

User manual

LD130

LD130-.../S627

Chapters

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1 - Safety summary

For the electrical connections, we recommend to closely follow these electrical instructions. In particular, according to the 89/336/EEC norm on electromagnetic compatibility, following precautions must be taken:

- Measurement system (sensor) should be installed as close as possible to the display.
- Always use shielded and twisted cables if possible.
- Avoid running the device cable near high voltage power cables (e.g. drive cables).
- Install EMC filters on device power supply if needed.
- Avoid mounting device near capacitive or inductive noise sources such as relays, motors, and switching power supplies.

Connect according to the chapter 5: "Electrical connections".

2 - Identification

The device can be identified by the label's data (ordering code, serial number). This information is listed in the delivery document.

3 - Installation

Install the device according to the protection level provided. Protect the system against knocks, friction, solvents and respect the environmental characteristics of the display.

4 - Mounting recommendations

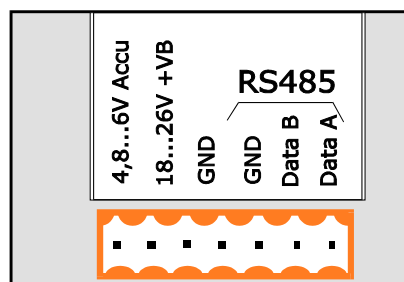
Push the display into the cut-out (approx. 69 x 92 mm²) without panel clips.
Install panel clips on the display's housing and screw until fixed.

5 - Electrical connections

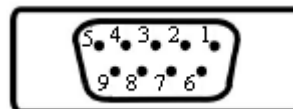
5.1 Sensor

Plug in the sensor's Mini-DIN connector (circular) on backside of the display.

5.2 Power supply and RS485 interface



5.3 RS232 interface (only with LD130-.../S627)



Pin	Function
2	TxD
3	RxD
5	GND

6 - Functions

- Read actual position of each axis by PLC (through RS485 or RS232 interface).
- Display actual position by PLC (through RS485 or RS232 interface).
- Change resolution by PLC (through RS485 or RS232 interface).

6.1 Working

18...24Vdc power supply:

Operating mode, without power supply the device is switched off or in stand-by mode (with V Accu supply).

Stand-by:

The Accu input can supply the device in stand-by mode with a low consumption. In this way the display and serial interface are deactivate while the CPU and analogical circuit remain active.

Setting:

Read, visualize actual position and change resolution through serial interface

Display:

The device displays position using the set resolution. In case of overflow the first digit flashes and the most significant digit isn't visualized.

