ERO ELECTRONIC

1/16 DIN controller

- Programmable open or closed loop servomotor control.
- Control output programmable as 3-wire servomotor or time proportional output.
- 2 logic inputs used for the selection of:
   - operative set point,
   - AUTO/MANUAL mode.
- AUTO/MANUAL transfer with programmable valve positioning.
- SMART function (Auto-tuning algorithm).
- ECP software package further simplifies the instrument configuration.
- SDDE driver, it is a simple object oriented interface between ERO instruments and Windows'® applications on PC.

Windows® is a registred trademark of Microsoft Corporation

LFS Servo

Distribué par :

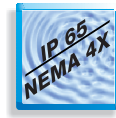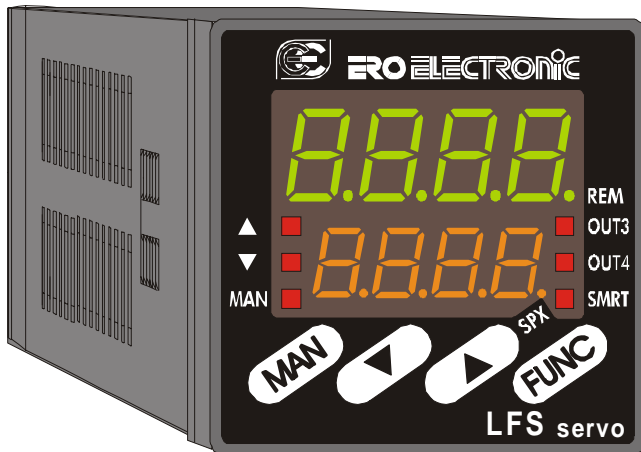PRECONISATEUR DE SOLUTIONS DEPUIS 1985

Contact :
hvssystem@hvssystem.com

Tél : 0326824929
Fax : 0326851908

Siège social :
2 rue René Laennec
51500 Taissy
France

www.hvssystem.com

LFS - Servo

GENERAL SPECIFICATIONS

Case:	Polycarbonate - Self extinguishing degree according to UL 746 C
Front protection:	designed and tested for IP 65 (*) and NEMA 4X (*) for indoor locations (when panel gasket is installed).
	(*) Test performed in accordance with IEC 529, CEI 70-1 and NEMA 250-1991 STD.
Dimensions:	(according to DIN 43700) 48 x 48 mm - Depth 122 mm
Weight:	250 g max.
Power supply (switching mode):	from 100 to 240 V AC. 50/60 Hz (+10 % to -15 % of the nominal value)
Power consumption:	5.5 W max.
Insulation:	a double or reinforced insulation is guaranteed between the power supply input and all the instrument inputs and outputs.
Common mode rejection ratio:	> 120 dB @ 50/60 Hz.
Normal mode rejection ratio:	> 60 dB @ 50/60 Hz.
Electromagnetic compatibility and safety requirements:	This instrument is marked CE.
	Therefore, it is conforming to council directives 89/336/EEC (reference harmonized standard EN 50081-2 and EN 50082-2) and to council directives 73/23/EEC and 93/68/EEC (reference harmonized standard EN 61010-1).
Installation category:	II
Sampling time:	- 250 ms for linear inputs
	- 500 ms for TC inputs
Accuracy:	$\pm$ 0.2% f.s.v. @ 25 °C (77 °F) and nominal power supply voltage.
Operative temperature:	from 0 to +50 °C (32 to 122 °F).
Storage temperature: from	-20 to +70 °C (-4 to 158 °F).
Humidity:	from 20% to 85 % RH not condensing

INPUT

Thermocouple

Burn out:	Detection of the open input circuit (wires or sensor) with underrange or overrange selectable indication.
Cold junction:	automatic compensation for an ambient temperature between 0 and 50 °C.
Cold junction compensation error:	0.1 °C/°C.
Input impedance:	> 1MΩ.
Calibration:	according to IEC 584-1.

STANDARD RANGE TABLE

TC tipo	°C Scale	°F
L	-100 / 900	-150 / 1650
L	-100.0 / 900.0	-150 / 1650
J	-100 / 1000	-150 / 1830
J	-100.0 / 999.9	-150 / 1830
K	-100 / 1370	-150 / 2500
K	-100.0 / 999.9	-150 / 2500
N	-100 / 1400	-150 / 2550
R	-50 / 1760	-60 / 3200
S	-50 / 1760	-60 / 3200
T	-200 / 400	-330 / 750
T	-199.9 / 400.0	-330 / 750

Linear input (mA and V)

STANDARD RANGE TABLE

Input	Impedance
0 - 20 mA	< 5 Ω
4 - 20 mA	< 5 Ω
0 - 60 mV	> 1 MΩ
12 - 60 mV	> 1 MΩ
0 - 5 V	> 400 kΩ
1 - 5 V	> 400 kΩ
0 - 10 V	> 400 kΩ
2 - 10 V	> 400 kΩ

LOGIC INPUTS

The LFS-Servo is equipped with 2 logic inputs (contact closure).
The first is used for the operative set point selection SP, SP2.
The second is used for AUTO/MANUAL mode selection.

