AC Input /AC Output Module
HE800DIQ624
HE-DIQ624*
* HE- denotes plastic case.

For Revisions A through F:	For Revisions G and Higher:
120 VAC In, Positive Logic	**120 /240 VAC In, Positive Logic**
0–260 VAC Out, Positive Logic	**0–260 VAC Out, Positive Logic**

This datasheet also covers products starting with IC300.

NOTE: There are two models of DIQ624. The first model covers Revisions A through F. The second model covers Revisions G and higher.

1   SPECIFICATIONS

1.1   DIQ624 INPUTS – Revisions A Through F Only

Inputs per Module	8	Input Impedance	0.01 μF +10 K
Commons per Module	1	Isolation (Channel to Common)	500 VDC
Input Voltage Range	120–160 VAC	Minimum ON Current	1 mA.
Peak Voltage	160 VAC	Maximum OFF Current	200 μA.
AC Frequency	60 Hz	OFF to ON Response	50 ms.
ON Voltage Level	70 VAC Min.	ON to OFF Response	50 ms.
OFF Voltage level	30 VAC Max.	Status Indicator	8

1.2   DIQ624 INPUTS – Revisions G and Higher

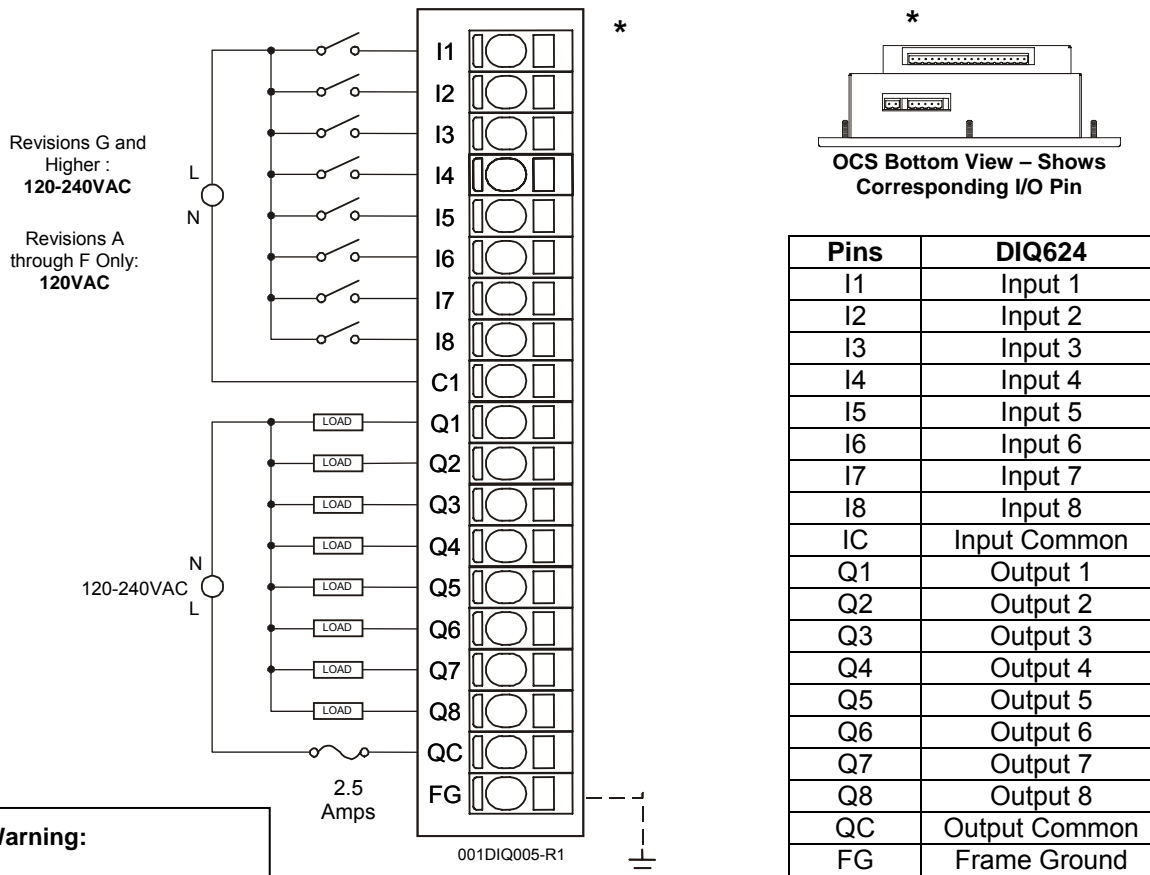|			
Inputs per Module	8	Input Impedance	0.01 μF +10 K
Commons per Module	1	Isolation (Channel to Common)	1500 VDC
Input Voltage Range	120–240 VAC	Minimum ON Current	1 ms.
Maximum Voltage	275 VAC	Maximum OFF Current	1 ms.
AC Frequency	60 Hz	OFF to ON Response	50 ms.
ON Voltage Level	70 VAC Min.	ON to OFF Response	50 ms.
OFF Voltage level	30 VAC Max.	Status Indicator	8 LEDs

