Mixed DC I/O Module
HE800DIQ716 / HE-DIQ716*
12/24 Vdc In, Positive/Negative Logic
(16 Input Channels)
10–28 Vdc Out, Positive Logic
(12 Output Channels)
* HE- denotes plastic case.

This datasheet also covers products starting with IC300.

1   SPECIFICATIONS

INPUT	DIQ716
Inputs per Module	16
Commons per Module	3
Input Voltage Range	12–24 VDC
Peak Voltage	35 VDC Max.
Isolation (Channel to Ground)	500 VDC
ON Voltage Level	9 VDC /1 mA minimum
OFF Voltage Level	3 VDC

	DIQ716
Input Characteristics	Bidirectional
Input Impedance	10 KΩ Ohms
Minimum ON Current	1 mA
Maximum OFF Current	200 μA
OFF to ON Response	1 ms.
ON to OFF Response	1 ms.

OUTPUT	DIQ716
Outputs per Module	12
Commons per Module	1
Operating Voltage	10–28 VDC
Output Type	Sourcing / 10 K Pull-Down
Peak Voltage	28 VDC Max.
Maximum Load Current per channel	0.5 A Max.

	DIQ716
Maximum Inrush Current	650 mA
Minimum Load	None
OFF to ON Response	1 ms.
ON to OFF Response	1 ms.
Output Characteristics	Current Sourcing
Output Protection	Short Circuit

| General Specifications			
Required Power (Steady State)	0.13 W (5.5 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 oz. (256 g)
CE	See Compliance Table at http://www.heapg.com/Support/compliance.htm		
UL	Operating Temperature Code T4; See Compliance Table at http://www.heapg.com/Support/compliance.htm		

2   WIRING

2.1   Input Wiring

001DIQ012

**OCS Top View – Shows
Corresponding I/O Pin**
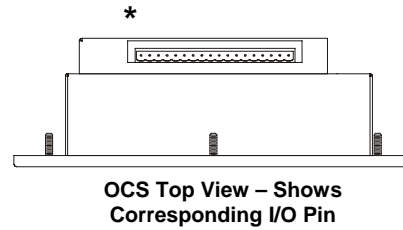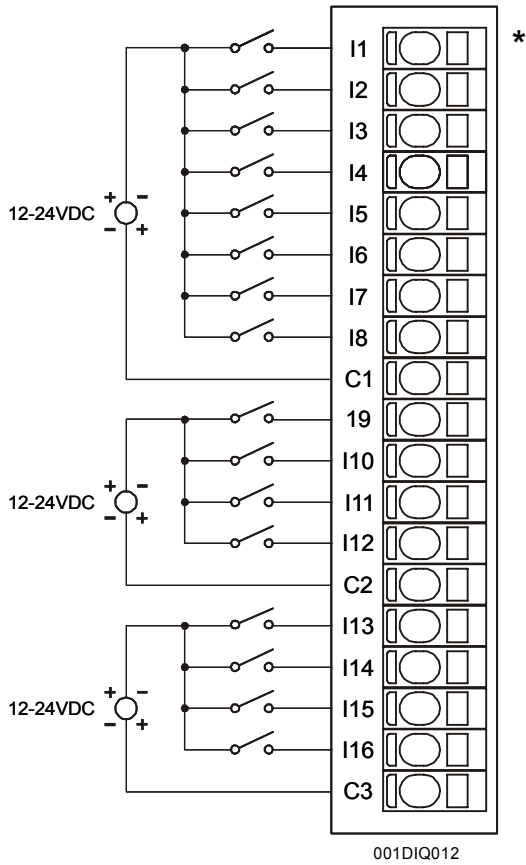
Pin	Signal
	DIQ716 INPUT
I1	Input 1
I2	Input 2
I3	Input 3
I4	Input 4
I5	Input 5
I6	Input 6
I7	Input 7
I8	Input 8
C1	Common 1 (Isolated)
I9	Input 9
I10	Input 10
I11	Input 11
I12	Input 12
C2	Common 2 (Isolated)
I13	Input 13
I14	Input 14
I15	Input 15
I16	Input 16
C3	Common 3 (Isolated)

