AC Input /AC Output Module
HE800DIQ622 / HE-DIQ622*
120 VAC In, Positive Logic
3A Relay Out
* HE- denotes plastic case.

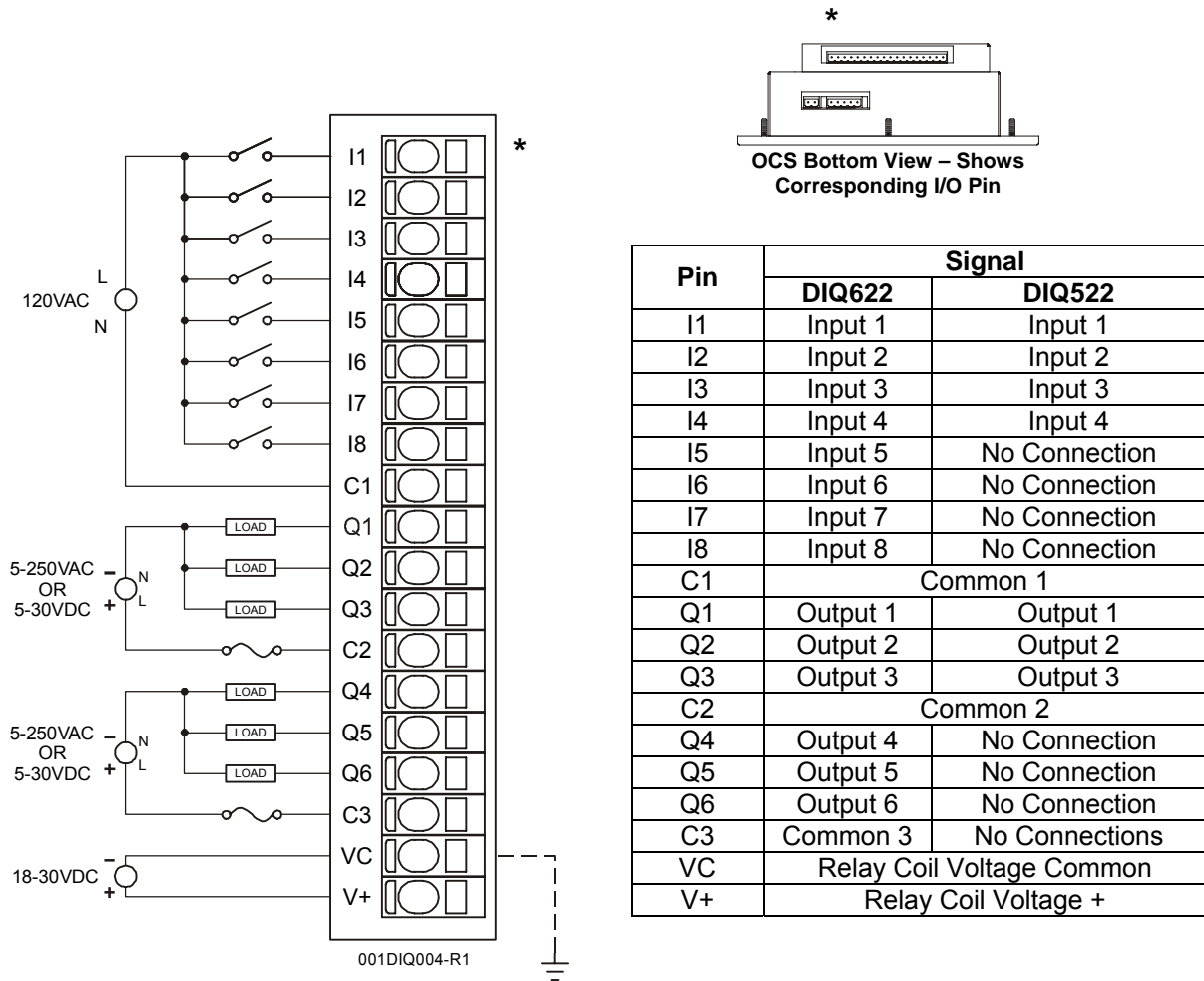This datasheet also covers products starting with IC300.

1   SPECIFICATIONS

INPUT	DIQ622
Inputs per Module	8
Commons per Module	1
Input Voltage Range	120–160 VAC
Peak Voltage	160 VAC
AC Frequency	50 / 60 Hz
ON Voltage Level	70 VAC Min.
OFF Voltage level	30 VAC Max.