1.3   DIQ624 OUTPUTS – ALL Revisions

Outputs per Module	8	Maximum Load Current per output	0.3 A Max.
Commons per Module	1	Maximum Leakage Current	15 μA Max.
Operating voltage	260 VAC Max.	Maximum Inrush Current	500 mA

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Output Type	MOSFET		OFF to ON Response	10 ms. Max.
Contact Voltage	260 VAC Max.		ON to OFF Response	3 ms. Max.
ON Voltage level	1 V Max.			
Isolation (Channel to Channel and Channel to Ground)	500 VDC		Status Indicator	8

General Specifications			
Required Power (Steady State)	0.18 W (7.7 mA @ 24 VDC)	Operating Temperature	0°–60° Celsius
Required Power (Inrush)	Negligible	Terminal Type	Spring Clamp, Removable
Relative Humidity	5–95% Non-condensing	Weight	9.5 oz. (256 g)
CE	See Compliance Table at http://www.heapg.com/Support/compliance.htm		
UL			

2   WIRING

Revisions G and Higher : **120-240VAC**

Revisions A through F Only: **120VAC**

L
N

120-240VAC
N
L

2.5 Amps

001DIQ005-R1

Warning:

To protect the module and associated wiring from load faults, use external fuse (2.5A) as shown.

This warning affects DIQ624, Revisions D or higher.

*

OCS Bottom View – Shows Corresponding I/O Pin

*

Pins	DIQ624
I1	Input 1
I2	Input 2
I3	Input 3
I4	Input 4
I5	Input 5
I6	Input 6
I7	Input 7
I8	Input 8
IC	Input Common
Q1	Output 1
Q2	Output 2
Q3	Output 3
Q4	Output 4
Q5	Output 5
Q6	Output 6
Q7	Output 7
Q8	Output 8
QC	Output Common
FG	Frame Ground

> **Warning:** To protect the module and associated wiring from load faults, use external fuse **(2.5A)** as shown. **This warning affects DIQ624, Revisions D or higher.**

> **Warning:** Connecting high voltage to any I/O pin may cause high voltage to appear at other I/O pins.

> **Warning:** Wiring the line side of the AC source to loads connected to outputs 1 through 8 and the neutral side of the AC source to the output common(s) would create a Negative Logic condition, which may be considered an unsafe practice.

3   INTERNAL CIRCUIT SCHEMATICS
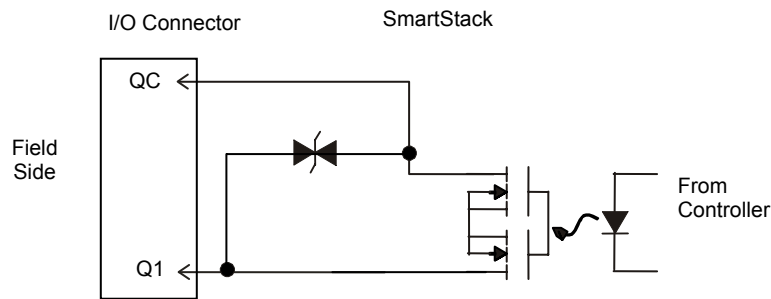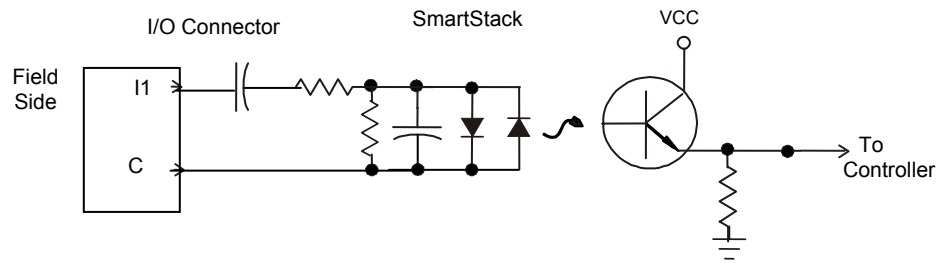
Specification for transient voltage suppressors (transorbs) used on output circuitry is 400 VDC, bi-directional 400 W.

