

SMARTSTACK DATASHEET

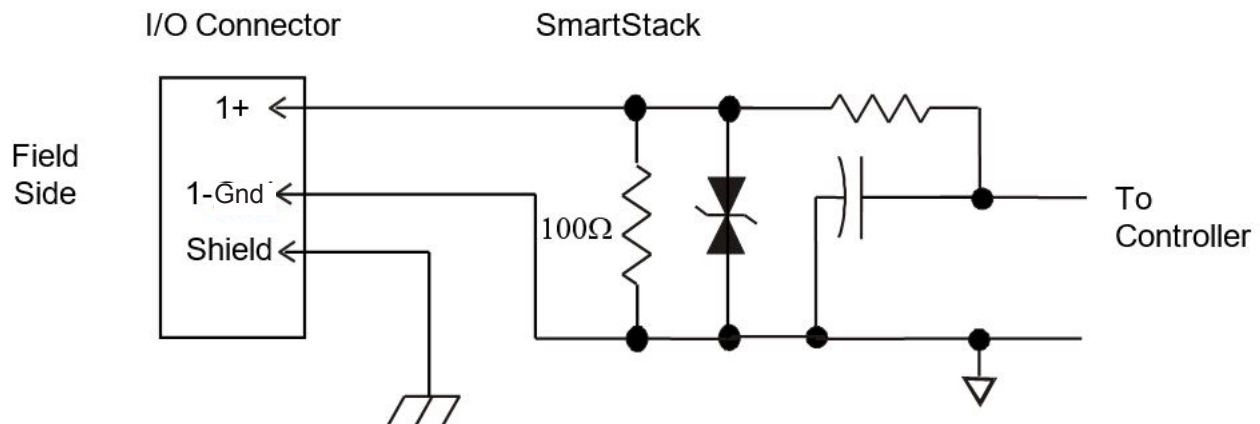
HE800ADC020 / HE800ADC120 HE-ADC020 / HE-ADC120 (Plastic Cases) 12-Bit Resolution

NOTE: This datasheet also covers products with IC300.

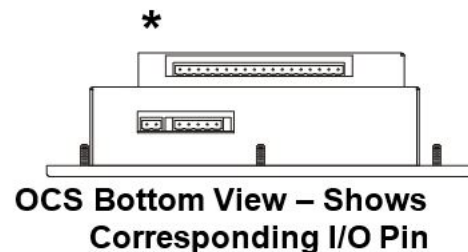
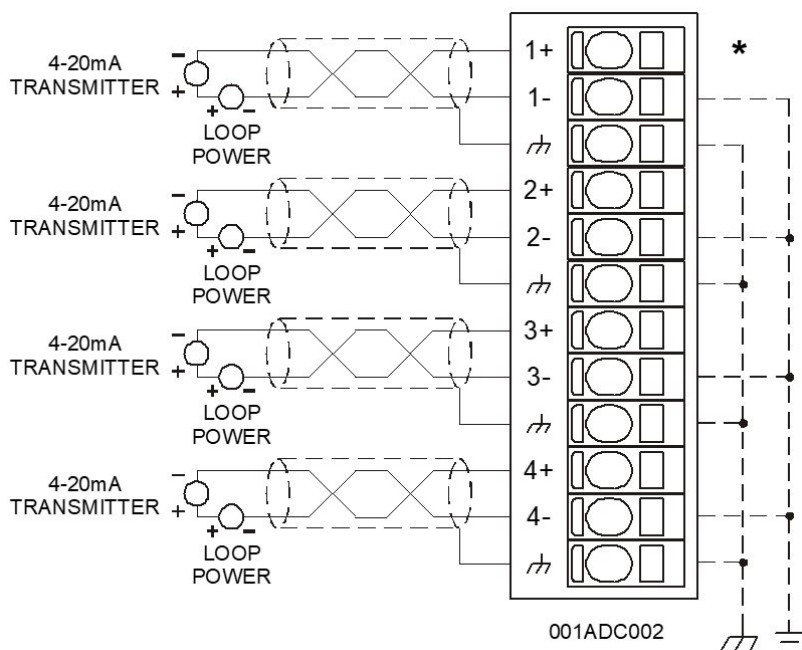
1 TECHNICAL SPECIFICATIONS

SPECIFICATIONS			
	ADC020	ADC120	
Number of Channels	2	4	Converter Type
Analog Inputs	2	4	Successive Approximation
Input Points Required			Conversion Time (PLC Update Rate)
Input Ranges (including over-range)	Nominal: 0 to 20.47mA, +/-20.47mA		Set by PLC Scan Time
Resolution	12-Bit		Terminal Type
Maximum Error @ 25°C	0.05% Full Scale		Spring Clamp, Removable
Input Impedance	100 Ω < 12 VDC, Clamped @ 12 VDC, 35mA Max. Continuous		Additional error for temperatures other than 25°C
Required Power (Steady State)	0.09W (4.1mA @ 24VDC)		0.005% / °C
Required Power (Inrush)	Negligible		Operating Temperature
Maximum Overcurrent	35mA		0° to 60°C
External Power Supply	None		Relative Humidity
			5 to 95% Non-condensing
			Weight
			9 oz. (256g)
			Certifications (CE)
			USA: https://hornerautomation.com/certifications/
			Europe: www.hornerautomation.eu

