Ixnav LX DAQ Universal Analogue Data Acquisition Device (DAQ) Instruction Manual

Contents

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Important Notices

The LXNAV LX DAQ system is designed for VFR use only. All information is presented for reference only. It is ultimately the pilot's responsibility to ensure the aircraft is being flown in accordance with the manufacturer's aircraft flight manual. The LX DAQ must be installed in accordance with applicable airworthiness standards according to the country of registration of the aircraft.
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- A Yellow triangle is shown for parts of the manual which should be read carefully and are important for operating the LXNAV LXDAQ system.
- Notes with a red triangle describe procedures that are critical and may result in loss of data or any other critical situation.
- A bulb icon is shown when a useful hint is provided to the reader.

Limited Warranty

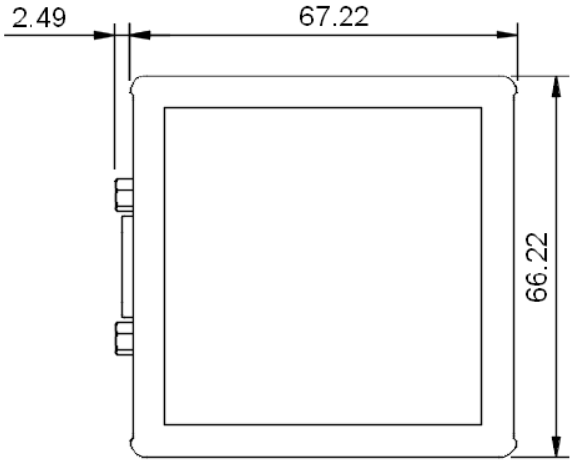
This LXNAV LXDAQ product is warranted to be free from defects in materials or workmanship for two years from the date of purchase. Within this period, LXNAV will, at its sole option, repair or replace any components that fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts and labour, the customer shall be responsible for any transportation cost. This warranty does not cover failures due to abuse, misuse, accident, or unauthorised alterations or repairs.
THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALLOTHER WARRANTIES EXPRESSED OR IMPLIED OR STATUTORY, INCLUDING ANY LIABILITY ARISING UNDER ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, STATUTORY OR OTHERWISE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, WHICH MAY VARY FROM STATE TO STATE. IN NO EVENT SHALL LXNAV BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE, OR INABILITY TO USE THIS PRODUCT OR FROM DEFECTS IN THE PRODUCT. Some states do not allow the exclusion of incidental or consequential damages, so the above limitations may not apply to you. LXNAV retains the exclusive right to repair or replace the unit or software, or to offer a full refund of the purchase price, at its sole discretion. SUCH REMEDY SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR ANY BREACH OF WARRANTY.
To obtain warranty service, contact your local LXNAV dealer or contact LXNAV directly.