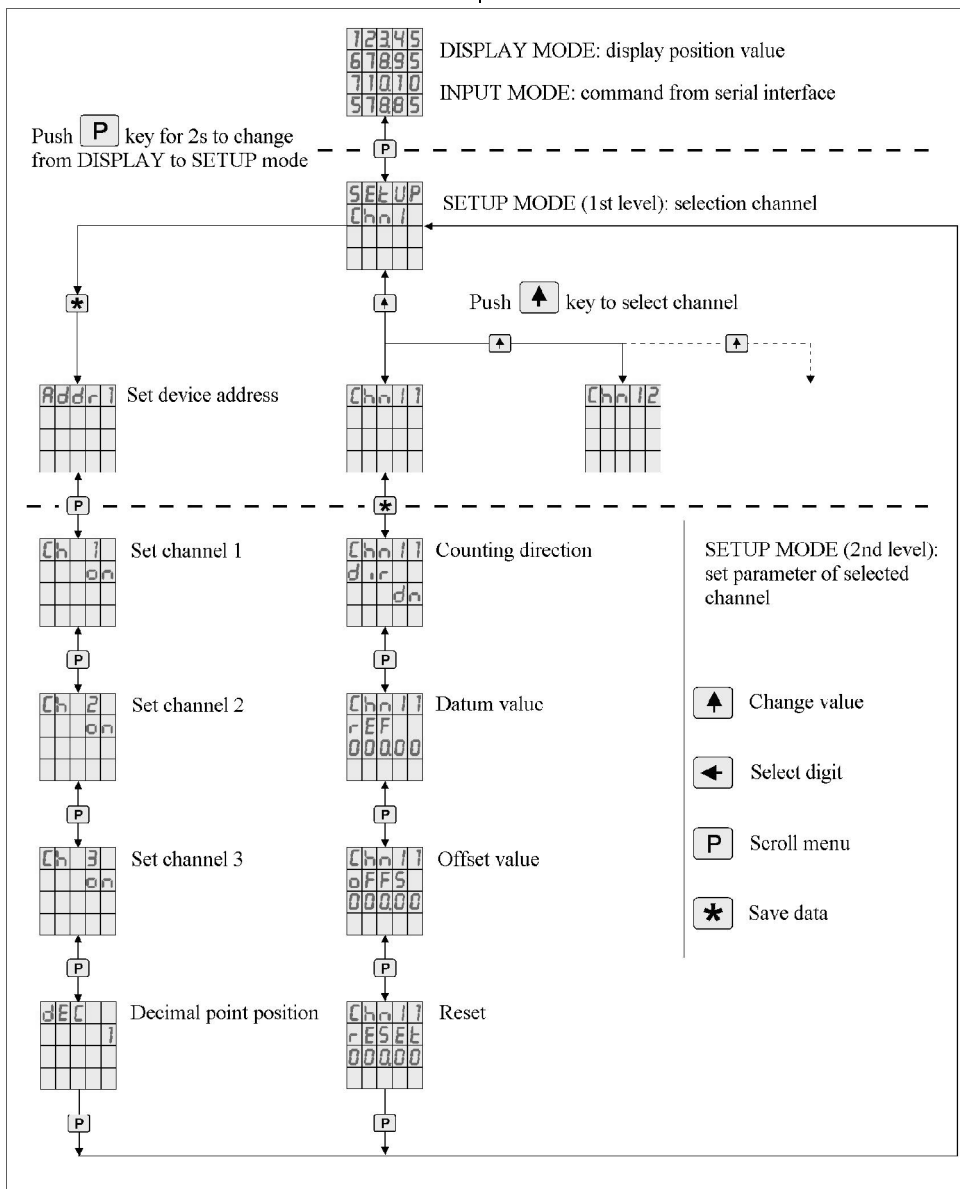
Push " * " key to change resolution.

Language: English

Display area:

X, Y1, Y2

6.2 Manual mode



7 - RS485 interface

7.1 Communication protocol

The communication protocol consists of messages with a fix length of 13 bytes.

Technical data:

- 9600 baud rate
- 8 data bits
- 1 stop bit
- No parity bit
- ASCII

Synchronization:

Synchronization with time out.

Advise: if no message is captured after 50 ms set to zero the pointer of PLC.

If a mistake is found in a message (checksum error or type error) don't reply.

7.2 Protocol structure

Byte	Description	Accepted value
1, 2	Display address	0... 31
3	Sub-address (display)	"X" = Axis X "Y" = Axis Y1 "Z" = Axis Y2 "A" = all axis
4	Command	"P" = Read actual position "C" = Display actual position "R" = Change resolution
5	Sign	"+", "-"
6...11	Position value: 6 digit number without decimal point	000000... 999999 (resolution is 1/100 mm)
12,13	Checksum (hexadecimal)	00... FF

NOTE:

All byte have to be transmitted in ASCII type.

