

SIGNAL CONDITIONER FOR PROGRAMMABLE LOGIC CONTROLLERS

HE-X Series



- Designed for Use with any Programmable Logic Controller (PLC)
- Multi-Channel Inputs and Outputs
- Convert AC Inputs to DC Outputs
- Convert DC Inputs to AC Outputs
- Convert DC Inputs to Relay Outputs
- Convert PWM Inputs to Analog Outputs (4 to 20 mA, 0 to 10V)
- Convert DC Inputs to Solid State Outputs (24V AC/DC, 3A)
- DIN Rail Mountable

TRODEX offers several general-purpose signal conditioning products designed to augment the capabilities of any programmable logic controller (PLC). These products allow normally incompatible signals and loads (AC inputs, AC outputs, etc.) to easily interface with any PLC. Three categories of these products are available—those which convert AC inputs to DC outputs and DC inputs to AC outputs, those which drive specialized digital output loads, and those which allow analog outputs to be generated from digital, PWM outputs.

One model allows the connection of AC signals to PLCs having only digital inputs: the HE-XDIA converts 120/240 Vac inputs to 24 Vdc (8 points).

Three signal conditioning devices allow the standard 24 Vdc, 0.5 A outputs of the XL Series OCS to drive specialized loads. The solid-state HE-XDQA allows a 120/250 Vac load to be driven at up to 2 A (four points). The solid state HE-XDQD will drive a 24 Vac/24 Vdc load at up to 3 A (four points). The mechanical HE-XDQR can drive up to a 10A load, supporting voltages of 120/250 Vac, and 24/30 Vdc (four points).

Two signal conditioning devices provide a PLC with additional analog outputs, by converting 24 Vdc PWM outputs already present on the controllers. The HE-XPC converts 24 Vdc PWM outputs to 4 to 20 mA (2 channels), while the HE-XPV converts 24 Vdc PWM outputs to 0 to 10V (two channels).

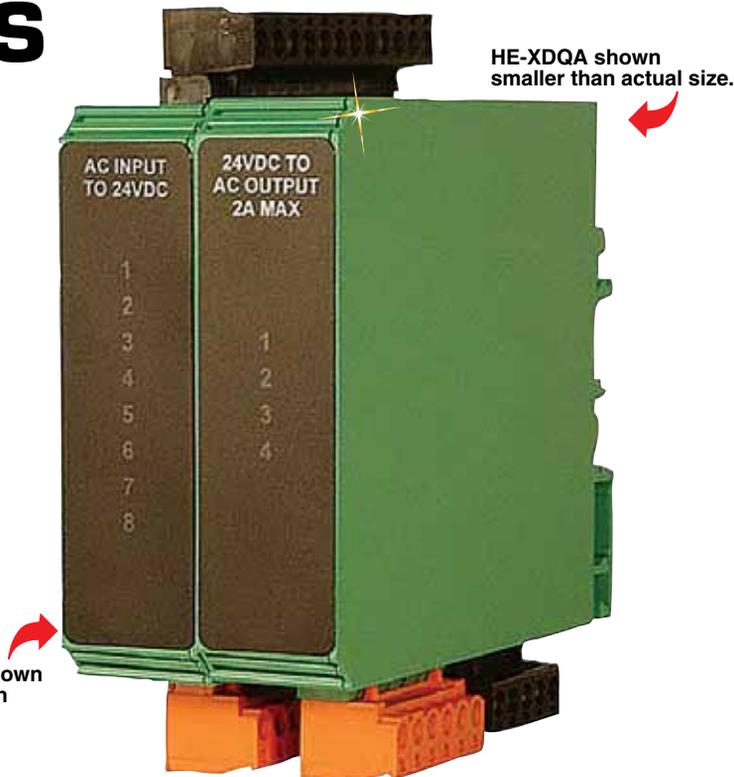
HE-XDIA SPECIFICATIONS

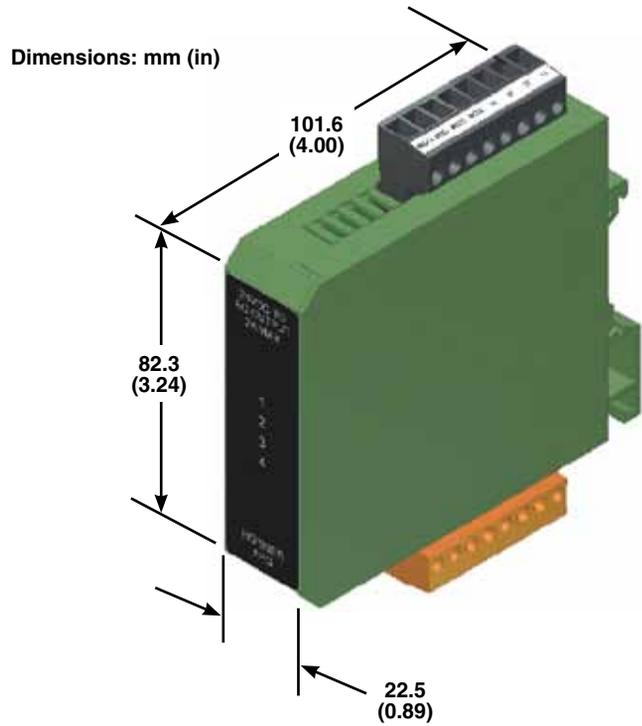
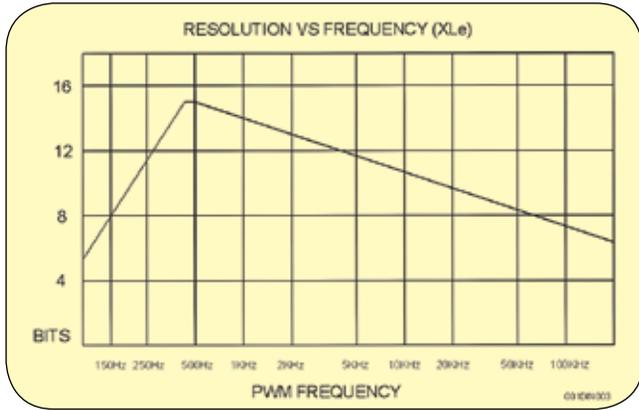
Channels per Module: 8
Isolated Commons: 1
Nominal Input Voltage: 120/240 Vac
Maximum Input Voltage: 275 Vac
Nominal Input Impedance: 0.01 μ F + 10 k Ω
Nominal AC Frequency: 60 Hz
ON Voltage Level: 60 Vac min
OFF Voltage Level: 30 Vac max
Isolation to PLC Common: 1500 Vdc
Minimum ON Current: 2.2 mA
Maximum OFF Current: 1.1 mA
ON Response Time Excluding PLC Response: 1 mS
OFF Response Time: 25 mS
Status Indication: 8 LEDs
DC Output Type: Positive logic, sourcing
Steady State Power, Inputs ON, Unit Connected to PLC: 60 mA @ 24 Vdc
Peak Supply Current: 250 mA max