2.2   Output Wiring
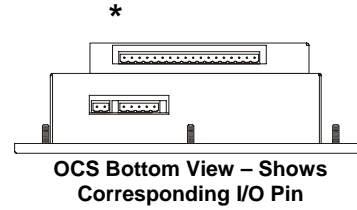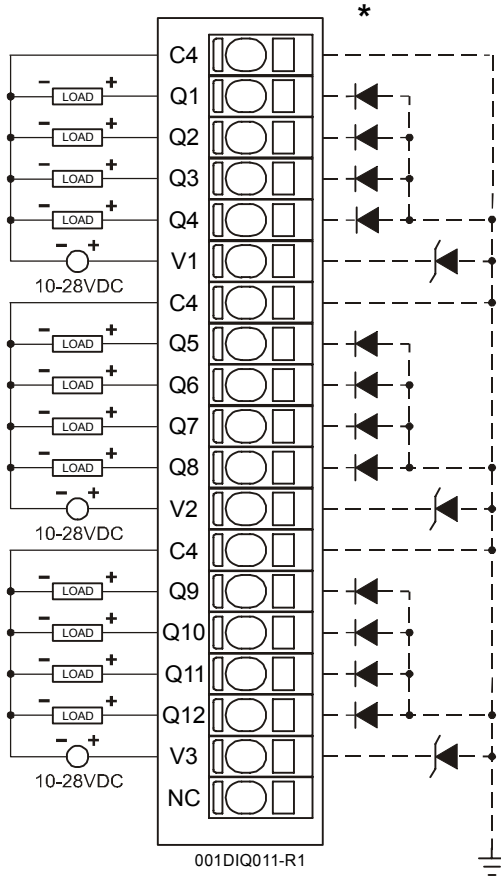
Pin	Signal
	DIQ716 OUTPUT
C4	Common
Q1	Output 1
Q2	Output 2
Q3	Output 3
Q4	Output 4
V1	Load Power 1
C4	Common
Q5	Output 5
Q6	Output 6
Q7	Output 7
Q8	Output 8
V2	Load Power 2
C4	Common
Q9	Output 9
Q10	Output 10
Q11	Output 11
Q12	Output 12
V3	Load Power
NC	No Connection

OCS Bottom View – Shows Corresponding I/O Pin

3   INTERNAL SCHEMATIC DRAWING
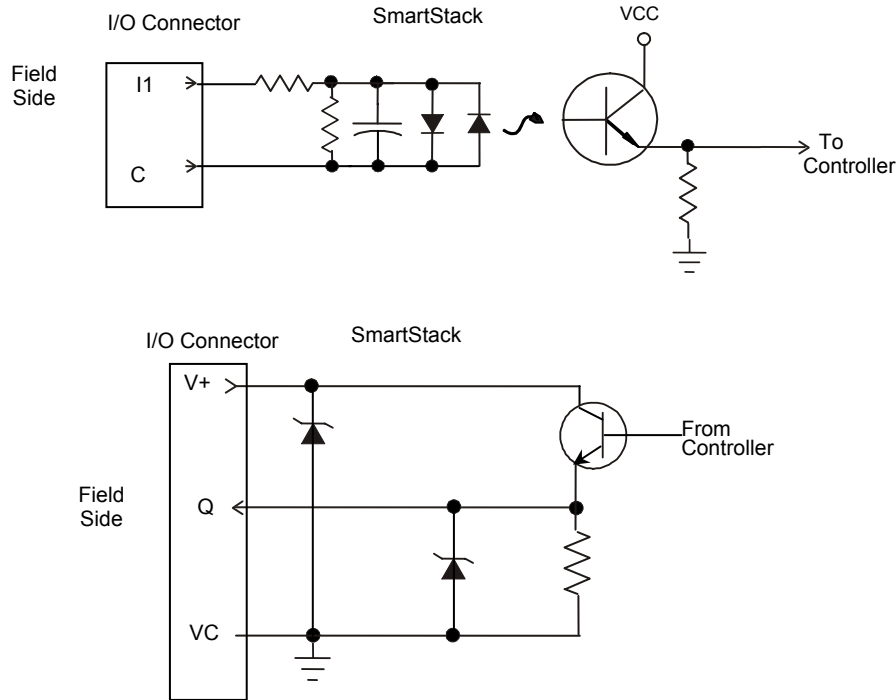
Specification for transient voltage suppressors (transorbs) used on output circuitry is 33 VDC, 600 W.

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.
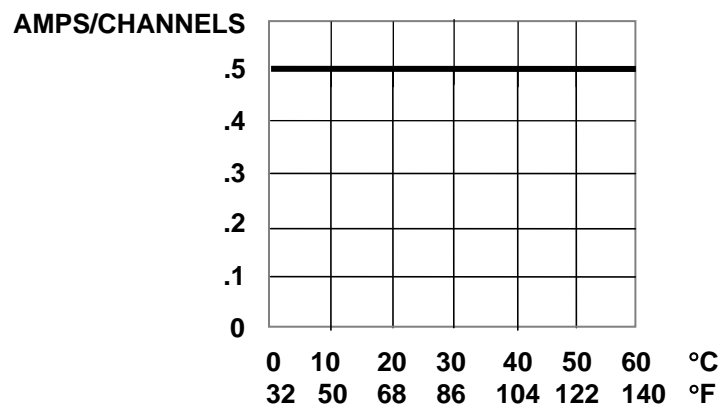
Warning: The default turns the outputs OFF when the controller enters idle/stop mode. To avoid injury of personnel or damages to equipment, exercise extreme caution when changing the default setting using the **Module Setup** tab.

5   INPUT / OUTPUT CHARACTERISTICS

Digital Input Chart
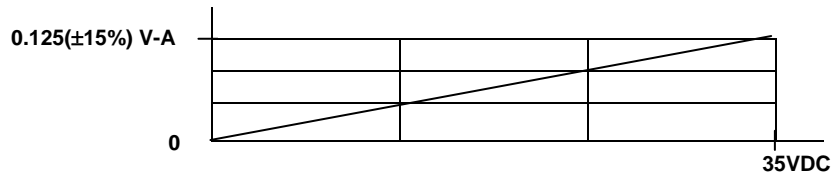
Derating Chart for DIQ716

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