTION
A1	DI/O 1	B1	RESERVED	C1	DI/O 0
A2	DI/O 3	B2	RESERVED	C2	DI/O 2
A3	DI/O 5	B3	RESERVED	C3	DI/O 4
A4	DI/O 7	B4	RESERVED	C4	DI/O 6
A5	DI/O 9	B5	RESERVED	C5	DI/O 8
A6	DI/O 11	B6	RESERVED	C6	DI/O 10
A7	DI/O 13	B7	RESERVED	C7	DI/O 12
A8	DI/O 15	B8	RESERVED	C8	DI/O 14
A9	DI/O 17	B9	RESERVED	C9	DI/O 16
A10	DI/O 19	B10	Fan Output	C10	DI/O 18
A11	DI/O 21	B11	BAUD RATE 0 *	C11	DI/O 20
A12	DI/O 23	B12	BAUD RATE 1 *	C12	DI/O 22
A13	DI/O 25	B13	MACID 0 *	C13	DI/O 24
A14	DI/O 27	B14	MACID 1 *	C14	DI/O 26
A15	DI/O 29	B15	MACID 2 *	C15	DI/O 28
A16	DI/O 31	B16	MACID 3 *	C16	DI/O 30
A17	DI/O 33	B17	MACID 4 *	C17	DI/O 32
A18	DI/O 35	B18	MACID 5 *	C18	DI/O 34
A19	DI/O 37	B19	MACID 6 *	C19	DI/O 36
A20	DI/O 39	B20	CONFIG COMM *	C20	DI/O 38
A21	DI/O 41	B21	DNET V- *	C21	DI/O 40
A22	DI/O 43	B22	DNET CAN H *	C22	DI/O 42
A23	DI/O 45	B23	DNET CAN L *	C23	DI/O 44
A24	DI/O 47	B24	DNET V+ *	C24	DI/O 46
A25	24VCOM	B25	SHIELD	C25	24VCOM
A26	24VCOM	B26	24VCOM	C26	24VCOM
A27	24VCOM	B27	24VCOM	C27	24VCOM
A28	24VCOM	B28	24VCOM	C28	24VCOM
A29	24VCOM	B29	24VCOM *	C29	24VCOM
A30	24VCOM	B30	24VCOM *	C30	24VCOM
A31	24VCOM	B31	24V *	C31	24VCOM
A32	24VCOM	B32	24V *	C32	24VCOM

Specifications

Specification	Min	Typ.	Max	Description
DeviceNet				ISO 11898 transceiver, optically coupled
MacID	0		63	Hardware settable (switch/backplane), Software settable
Data Rate	125		500	Kbit/second, hardware or software settable
Vpwr	11		25	Vdc
Ipwr		250	400	mA at 24 Vdc
Digital Inputs				48 Channels, linked to Digital Outputs
Ion	-4			mA
Ioff			-2	mA – Corresponding output must be in OFF state
Vin	-1		28	Vdc
Digital Outputs				48 Channels, linked to Digital Inputs
Ion	100		200	Individual channels will drive up to 200 mA. Dissipation should be limited to 800 mA for each group of 8 channels, averaging 100 mA / channel.
Ioff			.1 mA	Off leakage current for voltages less than VDIO
VOL	.9		1.1	@ 100 mA load
	1.1		1.2	@ 200 mA load
Digital Power				
VDIO	18	24	28	Vdc.
IDIO		40		mA + 6 mA / active I/O point
Fan Output				
Vol			1	Vdc @ 100 mA
Voh			28	Vdc (off condition)
Ion			100	MA @ 24 Vdc

Specifications are subject to change without notice.
The DN125 has been designed to operate in a DeviceNet compatible industrial environment.
DeviceNet™ is a trademark of the Open DeviceNet Vendor Association.

Ordering Information

CDN391 DeviceNet 48 Bi-Directional Digital I/O

CDN391

Type Number	CDN391
CDN391	Digital I/O 48 Analog Input 0 Analog Output 0 +/- Vdc Not Available Switches Yes
CDN391-4	Digital I/O 48 Analog Input 0 Analog Output 0 +/-Vdc Not Available No switches

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