



EH-44 ELECTRO-HYDRAULIC ACTUATOR CONTROL SYSTEM

The EH-44 system is an electrical actuator that combines the benefits of hydraulic actuation with electrical reliability. This system is designed to provide high torque or linear thrust with pinpoint accuracy all in one complete robust package.

SIMPLE

Utilizing standard, state of the art industrial components, the EH-44 is simple to operate, monitor and maintain. The overall design concept required a simplistic approach to high accuracy hydraulic control. With simplicity in mind, the control system is easy to operate and the enclosed hydraulic system requires minimal maintenance.

ADAPTABLE

The EH-44 system is a full P.I.D. (Proportional, Integral, Differential) single loop hydraulic control package ready for service. It can be supplied as an actuation system complete with associative hydraulic actuation or supplied as a stand alone hydraulic control system designed to retrofit onto existing hydraulic actuation.

FLEXIBLE

Standard features include NEMA 4X compliant enclosure, digital positioning display, local / remote control capability, mechanical pressure gauges, analog and digital outputs for control feedback or SCADA capability.



EH-44 Actuator Control System mounted on a plug valve



EH-44 Actuator Control System



EH-44 Control System Detail

ATI FEATURES

- Easy to operate and control
- PLC based system
- Local and remote control
- Multiple inputs and outputs
- Self contained system
- Failsafe feature
- Lock in-place positioning
- Open architecture

ATI BENEFITS

- System is adaptable to all types of actuators including the ATI's linear Control Valve actuator for modulating service.
- Straightforward design makes set-up / operation a snap
- Allows for open-close or modulating actuation
- Local valve actuation eliminates down time due to loss of signal
- Interface to SCADA system or input / output transmitters
- All control and hydraulic power components are mounted within a NEMA enclosure
- Optional accumulator allows for fail open / close applications
- Static hydraulic positioning eliminates "drift" or "hunting" of actuator
- Custom designs available for applications requiring "non-standard" options

INPUT SIGNALS

Analog Inputs - Standard (reference to power common)

Quantity	2
Signal Range	0 to 20 mA or 4 to 20 mA
Input Impedance	250 W
Measurement Error	+/- 0.02 mA

Analog Inputs - Additional Options

Quantity	1 or 2 (depending on whether single or dual Universal Analog Input Model is used)
Current Signal Range	0 to 20 mA 4 to 20 mA
Voltage Signal Range	0 to 5 V, +/- 5.3 1 to 5 V
Frequency Signal	0 to 83 mV, +/- 83 mV 0.5 Hz to 30 kHz 2.5 Hz to 100kHz 8 Hz to 100 kHz
Pulse Input Frequency Range (Pulse counter)	0 to 100 kHz
Minimum Pulse Width Duration	5 Microseconds
Thermocouples (cold junction compensated)	J,K,T,E,R,S,B,N,U,L,F,C,G,D, Chinese E and S, PLII
RTD	Platinum 100 w (0.00385, 0.00392 and 0.00391) Copper 10,53,100 w (all 0.00427) Nickel 100 w (0.00618), 120 w (0.00672)
Common Mode Voltage	250 Vrms
Common Mode Rejection	160 dB
Filter Time Constant	25 ms
Measurement Error	£+/- 0.2% of full scale
Input Sampling Range	300 ms

Digital Input (dry contact or voltage input)

Quantity	Standard: 2 (reference to power common) Optional: 2 additional inputs
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OUTPUT SIGNALS

Analog Output

Quantity	1
Signal Range	0 to 20 mA or 4 to 20 mAdc
Load Range	0 to 750 w
Output Accuracy	+/- 0.2%

Digital Output - Standard (reference to power common)

Quantity	2
Closed contact (ON)	
Operating Voltage	30 Vdc maximum
Voltage Drop	2.0 Vdc maximum
Operating Current	50 mA dc maximum
Short Circuit Current	100 mA maximum
Open Contact (OFF)	£1 mA leakage

Digital Output - Optional (isolated)

