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CompactBlock LDX I/O

TECHNICAL DATA



1790D SERIES



The table shows what CompactBlock LDX I/O for DeviceNet base and expansion modules are available with screw terminations (terminal blocks).

CompactBlock LDX I/O Modules with Screw Terminations

Terminal Blocks	Description
1790D-T0A6	120V ac, 6 output base module
1790-T0A8X	120V ac, 8 output expansion module
1790D-T0B16	24V dc, 16 sourcing output base module
1790-T0B16X	24V dc, 16 sourcing output expansion module
1790D-T0B32	24V dc, 32 sourcing output base module
1790D-T0V16	24V dc, 16 sinking output base module
1790-T0V16X	24V dc, 16 sinking output expansion module
1790D-T0V32	24V dc, 32 sinking output base module
1790D-T0W6	6-relay output base module
1790-T0W8X	8-relay output expansion module
1790D-T16BV0	24V dc, 16 universal input base module
1790-T16BV0X	24V dc, 16 universal input expansion module
1790D-T32BV0	24V dc, 32 universal input base module
1790D-T8A0	120V ac, 8 input base module
1790-T8A0X	120V ac, 8 input expansion module
1790D-T8BV8B	24V dc, 8 universal input/8 sourcing output base module
1790-T8BV8BX	24V dc, 8 universal input/8 sourcing output expansion module
1790D-T16BV16B	24V dc, 16 universal input/16 sourcing output base module
1790D-T8BV8V	24V dc, 8 universal input/8 sinking output base module
1790-T8BV8VX	24V dc, 8 universal input/8 sinking output expansion module
1790D-T16BV16V	24V dc, 16 universal input/16 sinking output base module
1790D-T4R0	4-channel input RTD base module
1790D-T4T0	4-channel input thermocouple base module
1790D-TN0C2	2-channel analog current output module
1790D-TN0V2	2-channel analog voltage output module
1790D-TN4C0	4-channel analog current input module
1790D-TN4V0	4-channel analog voltage input module

I/O Status Indicators - Analog Base Modules

1790D-NOV2, 1790D-TNOV2 Analog Voltage Output Module		1790D-NOC2, 1790D-TNOC2 Analog Current Output Module	
Status	Description	Status	Description
Flashing Green/Red	Power up	Flashing Green/Red	Power up
Off	Offline	Off	Offline
Off	Online and no field power	Off	Online and no field power
Solid Green	DeviceNet connection and no field power	Green	DeviceNet connection and no field power
Solid Green	Field power and open wire	Green	Field power and open wire
Solid Green	Field power and valid output	Green	Field power and valid output
Flashing Red	Field power and output out of range	Flashing Red	Field power and output out of range
Flashing Green	Output idle	Flashing Green	Output idle
Flashing Red	Recoverable fault	Flashing Red	Recoverable fault

I/O Status Indicators - Analog Base Modules

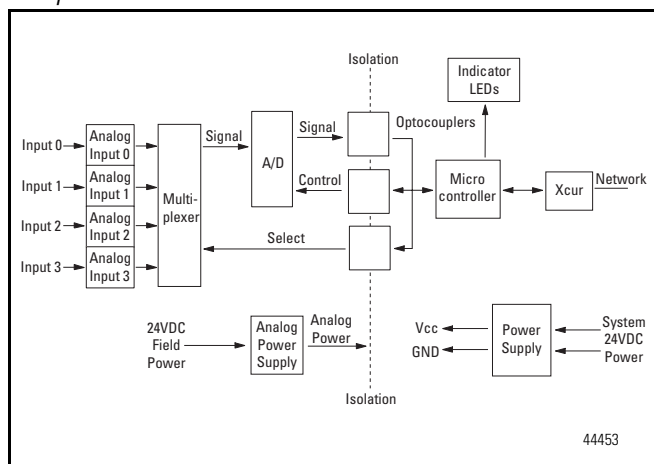
1790D-N4V0, 1790D-TN4V0		1790D-N4C0, 1790D-TN4C0	
Status	Description	Status	Description
Flashing Green/Red	Power up	Flashing Green/Red	Power up
Off	Offline	Off	Offline
Solid Red	Online and no field power	Red	Online and no field power
Solid Red	DeviceNet connection and no field power	Red	DeviceNet connection and no field power
Solid Green	Field power and open wire	Flashing Red ⁽¹⁾	Field power and open wire (4...20 mA range only) ⁽²⁾
Solid Green	Field power and valid input	Green	Field power and valid input
Solid Green	Input over range	Green	Input over range
Solid Green	Input under range	Flashing Red ⁽¹⁾	Input under range < 3 mA (4...20 mA range only) ⁽²⁾
Flashing Red	Recoverable fault	Flashing Red	Recoverable fault