	DIQ622
Input Impedance	0.01 μF +10 K
Isolation (Channel to Bus)	500 VDC
Minimum ON Current	1 mA.
Maximum OFF Current	200 μA.
OFF to ON Response	50 ms.
ON to OFF Response	50 ms.
Status Indicator	8

OUTPUT	DIQ622
Outputs per Module	6 relay
Commons per Module	2
Output Type	Relay
Coil Voltage	18–30 VDC
Contact Voltage	250 VAC / 30 VDC Max.
ON Voltage drop	0.1 V Max.
Maximum Load current (resistive) per channel	3 A

	DIQ622
Maximum Leakage Current	5 μA
Maximum Inrush Current	3 A per channel
Minimum Load	None
OFF to ON Response	6 ms. Typical
ON to OFF Response	0.3 ms. Typical
Status Indicator	6
Isolation (Channel to Channel and Channel to Ground)	500 VDC

| General Specifications			
Required Power (Steady State)	0.06 (2.75 @ 24 VDC)	Operating Temperature	0°–60° Celsius
Required Power (Inrush)	Negligible	Terminal Type	Spring Clamp, Removable
Relative Humidity	5–95% Non-condensing	Weight	9 oz. (256 g)
CE	See Compliance Table at http://www.heapg.com/Support/compliance.htm		
UL	Operating Temperature Code T4A See Compliance Table at http://www.heapg.com/Support/compliance.htm		

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2   WIRING

OCS Bottom View – Shows Corresponding I/O Pin

Pin	Signal	
	DIQ622	**DIQ522**
I1	Input 1	Input 1
I2	Input 2	Input 2
I3	Input 3	Input 3
I4	Input 4	Input 4
I5	Input 5	No Connection
I6	Input 6	No Connection
I7	Input 7	No Connection
I8	Input 8	No Connection
C1	Common 1	
Q1	Output 1	Output 1
Q2	Output 2	Output 2
Q3	Output 3	Output 3
C2	Common 2	
Q4	Output 4	No Connection
Q5	Output 5	No Connection
Q6	Output 6	No Connection
C3	Common 3	No Connections
VC	Relay Coil Voltage Common	
V+	Relay Coil Voltage +	

001DIQ004-R1

Warning: To protect the module and associated wiring from load faults, use external fuse **(10 A)** as shown. **This warning affects DIQ622, Revisions C 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 6 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
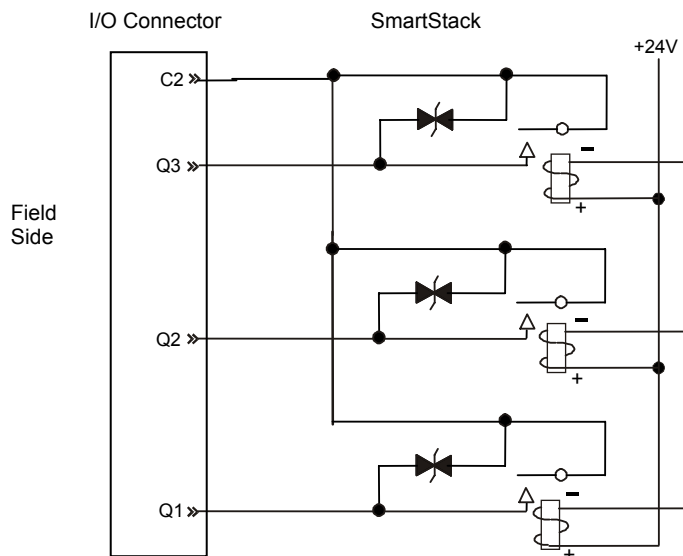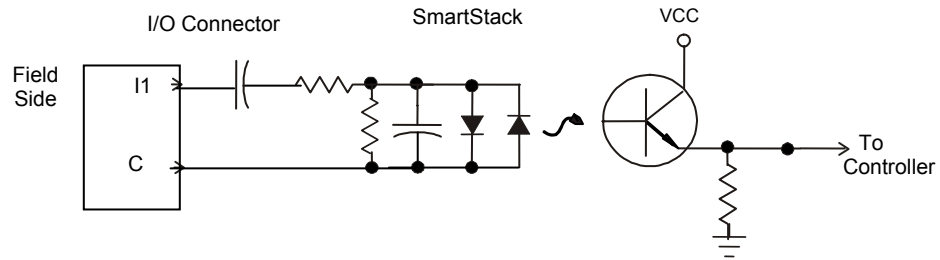
Specification for transient voltage suppressors (transorbs) used on output circuitry is 400 VDC, bi-directional 400 W.