7.3 Example

Read actual position

(device address: 2, axis X)

PLC → LD130 (request)	02 X P +000000 55
LD130 → PLC	02 X P +012340 5F

actual position = +123.40

Display actual position

(device address: 27, axis Y2)

PLC → LD130 (request)	27 Z C +000000 4F
LD130 → PLC (confirmation)	27 Z C +000000 4F

7.4 Checksum

Algebraic calculus of first example:

"02 X P +000000 55", checksum = 55

- Convert each digit in ASCII type and execute the sum:

"0" = 48, "2" = 50, "X" = 88, "P" = 80, "+" = 43, "0" = 48, "0" = 48, "0" = 48, "0" = 48, "0" = 48.

Checksum = 48 + 50 + 88 + 80 + 43 + 48 + 48 + 48 + 48 + 48 + 48 = 597 = 255 (HEX).

- Use only the last 2 number: "55".

8 - Technical specifications

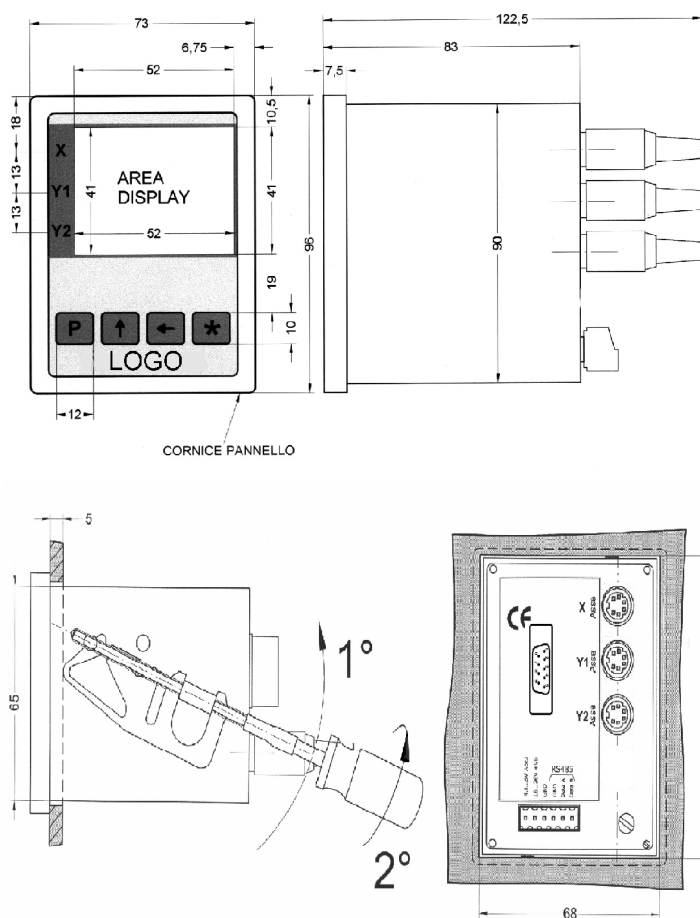
8.1 Electrical specifications

Power supply:	
Normal (+VB):	24 Vdc Protected against inversion of polarity
Stand-by (V Accu):	min 4,8 Vdc, max. 8 Vdc.
Consumption:	
Normal	≈ 150 mA
Stand-by	max 30 mA
7 segments display:	
	3 lines X 5 digit
Display range:	
	from -999.9 to 9999.9 (resolution 0,1mm)
	from -99.99 to 999.99 (resolution 0,01mm)
Output interface:	
	RS485 and RS232. Lika Protocol
Electrical connections:	
sensor:	Mini-DIN connector (circular)
power supply:	Phoenix connector
RS485:	Phoenix connector
RS232:	DB-9 female
Protection class against IEC 801 noise: 3	
Certification: CE	

8.2 Environmental specifications

Vibration [g/Hz] DIN IEC 68-2-6:	Suitable for panel mounting
Shock [g/ms] DIN IEC 68-2-27:	Suitable for panel mounting
Operating temperature range:	From 0° to 50°C
Storage temperature range:	From -20° to +80°C
Humidity:	Max. 95% rF, without condensate
Protection:	IP60 front, IP40 back

9 - Dimensional drawing



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