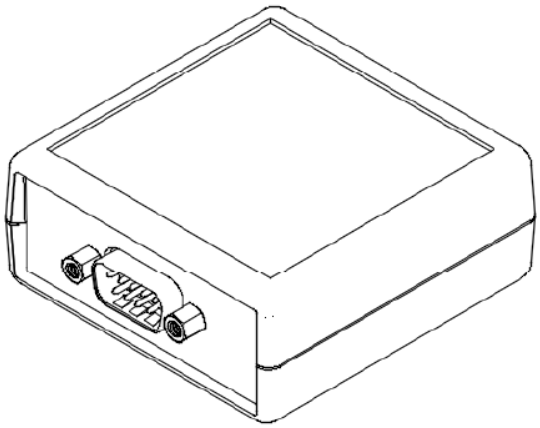
Packing list

- 1x LX DAQ

- 1x Terminal block plug 10pin

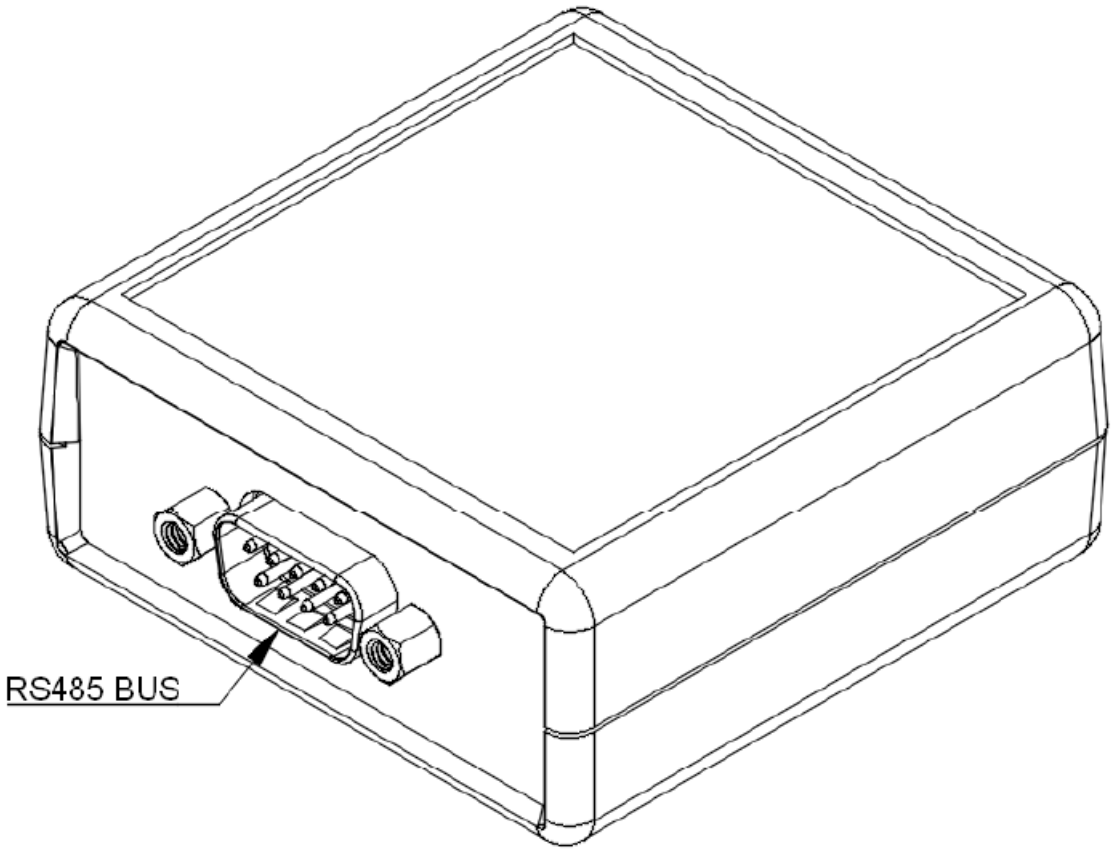
Installation





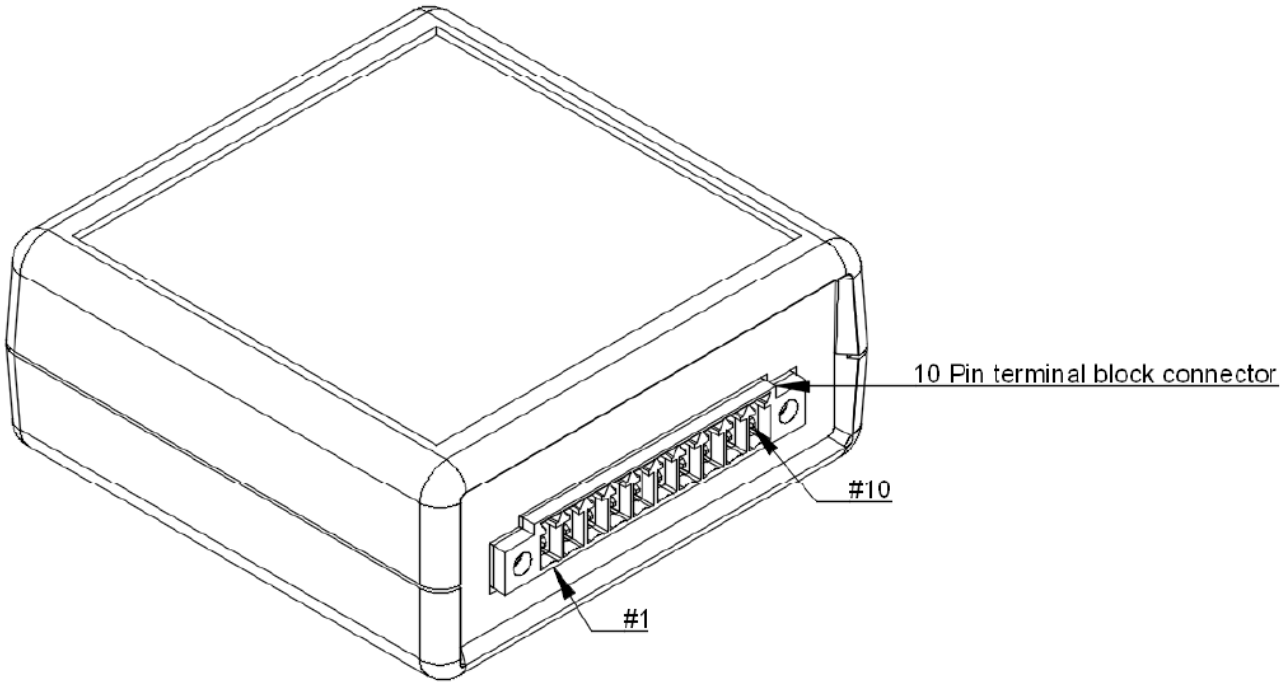