4   CONFIGURATION

> **Note:** The status of the I/O can be monitored in Cscape Software.

Preliminary configuration procedures that apply to SmartStack™ Modules are contained in the hardware manual of the controller you are using. Refer to the Additional References section in this data sheet for a listing of hardware manuals.

Selecting the **I/O Map** tab provides information about the I/O registers, which are assigned to a specific SmartStack™ Module and where the module is located in the point map. The I/O Map is determined by the model number and location within the SmartStack™. The I/O Map is not edited by the user.

The **Module Setup** is used in applications where it is necessary to change the default states of the outputs when the controller (e.g., OCS100) enters idle/stop mode. The default turns the outputs OFF when the controller enters idle/stop mode. By selecting the Module Setup tab, each output can be set to either turn ON, turn OFF or to hold the last state. Generally, most applications use the default settings.
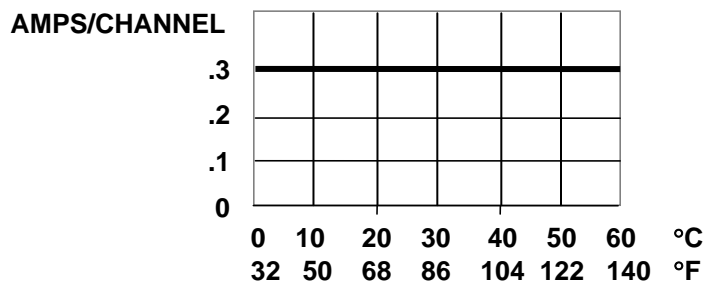
> **Warning:** The default turns the outputs OFF when the controller enters idle/stop mode. To avoid injury of personnel or damages to equipment, exercise extreme caution when changing the default setting using the **Module Setup** tab.

## 5   INPUT / OUTPUT CHARACTERISTICS

Digital Input Chart
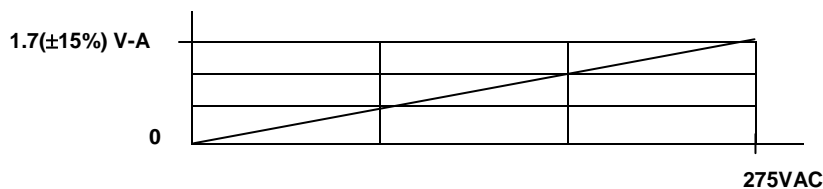
Derating Output Chart

The following applies to applications in which two-wire proximity switches are used as sensors for discrete AC inputs. For these applications, an external resistor *or* resistor/capacitor combination must be added to each input as shown below. The resistor provides a small current to power the proximity switch. The resistor is not required for other types of proximity switches.

120 VAC: 15 KΩ, 2 W resistor *or* 0.22 µF metallized film capacitor rated for 120 VAC service in series with 470 Ω, 0.5 W resistor.
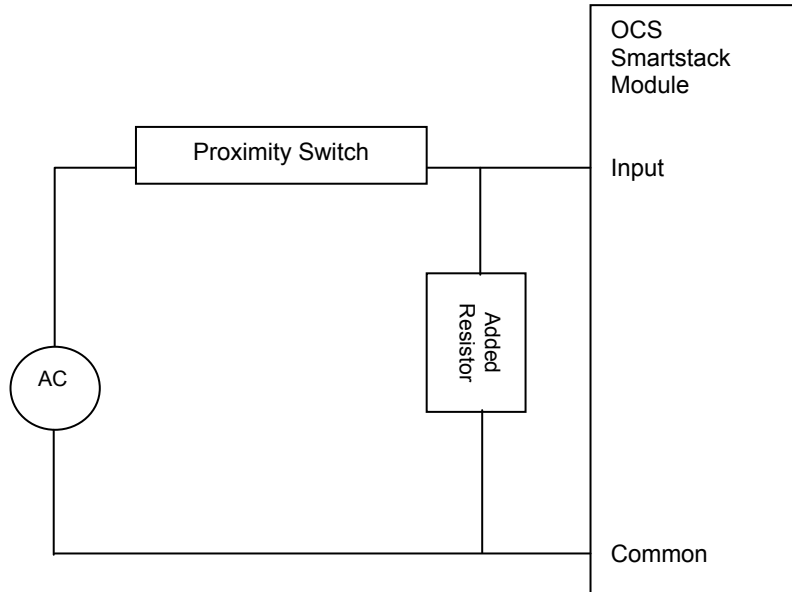
6   INSTALLATION / SAFETY

> **Warning:** Remove power from the OCS controller, CAN port, and any peripheral equipment connected to this local system before adding or replacing this or any module.

