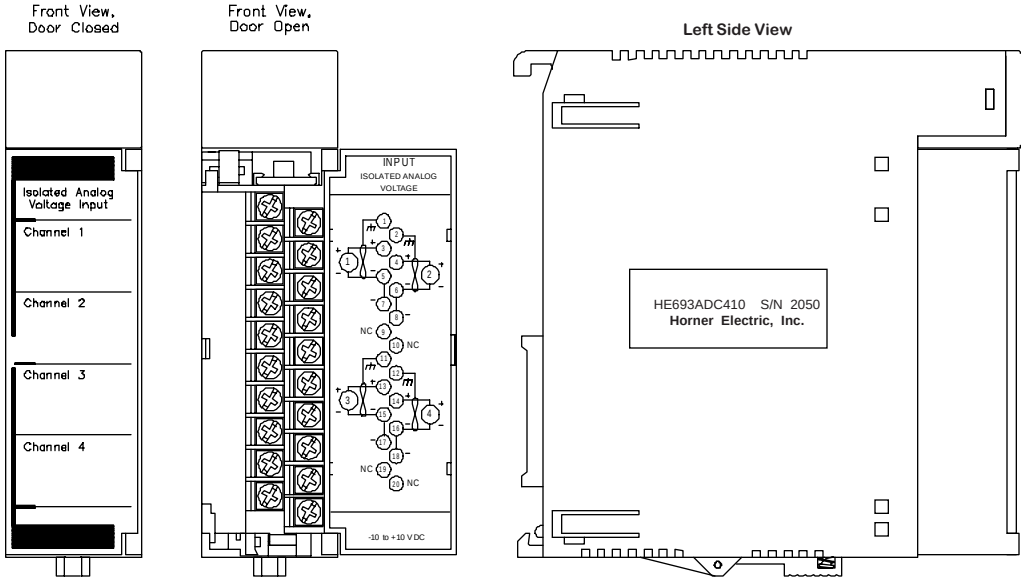
+/- 10V Isolated Analog Input Module
Product Specifications and Installation Data

DESCRIPTION

The Horner Electric +/-10V Isolated Analog Input Modules provide four analog input channels, with 14-bits of resolution. Two models are available, the HE693ADC410 with 1500VAC (RMS) isolation, and the HE693ADC405 with 500VAC (RMS) isolation. These isolation levels are channel-to-channel and channel-to-ground. The modules convert the voltage input signals to digital values (-32,000 to +32,000), which are placed directly into the %AI table of the PLC CPU. Each of the four channels has a programmable setpoint, the level of which is set in the PLC program via four %AQ output registers. If the analog input value reaches or exceeds the setpoint, a corresponding digital input %I is energized. The first four %Is represent the four input channel setpoint alarms, respectively.

ILLUSTRATION



SPECIFICATIONS

Specification		Specification	
Steady-State Power Consumption	ADC405: .4W / 80mA @ 5V, 2.16W / 90mA @ 24V	Analog Filtering	1KHz, 3 pole Bessel
	ADC410:.7W / 140mA @ 5V, 1.2W / 50mA @ 24V	Maximum Error	.05% full scale
Surge Current at Power-Up	ADC405: 120mA @ 5V 150mA @ 24V	Input Impedence	1 Megohm
	ADC410: 200mA @ 5V 100mA @ 24V	Maximum Over-Voltage	+/- 15VDC
Number of Channels	4	Channel to Channel (ADC410)	1500VAC (RMS), +/- 2000VDC
I/O Required	4 %AI, 4 %AQ, 16%I	Common Mode Range (ADC 410)	1500VAC (RMS), +/- 2000VDC
Input Range	+/- 10V	Channel to Channel (ADC405)	500VAC (RMS), +/-700VDC
A/D Type, Resolution	Integrating, 18 bits	Common Mode Range (ADC 405)	500VAC (RMS), +/-700VDC
Useable Resolution	13 bits plus sign	Common Mode Rejection	>100dB
Module Update Rate	45 channels/S	Relative Humidity	5% to 95%, non-condensing
Digital Filtering	1-128 samples/update	Operating Temperature	0 to 60°C