Connecting LX DAQ

Wiring



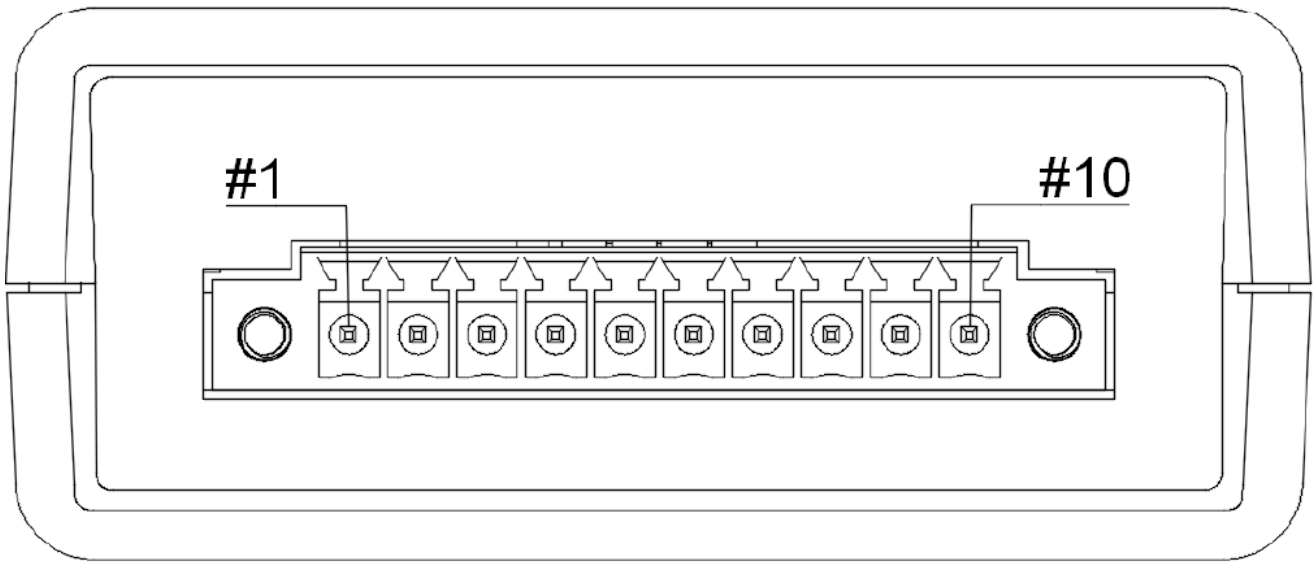
LX DAQ connects to RS485 BUS through D-Sub 9 connector to main instrument which also powers it.