Electro-mechanical relays comply with IEC1131-2.

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.

    a) All applicable codes and standards are to be followed in the installation of this product.
    b) 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.)

This datasheet also covers products starting with IC300.

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

    a) Output range for each channel may be selected independently.
    b) Filter Constant sets the level of digital filtering according to the following chart.

> **Warning:** The default sets the output values to zero 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.

    1) The desired output current is 12 mA.
    2) Using the table, the conversion factor for the current range of +20 mA is 0.000625.
    3) To determine the data value, the formula is used:
   Data = Output Current (mA) / Conversion Factor 19200 = 12 mA / 0.000625

    a) All applicable codes and standards are to be followed in the installation of this product.
    b) Use the following wire type or equivalent: Belden 8441.
    c) Shielded, twisted-pair wiring should be used for best performance.
    d) Shields may be terminated at the module terminal strip.
    e) In severe applications, shields should be tied directly to the ground block within the panel.

5   INPUT / OUTPUT CHARACTERISTICS

Digital Input Chart
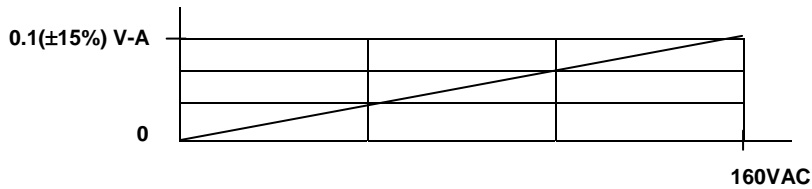
Derating Output Chart
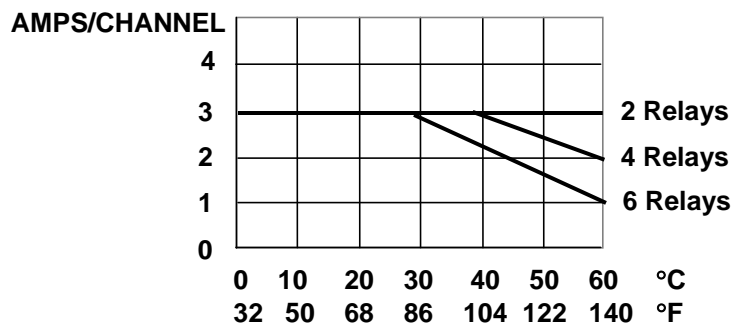
Typical Relay Life (DIQ622)			
Voltage (Resistive)	**Load Current**		
	1 Amp	**2 Amp**	**3 Amp**
30 VDC	600 K	250 K	125 K
125 VAC	750 K	300 K	150 K
250 VAC	500 K	200 K	100 K

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 470Ω, 0.5 W resistor.
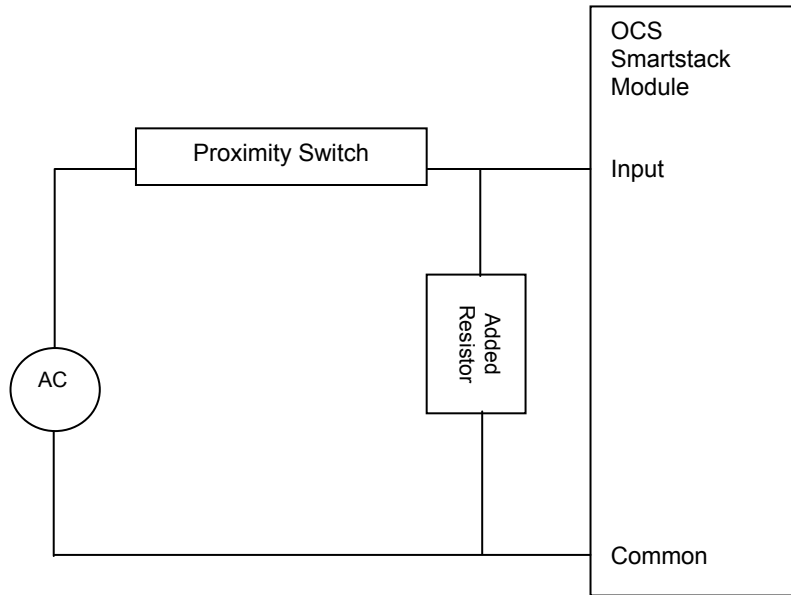
6   INSTALLATION / SAFETY

> **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 <u>not</u> 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)	MAN0227
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:+   **Europe:**

(317) 916-4274   (+) 353-21-4321-266

www.heapg.com   www.horner-apg.com