Operating Power Range: 18 to 30 Vdc
Safe Applied Power Range: -0.3 to 33 Vdc
Relative Humidity: To 95% non-condensing
Operating Temperature: 0 to 50°C (32 to 122°F)
Terminal Type: Screw type, 5 mm (0.20") removable

HE-XDQA SPECIFICATIONS

Channels per Module: 4
Isolated Commons: 1
Nominal Load Voltage: 120/240 Vac
Maximum Load Voltage: 275 Vac
Nominal DC Input Impedance: 1 k Ω
Nominal AC Frequency: 60 Hz
ON Input Level: 18 Vdc min
OFF Input Level: 6 Vdc max
Maximum DC Input Range: -0.3 to 30 Vdc
AC Isolation to PLC Common: 1500 Vdc
Maximum ON Load Current: 2 A AC
Maximum OFF Leakage Current at 120 Vac: 1.0 mA AC
ON Response Time Excluding PLC Scan Time: 9 mS max
OFF Response Time: 9 mS max
Status Indication: 4 LEDs
DC Input Type: Positive logic, sinking





Steady State Power, Inputs ON:

100 mA @ 24 Vdc
Peak Supply Current: N/A
Operating Power Range: N/A
Safe Applied Power Range: N/A
Relative Humidity: 5 to 95% non-condensing

Operating Temperature: 0 to 50°C (32 to 122°F)

Terminal Type: Screw type, 5 mm (0.20") removable

HEXPV/HEXPC SPECIFICATIONS

Channels per Module: 2

Nominal PWM Input Voltage: 24V P-P

Maximum Input Voltage Range: -0.5 to 33 Vdc

Nominal Input Impedance: 2.1 kΩ to common

Max Upper Input Threshold: 18 Vdc

Min Lower Input Threshold: 6 Vdc
Step Change Response to 50%: 12 ms
PWM Ripple Feed Through 150 Hz, 50% Duty Cycle: 0.40% of full scale, P-P
250 Hz, 50% Duty Cycle: 0.04% of full scale, P-P
500 Hz, 50% Duty Cycle: 0.0015% of full scale, P-P

Isolation: None
0 to 10V Outputs (HEXPV):

Minimum Load: 500Ω
Output Clamp: -0.5/+12 Vdc

0 to 20 mA Outputs (HEXPC):
Type: Sourcing

Maximum Load: 500Ω
Output Clamp: -0.5/+12 Vdc

FS Calibration Accuracy: 0.25%
System Linearity including XLE: 0.75% Accuracy thru 10 to 90% DC of PWM Input

HEXPV Minimum Output Voltage: 0.15V typical

HEXPC Minimum Output Current: 0.15/ (100+RLoad) typical

Required Power (Steady State): 60 mA @ 24 Vdc

Required Power (Inrush): 15 A @ μS
Operating Power Range: 18 to 30 Vdc

Safe Applied Power Range: -33 to 33 Vdc

Relative Humidity: To 95% non-condensing

Operating Temperature: 0 to 50°C (32 to 122°F)

Terminal Type: Screw type, 5 mm (0.20") removable

Weight: 85 g (3 oz)

To Order

MODEL NO.	DESCRIPTION
HE-XDIA	8 channel, 120/240 Vac inputs to 8 channel, 24 Vdc outputs
HE-XDQA	24 Vdc, 0.5 A inputs to 120/250 Vac 2 A outputs, 4 channels
HE-XDQR	24 Vdc, 0.5 A inputs to 10 A relay outputs (120/250 Vac, 24/30 Vdc), 4 channels
HE-XDQD	24 Vdc, 0.5 A inputs to solid state outputs (24 Vac/Vdc, 3A), 4 channels
HE-XPC	Dual channel PWM to 4 to 20 mA analog converter
HE-XPV	Dual channel PWM to 0 to 10V analog converter

Ordering Example: HE-XDIA, 8 channel signal conditioner.