External sensors are connected via 10pin terminal block connector located on opposite side from D-Sub 9 connector



Pin names (from left to right):

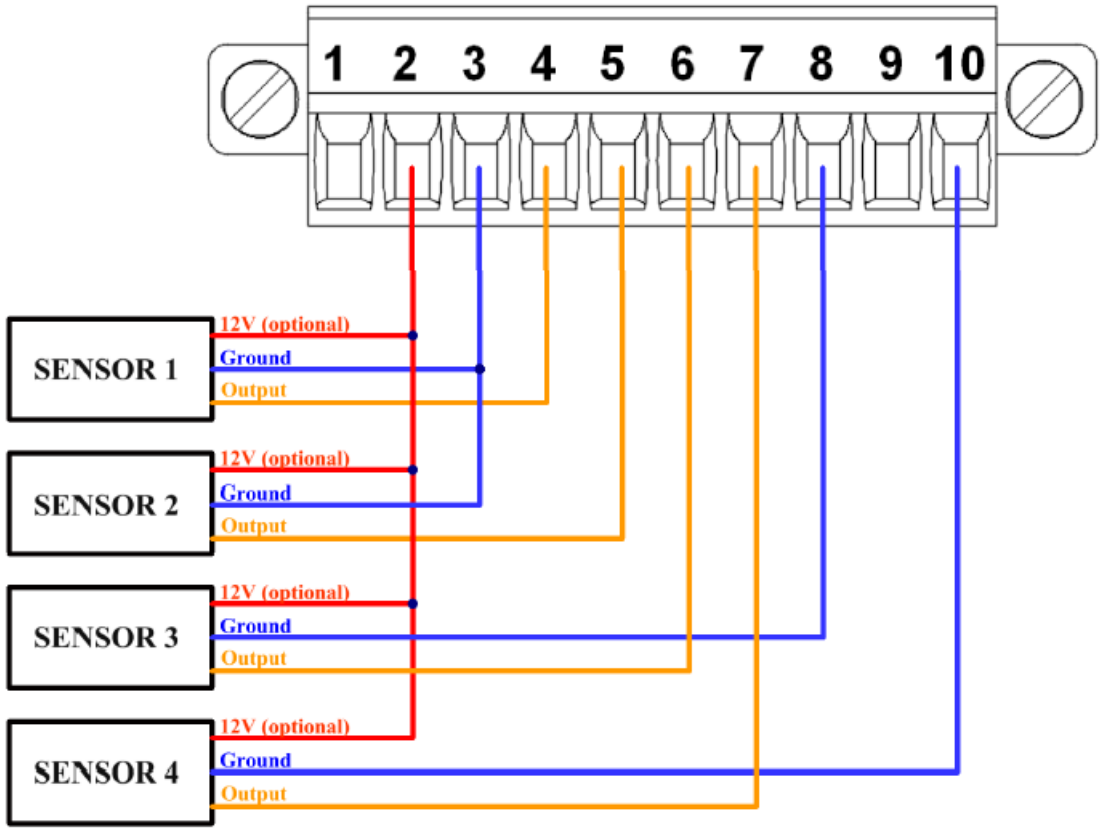
1. +12V Supply for sensors (output)
2. +12V Supply for sensors (output)
3. GND
4. Input 1 (AIN1- input)
5. Input 2 (AIN2- input)
6. Input 3 (AIN3- input)
7. Input 4 (AIN4- input)
8. GND
9. Not in use (Do not connect)
10. GND