Use the following wire type or equivalent:

- Belden 8917

- 16 AWG or larger

For detailed installation and a handy checklist that covers panel box layout requirements and minimum clearances, refer to the hardware manual of the controller you are using. (See the Additional References section in this document.).

When found on the product, the following symbols specify:

 Warning: Consult user documentation.   **Warning:** Electrical Shock Hazard.

> **WARNING:** To avoid the risk of electric shock or burns, always connect the safety (or earth) ground before making any other connections.

> **WARNING:** To reduce the risk of fire, electrical shock, or physical injury it is strongly recommended to fuse the voltage measurement inputs. Be sure to locate fuses as close to the source as possible.

> **WARNING:** Replace fuse with the same type and rating to provide protection against risk of fire and shock hazards.

> **WARNING:** In the event of repeated failure, do not replace the fuse again as a repeated failure indicates a defective condition that will not clear by replacing the fuse.

> **WARNING:** Only qualified electrical personnel familiar with the construction and operation of this equipment and the hazards involved should install, adjust, operate, or service this equipment. Read and understand this manual and other applicable manuals in their entirety before proceeding. Failure to observe this precaution could result in severe bodily injury or loss of life.

For detailed installation and a <u>handy checklist</u> that covers panel box layout requirements and minimum clearances, refer to the hardware manual of the controller you are using. (See the <u>Additional References</u> section in this document.):

- All applicable codes and standards need to be followed in the installation of this product.
- For I/O wiring (discrete), use the following wire type or equivalent: Belden 9918, 18 AWG or larger.

Adhere to the following safety precautions whenever any type of connection is made to the module.

- Connect the green safety (earth) ground first before making any other connections.
- When connecting to electric circuits or pulse-initiating equipment, open their related breakers. Do <u>not</u> make connections to live power lines.
- Make connections to the module first; then connect to the circuit to be monitored.
- Route power wires in a safe manner in accordance with good practice and local codes.
- Wear proper personal protective equipment including safety glasses and insulated gloves when making connections to power circuits.
- Ensure hands, shoes, and floor are dry before making any connection to a power line.
- Make sure the unit is turned OFF before making connection to terminals. Make sure all circuits are de-energized before making connections.
- Before each use, inspect all cables for breaks or cracks in the insulation. Replace immediately if defective.

7   ADDITIONAL REFERENCES

The following information serves as a *general* listing of Horner controller products and other references of interest and their corresponding manual numbers. Visit our website listed in the Technical Support section to obtain user documentation and updates.

Note: This list is not intended for users to determine which products are appropriate for their application; controller products differ in the features that they support. If assistance is required, see the **Technical Support** section in this document.	
Controller	**Manual Number**
XLE Series (e.g., HE-XExxx)	MAN0805
QX Series (e.g., HE-QXxxx)	MAN0798
NX Series (e.g., HE-NXxxx)	MAN0781
LX Series (e.g., LX-xxx; also covers RCS116)	MAN0755
Color Touch OCS (e.g., OCSxxx)	MAN0465
OCS (Operator Control Station) (e.g., OCS1xx / 2xx; Graphic OCS250)	MAN0227
Remote Control Station (e.g., RCS2x0)	
MiniOCS (e.g., HE500OCSxxx, HE500RCSxxx)	MAN0305
Other Useful References	
CAN Networks	MAN0799
Cscape Programming and Reference	MAN0313
Wiring Accessories and Spare Parts Manual	MAN0347
DeviceNet™ Implementation	SUP0326
Wiring Accessories and Spare Parts Manual	MAN0347

8   TECHNICAL SUPPORT

For assistance and manual up-dates, contact Technical Support at the following locations:

North America:+

(317) 916-4274

www.heapg.com

Europe:

(+) 353-21-4321-266

www.horner-apg.com