

# SIGNAL CONDITIONER FOR PROGRAMMABLE LOGIC CONTROLLERS



**HE-X Series  
Starts at  
\$130**



- 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

OMEGA 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:** 0.01uF + 10 kΩ  
**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

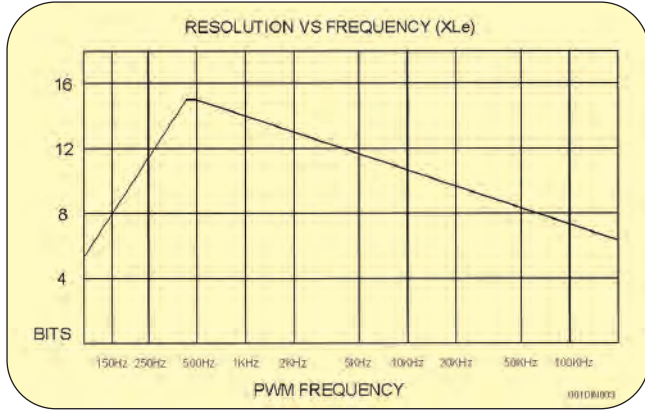
## HE-XDQA SPECIFICATIONS

**Channels per Module:** 4  
**Isolated Commons:** 1  
**Nominal Load Voltage:** 120/240 Vac  
**Maximum Load Voltage:** 275 Vac  
**Nominal DC Input Impedance:** 1 kΩ  
**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

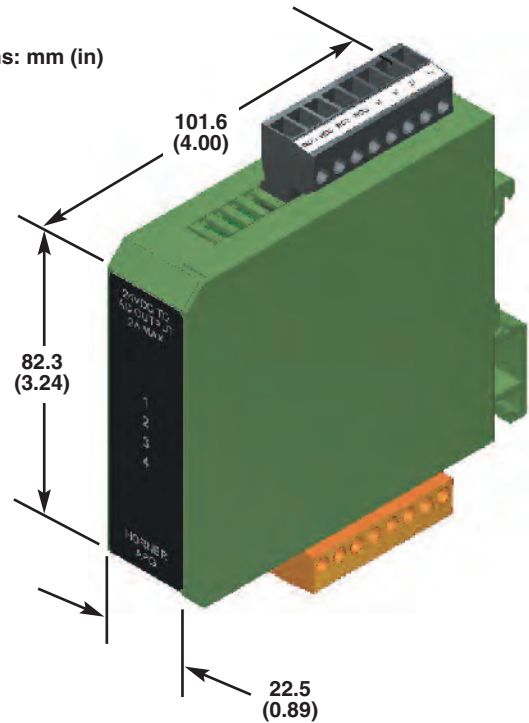


HE-XDQA, \$165, shown smaller than actual size.

HE-XDIA, \$165, shown smaller than actual size.



Dimensions: mm (in)



**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** (Specify Model Number)

**AVAILABLE FOR FAST DELIVERY!**

MODEL NO.	PRICE	DESCRIPTION
HE-XDIA	\$165	8 channel, 120/240 Vac inputs to 8 channel, 24 Vdc outputs
HE-XDQA	165	24 Vdc, 0.5 A inputs to 120/250 Vac 2 A outputs, 4 channels
HE-XDQR	165	24 Vdc, 0.5 A inputs to 10 A relay outputs (120/250 Vac, 24/30 Vdc), 4 channels
HE-XDQD	165	24 Vdc, 0.5 A inputs to solid state outputs (24 Vac/Vdc, 3A), 4 channels
HE-XPC	130	Dual channel PWM to 4 to 20 mA analog converter
HE-XPV	130	Dual channel PWM to 0 to 10V analog converter

Ordering Example: HE-XDIA, 8 channel signal conditioner, \$165.



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