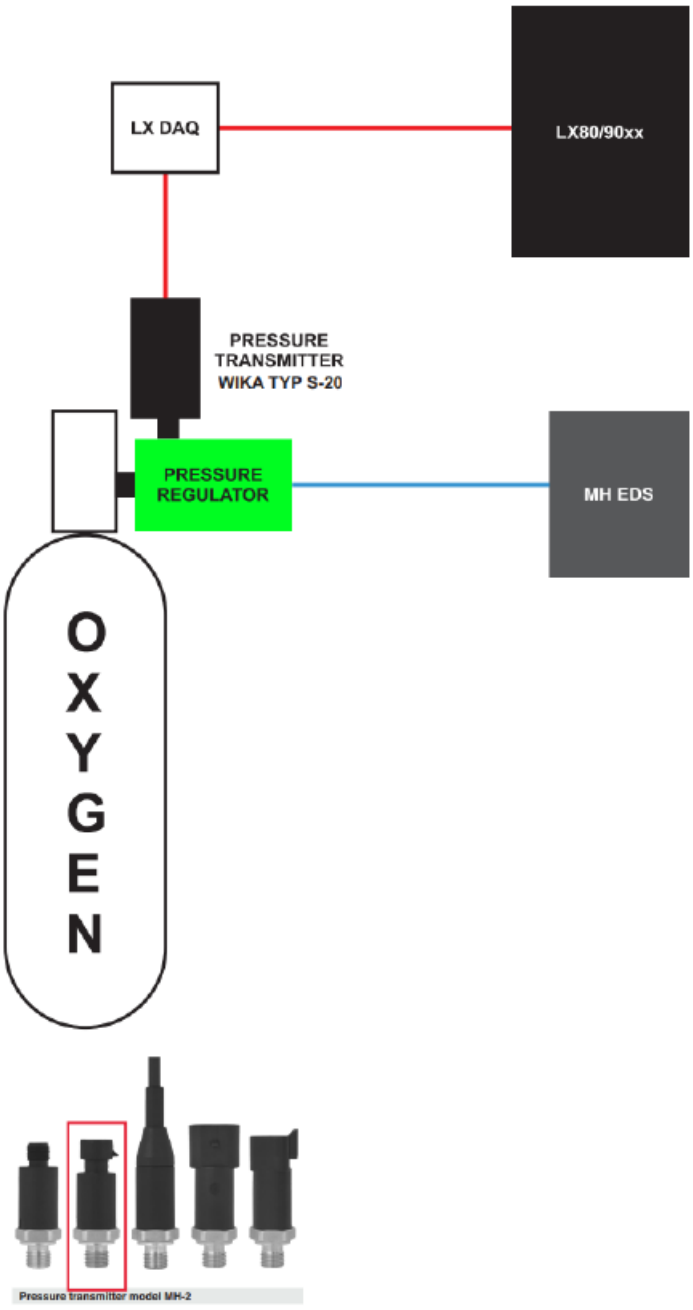
Connecting sensors

- Maximum input voltage for analog input is 12.0V on any of four channels.

The following example illustrates how to connect sensors.



Oxygen bottle sensor concept with WIKA MH-2



Measuring ranges

Gauge pressure in bar							
Measuring range	0 ... 40	0 ... 60	0 ... 100	0 ... 160	0 ... 250	0 ... 400	0 ... 600
Overload safety	80	120	200	320	500	800	1,200
Burst pressure	400	550	800	1,000	1,200	1,700	2,400

Measuring ranges < 40 bar on request

Vacuum tightness

- Yes

Output signals

Signal type	Signal
Current (2-wire)	4 ... 20 mA
Voltage (3-wire)	DC 0 ... 10 V
	DC 1 ... 5 V
Ratiometric	DC 0.5 ... 4.5 V