⁽¹⁾ Green for 0...20 mA range.

⁽²⁾ Can be determined from the data table.

4 Channel Analog Voltage Input Module (1790D-TN4V0)

Simplified Schematic



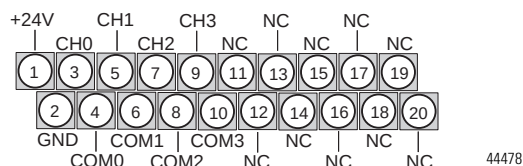
Connection Sizes

Module	I/O Points	Produce (input bytes)	Consume (output bytes)
1790D-TN4V0	4 channel	10	0

Word/Bit Definitions

Word	Decimal Bit	Description
Read Word 0	Bits 00...11	Channel 0 input data
	Bits 12...15	Not used: Set to 0
Read Word 1	Bits 00...11	Channel 1 input data
	Bits 12...15	Not used: Set to 0
Read Word 2	Bits 00...11	Channel 2 input data
	Bits 12...15	Not used: Set to 0
Read Word 3	Bits 00...11	Channel 3 input data
	Bits 12...15	Not used: Set to 0
Read Word 4	Bits 00...03	Status bits for individual channels - Bit 00 corresponds to input channel 0, bit 01 corresponds to input channel 1.... When set (1) indicates: No field power Open wire (4...20 mA current input only) Under range (4...20 mA current input only) Recoverable module fault (whole channel to be set) Unrecoverable module fault (whole channel to be set)
	Bits 04...15	Not used: Set to 0

Wiring Diagram for Terminal Block



- Wire pin 1 to Field Power (+) 24V dc.
- Wire pin 2 to Field Power (-) GND.

Input Data File

Word	Bit Position															
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	Not Used				Analog Input Data Channel 0											
1	Not Used				Analog Input Data Channel 1											
2	Not Used				Analog Input Data Channel 2											
3	Not Used				Analog Input Data Channel 3											
4	Not Used														S3	S0

Module Specifications

1790D-TN4V0	
Attribute	Value
Inputs per module	4 channel single-ended, nonisolated
Input voltage	0...10V
Resolution	12 bits-unipolar, 1/4096 max, 2.44 mV/bit
Converted data	Binary data 0000 to 0fff (max scale)
Conversion time	10 ms/channel
Overall accuracy	0.2% Full scale @ 0...55 °C
Calibration	None required
Input impedance	500 KΩmin
Insulation resistance	20 mΩmin @ 250V dc (between insulated circuits)
General Specifications	
DeviceNet power	Supply voltage - 24V dc nom Voltage range - 11...28.8V dc Power dissipation - 1.2 W max @ 28.8V dc
Field power	Supply voltage - 24V dc nom Voltage range - 21.6...26.4V dc (±10%) Power dissipation - 1.5 W max @ 26.4V dc
Isolation	I/O to logic: photocoupler isolation Isolation voltage: Type Test 1250V ac rms for 60 s DeviceNet to logic: nonisolated Field power: nonisolated
Indicators	4 red/green I/O status
Wiring	Terminal block (M3.0) - screw torque: 7 lb-in max (use copper or copper-clad aluminum conductors)

IMPORTANT: This analog base module can accommodate a **maximum** of two discrete expansion modules.