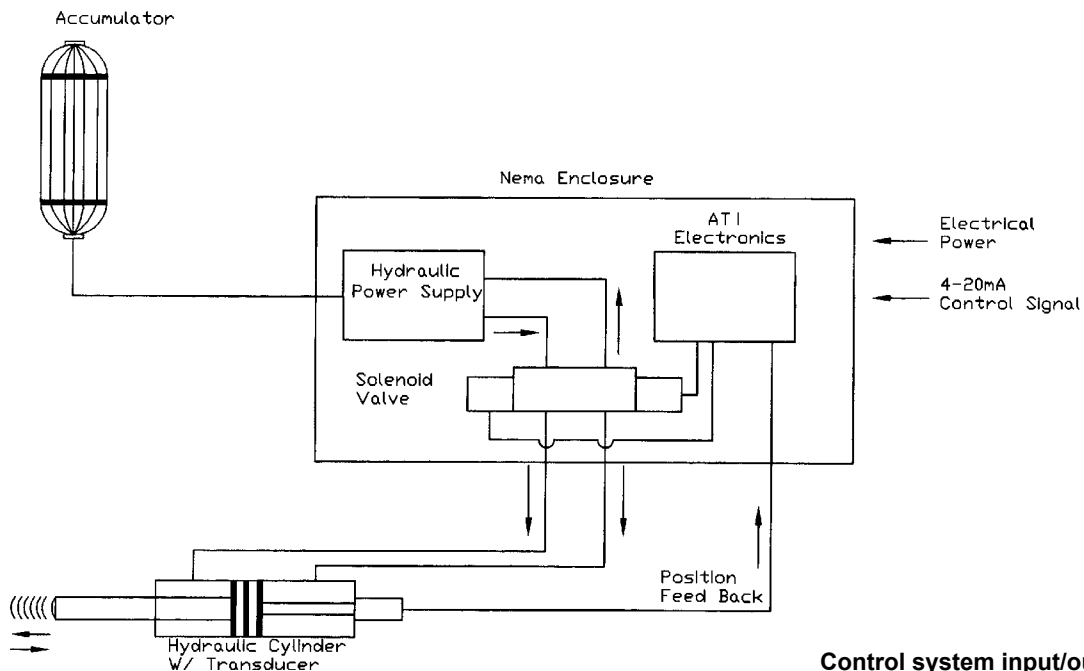
Quantity	2
Contact	Switching Voltage: £250 V
Load	Switching Current: £5 A
Capacity	Switching Power: £1250 V ac; £300 W @ 250 Vdc; £100 W @ 24 Vdc
Type	Form C

Communications - Optional

RS-485 Module	Allows networking of up to thirty-two instruments on a four-wire bus (Micro-DCI Datalink).
RS-232 Module	Provides point-to-point communication on a three-wire interface (Tx, R, S, com); suitable for connecting 53SL6000 to a personal computer running 53HC2600 graphical configuration software under Microsoft® Windows™

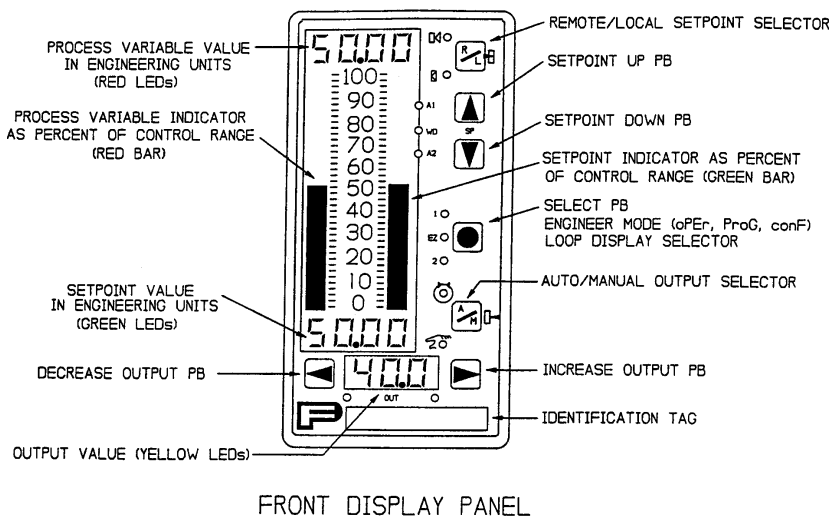
Microprocessor Sampling and Update

Computation Rate	Program executed once per 50 ms
Input Signal Sample Rate	50 ms
Display Update	50 ms
Output Signal Update	50 ms



Control system input/output signals

Hydraulic Modulating Control Specifications



FRONT DISPLAY PANEL
Hydraulic Modulating Controller

Feedback Signal:

- Enclosure mounted on actuator output shaft.
- Standard - potentiometer
- Optional - Optical transmitter (0.10% repeatability)

Control Enclosure:

- Nema 4 - Steel
- Nema 4X - S.S / Fiberglass
- Nema 7 or 9 explosion proof

Power Requirements:

- 120 VAC (standard)
- 440 VAC / 3 PH
- 220 VAC / 3 PH
- 208 VAC / 3 PH
- 125 VDC
- 48 VDC
- 24 VDC

EH-44 Model Detail

Base Model #	# of Work Stations	Operating Flow Rates & Pressure Ranges	Enclosure Type	Input Power (vac/Ph/Hz)	Fail Safe System	Modulating Positioner	System Furnished By:
EH-44	A = 1	1 = 0.24 GPM @ 200-3,000	A = NEMA 4X Non-metallic	1 = 120/1/60	A = None	1 = None	1 = ATI
	B = Special	2 = 0.42 GPM @ 200-1,500	B = Special	2 = 12-vdc 3 = 24-vdc	B = Accumulator (recovery time required)	2 = 4-20 mAdc input signal (Req, 0- 1,000 ohm feedback sig.)	2 = Other
		3 = 0.58 GPM @ 200-1,000		4 = Special	C = Spring Return Actuator	3 = 4-20 mAdc input signal (Req, 4-20 mAdc feedback sig.)	3 = N/A
		4 = 1.15 GPM @ 200-500			D = Special	4 = 3-15 psig input signal	
						5 = Special	

EXAMPLE: EH-44A2A1B31

Control system for one (1) station with an operating flow rate of .42 GPM @ 1,500 psi, enclosed in a NEMA 4x box. Powered by 120 vac and an accumulator. Input/Output signal is 4-20mAdc.



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