Other output signals available on request

Load in Ω

- **4 .20 mA:** (power supply- 10 V)/0.02 A
- **DCO. 10V:** 5k
- **DC 1.5V:** 2.5k
- **DC 0.5..4.5 V**: >4.5 k

Voltage supply

Power supply

The power supply depends on the selected output signal

- **4 .20 mA:** DC 10…36 V
- **DC O. 10 V:** DC 14 … 366V
- **DC 1 …5 V:** DC 8.. 36V
- **DC 0.5..4.5 V:** DC4.5…5.5 V

Accuracy data

Accuracy at reference conditions

- **Maximum:** S +1 % of span
- **Including non**-linearity, hysteresis, zero offsets and end value deviation (corresponds to measured error per IEC 61298-2).
- **Non-linearity** (per IEC 61298-2)
- **Maximum**: s20.4 % of span BFSL
- **Typical:**+0.25 % of span BFSL

Temperature error at 0 … 80 °C

- **Mean temperature coefficient of zero point:** Typical s 0,15 % of span/10K
- **Mean temperature coefficient of span:** Typical s 0,15 % of span/10K

Settling time 2 ms

Long-term stability

Typical: s 0.2 % of span/year

Operating conditions

Ingress protection (per IEC 60529)
The ingress protection depends on the type of electrical connection.

- **Circular connector M12 x 1 (4-pin):** IP67
- **Metro-Pack series 150 (3-pin):** IP67
- **AMP Superseal 1.5 (3-pin):** IP67
- **AMP Micro Quadlock (3-pin):** IP67
- **Deutsch DTO4-3P (3-pin):** IP67
- **Cable outlet:** IP69K

The stated ingress protection only applies when plugged in using mating connectors that have the appropriate ingress protection.

Vibration resistance

20 g (per IEC 60068-2-6, under resonance)

Shock resistance

500 g (per IEC 60068-2-27, mechanical)

Temperatures

Permissible temperature ranges for:

- **Ambient:** -40… +100 °C
- **Medium:** -40.. +125 °C
- **Storage:** -40… +100 °C

Process connections

Process connection per	Thread size
DIN 3852-E	G ¼ A
	M14 x 1.5
ANSI/ASME B1.20.1	¼ NPT
SAE J514 Fig.34B	7/16-20 UNF-2A