CONTROL OUTPUT

A) Closed loop servomotor output.

Feedback potentiometer range:	from 100 Ω up to 1KΩ.
	The initial and final stroke points are keyboard programmable.
Servomotor dead band:	from 1 % to 50 % of the selected feedback potentiometer span.
Control action:	direct or reverse programmable.
Valve position limiter:	low and high limiters programmable.

B) Open loop servomotor output with valve position indication.

Indication potentiometer range:	from 100 Ω up to 1KΩ.
	The initial and final stroke points are keyboard programmable.
Servomotor dead band:	from 1 % to 50 % of the selected servomotor stroke time.
Servomotor stroke time:	programmable from 25 seconds to 3 minutes.
Control action:	direct or reverse programmable.

C) Open loop servomotor output without valve position indication.

Servomotor dead band:	from 1 % to 50 % of the selected servomotor stroke time.
Servomotor stroke time:	from 25 seconds to 3 minutes.
Control action:	direct or reverse programmable.

D) One time proportioning output.

Output used:	output 1
Control action:	direct or reverse programmable.
Output cycle time:	from 1 second to 200 seconds.
Output power limiting:	high limit programmable.

E) Two time proportioning outputs.

Output used:	output 1 and 3
Output cycle time:	from 1 second to 200 seconds.
Output power limiting:	high limit programmable.

CONTROL ACTION

Algorithm:	PID + SMART
Types:	- one control output (heating)
	- two control outputs (heating and cooling)
Proportional Band:	programmable from 1.0 % to 200.0% of the input span.
	Setting a PB equal to 0 the control action becomes ON/OFF.
Hysteresis (for ON/OFF control action):	from 0.1% to 10.0 % of the input span.
Integral time:	from 1 second to 20 minutes.
Derivative time:	from 1 second to 10 minutes or excluded.
Integral preload:	- for one control output, from 0 to 100% of the output range.
	- for two control outputs, from -100 % to +100 % of the heating/cooling output range.
AUTO/MANUAL mode:	selectable by front pushbutton or logic input.
Relative cooling gain:	from 0.20 to 1.00 referred to the proportional band.
Overlap / dead band:	from - 20 % (dead band) to + 50 % (overlap) of the proportional band.

LFS - Servo

OUTPUTS

Out 1 and 2

Function:	- Servo-motor output	
	- One time proportional output.	
Relay type:	two interlocked SPST relayes.	
Contact rating:	3 A @ 250 Vac on resistive load	

Out 3

Function:	- Time proportional output.
	- Alarm 1 output
Relay type:	SPST relay.
Contact rating:	2 A @ 250 Vac on resistive load

Out 4

Function:	- Alarm 2 and/or alarm 3 output
Relay type:	SPST relay.
Contact rating:	2 A @ 250 Vac on resistive load

ALARMS

Alarm functions:	each alarm can be configured as process alarm, band alarm or deviation alarm.
Alarm reset:	automatic or manual reset programmable on each alarm.
Mask Alarm:	programmable on each alarm.

Process alarm:

Operative mode:	high or low programmable.
Threshold:	programmable in engineering unit within the entire range.
Hysteresis:	programmable from 0.1 % to 10.0 % of the input span.

Band alarm:

Operative mode:	inside or outside band programmable.
Threshold:	programmable from 0 to 500 units.
Hysteresis:	programmable from 0.1 % to 10.0 % of the input span.

Deviation alarm:

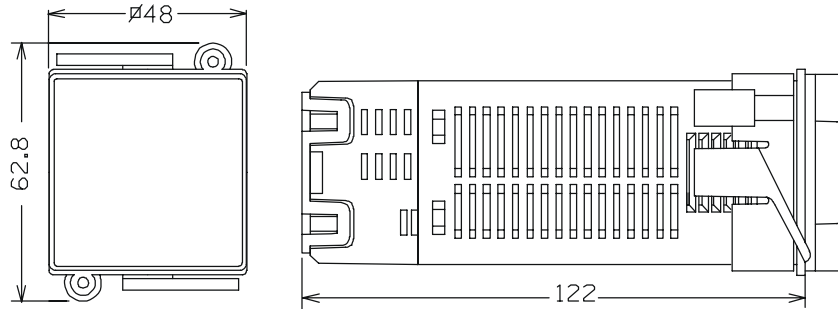|	
Operative mode:	high or low programmable.
Threshold:	programmable from -500 to +500 units.
Hysteresis:	programmable from 0.1 % to 10.0 % of the input span.