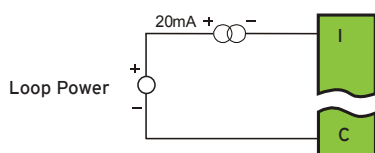
2 INTERNAL CIRCUIT SCHEMATIC



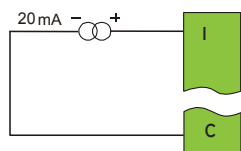
3 WIRING I/O



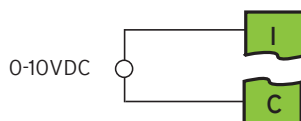
20mA Analog In - Not Self Powered



20mA Analog In - Self Powered



0-10VDC IN



Pin #	ADC120	ADC020
1+	Channel 1+	Channel 1+
1-	Common	Common
⌋	Shield	Shield
2+	Channel 2+	Channel 2+
2-	Common	Common
⌋	Shield	Shield
3+	Channel 3+	
3-	Common	
⌋	Shield	
4+	Channel 4+	
4-	Common	
⌋	Shield	

4 CONFIGURATION

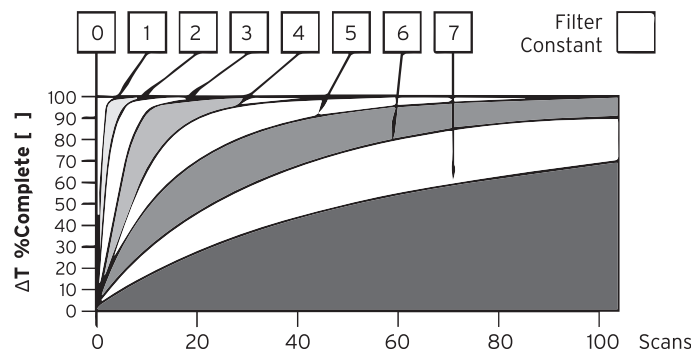
NOTE: The status of the I/O can be monitored in Cscape.

Preliminary configuration procedures that apply to SmartStack Modules are contained in the user manual of the controller, which can be found on the Horner Automation website.

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.

Module Setup Tab

- Input range for each channel may be selected independently.
- Filter Constant sets the level of digital filtering according to the following chart.



Digital Filtering: The illustration above demonstrates the effect of digital filtering (set with Filter Constant) on module response to a temperature change.

5 INPUT CONVERSION FACTOR

The following table describes how real-world inputs are scaled into the controller. Given a known input current, the data value is configured by using the conversion factor from the table.

The following formula is used: $\text{Data} = \text{Input Current (mA)} / \text{Conversion Factor}$

Example: The user selects a current range of 0 to +20mA:

- The known input current is 14mA.
- Using the table, the conversion factor for the current range of 0 to +20VDC is 0.000625.
- To determine the data value, the formula is used:

$$\text{Data} = \text{Input Current (mA)} / \text{Conversion Factor}$$

$$22400 = 14\text{mA} / 0.000625$$

Conversion of Real-World Inputs into Controller			
Selected Current Range	Input Current (mA)	Data	Conversion Factor
0 to +20mA	+20.47	32752	0.000625
	+20.00	32000	
	0	0	
-20 to +20mA	-20.00	-32000	0.000625
	-20.47	-32752	

6 SAFETY

SAFETY

- All applicable codes and standards should be followed in the installation of this product.
- Shielded, twisted-pair wiring should be used for best performance.
- In severe applications, shields should be tied directly to the ground block within the panel.
- Use the following wire type or equivalent: Belden 8441.

For detailed installation that covers panel box layout requirements and minimum clearances, refer to User Manual of controller.

WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.

ATTENTION - RISQUE D'EXPLOSION - NE DÉBRANCHEZ PAS L'ÉQUIPEMENT SAUF SI L'ALIMENTATION A ÉTÉ COUPÉE OU SI LA ZONE N'EST PAS DANGEREUSE.

WARNING: Electrical Shock Hazard.

WARNINGS

1. To avoid the risk of electric shock or burns, always connect the safety (or earth) ground before making any other connections.
2. 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.
3. Replace fuse with the same type and rating to provide protection against risk of fire and shock hazards.
4. In the event of repeated failure, do NOT replace the fuse again as repeated failure indicates a defective condition that will NOT clear by replacing the fuse.
5. 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.

PRECAUTIONS

All applicable codes and standards need to be followed in the installation of this product. Adhere to the following safety precautions whenever any type of connection is made to the module:

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

7 PART NUMBERS

The global part numbers are HE800ADC020, HE800ADC120, HE-ADC020 (plastic case), HE-ADC120 (plastic case).

8 TECHNICAL SUPPORT

For assistance and datasheet updates, contact Technical Support at the following locations:

North America

+1 (317) 916-4274
www.hornerautomation.com
techsppt@heapg.com

Europe

+353 (21) 4321-266
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