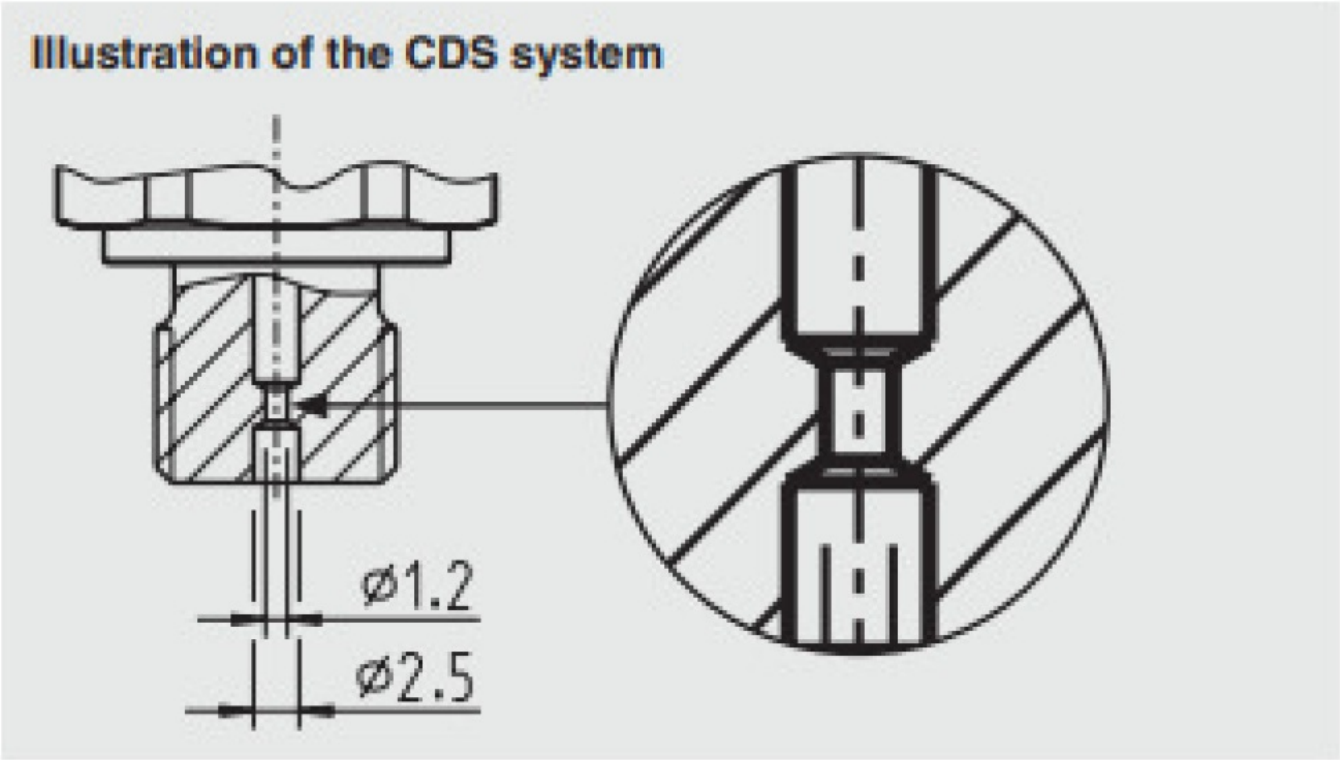
Sealings

Thread size	Standard	Option
G ¼ A	NBR	FKM
7/16-20 UNF-2A	O-ring BOSS from FKM	-

The sealings listed under “Standard” are included in the delivery.

CDS system

All process connections are available with the CDS system. The diameter of the pressure channel is reduced in order to counteract pressure spikes and cavitation (see fig.1).



Materials

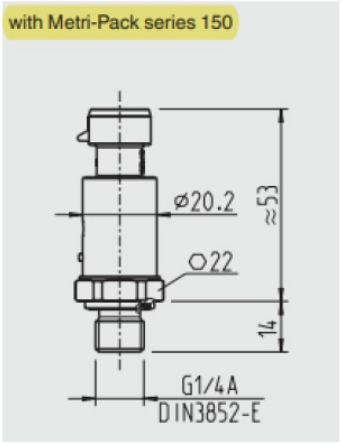
Wetted parts

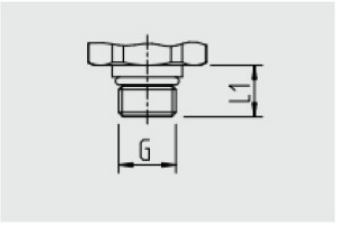
Stainless steel

Non-wetted parts

Highly resistant glass-fiber reinforced plastic (PBT)

Metri-Pack series 150 (3-pin)			
		2-wire	3-wire
	U+	B	B
	U-	A	A
	S+	-	C
AMP Superseal 1.5 (3-pin)			





G	L1
7/16-20 UNF	12

Snips has been taken from the Wika MH-2 datasheet (WIKA Alexander Wiegand SE & Co. KG)

Revision history

Rev	Date	Comment
1	March 2018	Initial release
2	January 2021	Style update

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Documents / Resources

	lxnav LX DAQ Universal Analogue Data Acquisition Device (DAQ) [pdf] Instruction Manual LX DAQ, Universal Analogue Data Acquisition Device DAQ, LX DAQ Universal Analogue Data Acquisition Device DAQ, Data Acquisition Device DAQ

References

- LXNAV Gliding