CONFIGURATION

SOFTWARE CONFIGURATION

SLOT 2

FRGN

Catalog #: FOREIGN — FOREIGN MODULE

Module ID	: 3						
%I Ref Adr	: %I0001	Byte 1	: 00000001	Byte 9	: 00		
%I Size	: 16	Byte 2	: 00000100	Byte 10	: 00		
%Q Ref Adr	: %Q0001	Byte 3	: 00	Byte 11	: 00		
%Q Size	: 0	Byte 4	: 00	Byte 12	: 00		
%AI Ref Adr	: %AI001	Byte 5	: 00	Byte 13	: 00		
%AI Size	: 4	Byte 6	: 00	Byte 14	: 00		
%AQ Ref Adr	: %AQ001	Byte 7	: 00	Byte 15	: 00		
%AQ Size	: 4	Byte 8	: 00	Byte 16	: 00		

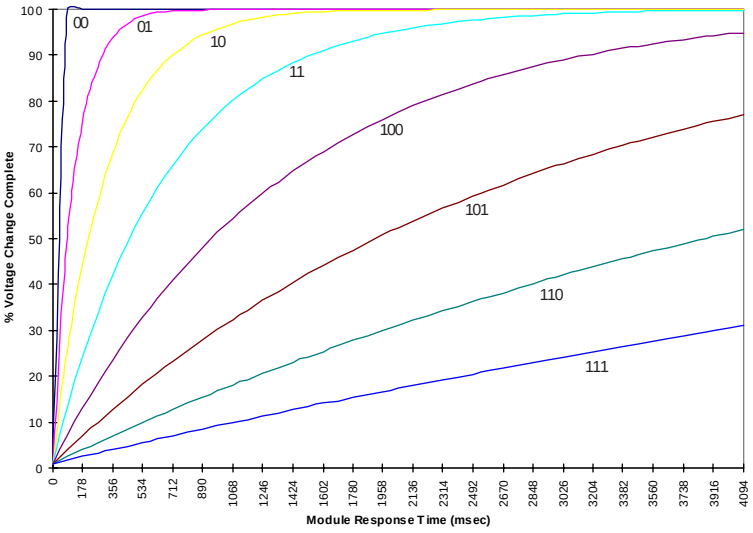
LM90 Foreign Module Configuration. *To reach this screen in the LM90 Configuration Package, select I/O Configuration (F1), cursor over to the slot containing the module and select Other (F8), and Foreign (F3).*

%I Size	%AI Size	%AQ Size	Byte 1	Byte 2
16	4	4	0001	0000 thru 0111(see chart)

Configuration Parameters. *The five necessary parameters are %I Size, %AI Size, %AQ Size, Byte 1, and Byte 2.*

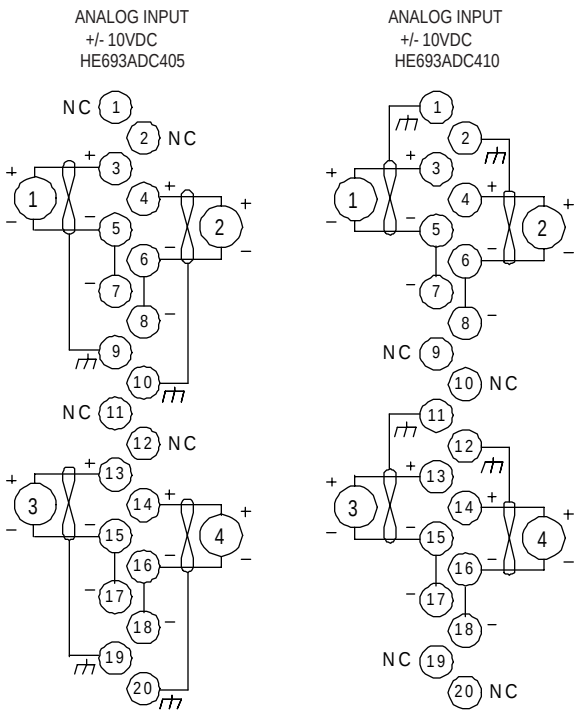
Scaling	Smallest Step Change
Volts = %AI / 32,000 x 10	4 (dec) = 1.25mV

Scaling. *The module converts each analog voltage into a decimal value between +/-32,000. The two least significant bits of each %AI are always 0, therefore the smallest decimal step change is 4.*



Digital Filtering. *The effect of digital filtering (set with Byte 2) on module response to a voltage change. (% voltage change completed vs. time).*

WIRING/INSTALLATION



Installation Hints

- ☑ *Wiring should be routed in its own conduit.*
- ☑ *Shielded, twisted pair extension wiring offers best noise immunity.*
- ☑ *If shielded wiring is used, a good earth ground connection, at one end only, is critical. If shields are grounded at the module end, terminals 9, 10, 19 and 20 on the ADC405, or pins 1,2,11, and 12 on the ADC410 should be used as the shield connection points.*