SET POINTS

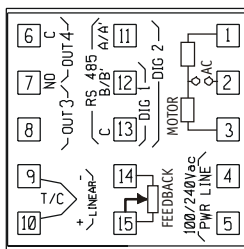|	
Set points:	2 set point are available (SP and SP2) transfer may be driven by logic input (contact closure).
Set point limiters:	set point low limit and set point high limit are programmable.

SERIAL INTERFACE

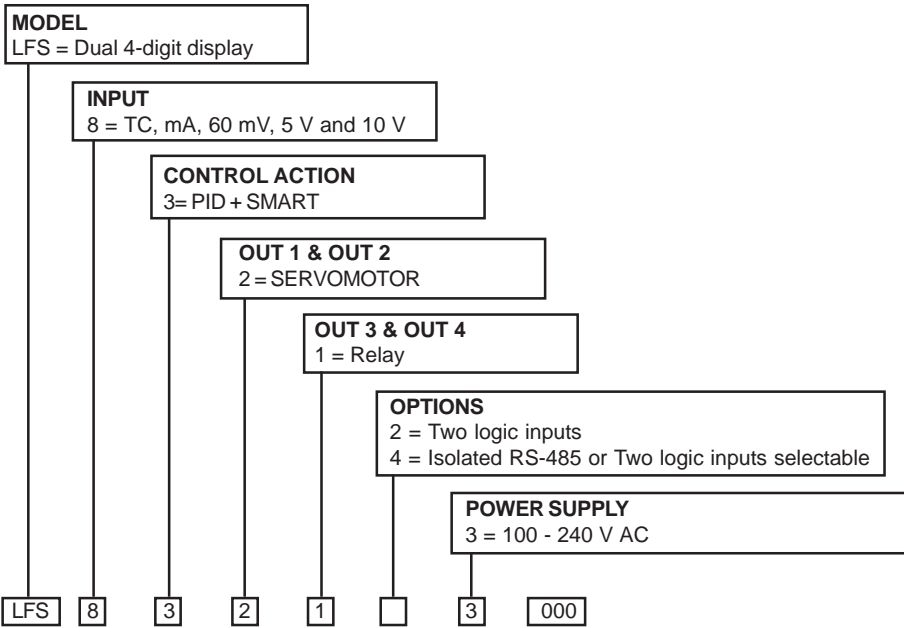|	
Type:	Isolated RS 485
Protocol type:	MODBUS, JBUS, ERO polling/selecting.
Baud rate:	programmable from 600 to 19200 BAUD.
Byte format:	7 or 8 bit programmable.
Parity:	even, odd or none programmable.
Stop bit:	one.
Address:	- from 1 to 95 for ERO protocol.
	- from 1 to 255 for all the other protocols.
Output voltage levels:	according to EIA standard.

LFS - Servo

DIMENSIONS

Ø48

62.8

122

REAR TERMINAL BLOCK

HOW TO ORDER

MODEL
LFS = Dual 4-digit display

INPUT
8 = TC, mA, 60 mV, 5 V and 10 V

CONTROL ACTION
3= PID + SMART

OUT 1 & OUT 2
2 = SERVOMOTOR

OUT 3 & OUT 4
1 = Relay

OPTIONS
2 = Two logic inputs
4 = Isolated RS-485 or Two logic inputs selectable

POWER SUPPLY
3 = 100 - 240 V AC

| LFS | 8 | 3 | 2 | 1 | | 3 | 000 |

EROELECTRONIC

Ero Electronic s.r.l.
Via E. Mattei, 21
28100 Novara
Italy
Tel. (+39) 321 481111
Fax. (+39) 321 481112

ISO 9001

Distribué par :

HVS.
PRECONISATEUR DE SOLUTIONS DEPUIS 1985

Contact :
hvssystem@hvssystem.com

Tél : 0326824929
Fax : 0326851908

Siège social :
2 rue René Laennec
51500 Taissy
France

www.hvssystem.com

Caratteristiche soggette a modifiche senza preavviso