HyQuant | Quick installation guide

KISTERS

Package contents

1x HyQuant Sensor Unit
1x two-part mounting bracket (tilt and swivel)
1x 10 m cable w/ 8-pin female connector and open-ended wires
1x Torx key
1x Magnet
1x Test Certificate
1x Quick installation guide

Specifications summary

Radar frequency: 60 GHz
Radar band: V

Radar modulation:
- FMCW (level)
- Doppler (surface velocity)

Dual antenna:
- Looking 0° downwards for level
- Looking 45° downwards for velocity

Beam angle (azimuth x elevation):
- Level: 8° x 8°
- Surface velocity: 8° x 12°

Measuring range (model dependent):
- L20: 0,10 m ... 20 m/0.32 ... 65.61 ft
- L50: 0,15 m... 50 m/0.49... 164.04 ft

Operating voltage: 10...30 V DC

Power consumption @ 12V:
- Typical < 15 mA
- Peak < 80 mA

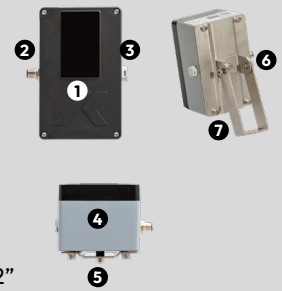
Operating temperature range: -40 ° ... +80 °C/ -40 °... 176 °F
Signal connector: M12 8-Pin male
Rating: IP68*

Compliance

CE, RoHS, FCC Class B, UL

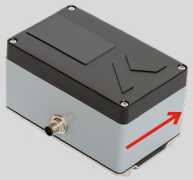
Main parts

1 Cover with integrated radome
2 M12 8-pin male connector for signal cable (supplied)
3 Pressure compensating gland
4 Die-cast aluminium housing
5 Rear mounting plate
6 U-bracket
7 Mounting bracket
Optional: pole mounting bracket 1"/2"



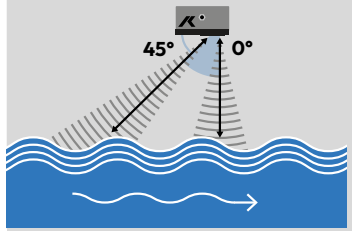
Enable local Wi-Fi communication

1. Manual activation: Swipe the supplied magnet along the red arrow (↑).
2. Enable via SDI-12: Use extended command **aXWIFI!**
3. Modbus: Write '**1**' to holding register (FC06) 81.
4. Power Cycle: Wi-Fi hotspot is activated when the device is switched on.



If there is no Wi-Fi connection to an external device, the system will automatically switch off after a few minutes to save power.

Mounting instructions



Positioning:

1. Install sensor with black lid parallel to water surface
2. The "K" on the cover should always face upstream

Mounting:

1. HyQuant comes with a standard tilt and swivel bracket for proper mounting adjustment to the water surface and flow direction.
2. Attach it to the support using M6 screws.
3. Use the provided bolt and torx key to fix the U-bracket to the HyQuant backplate.

Mounting instructions

Mounting:

4. Adjust the device's tilt and swivel until it's positioned correctly:

Beam width/footprint for level and velocity:

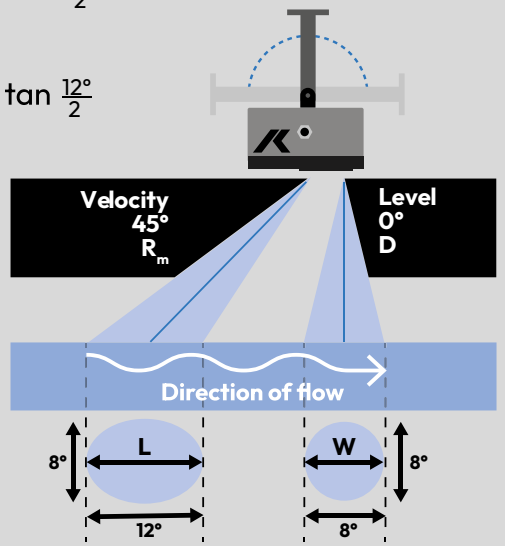
Metric (m)			
D	W	Rm	L
50,0	6,99	–	–
30,0	4,20	–	–
20,0	2,80	28,28	5,95
15,0	2,10	21,21	4,46
10,0	1,40	14,14	2,97
7,0	0,98	9,90	2,08
5,0	0,70	7,07	1,49
3,0	0,42	4,24	0,89
2,0	0,28	2,83	0,59
1,0	0,14	1,41	0,30
0,5	0,07	0,71	0,15

Imperial (ft)			
D	W	Rm	L
164.04	22.93	–	–
98.43	13,78	–	–
65.62	9,19	92.80	19.51
49.21	6,89	69.60	14.63
32.81	4,59	46.40	9.75
22,97	3,22	32.48	6.83
16,40	2,30	23.20	4.88
9,84	1,38	13.92	2.93
6,56	0,92	9.28	1.95
3,28	0,46	4.64	0.98
1,64	0,23	2.32	0.49

$$W = 2 \times D \times \tan\frac{8°}{2}$$

$$R_m = \frac{D}{\sin(45°)}$$

$$L \approx 2 \times R_m \times \tan\frac{12°}{2}$$



*IP68: dustproof and protected against continuous submersion in water; max. depth 1,5 m for max. 3 h. No protection from other liquids. Required: M12 connector inserted and securely fastened.

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Safety instructions

1. **Preparation:** Read the manual thoroughly before installation, ensuring understanding of operating procedures. Only qualified personnel familiar with installation and operation should handle the product.
2. **Reference:** Keep the manual accessible for future use and consult it if difficulties arise. Contact the manufacturer or authorized distributor for assistance with any issues regarding the Installation Instructions.
3. **Intended Use:** Use the HyQuant sensor strictly for hydrographic applications as described in the manual, adhering to specified guidelines for use, deployment, maintenance, and repair.
4. **Safety:** Follow detailed safety instructions provided for each step during installation and deployment. Avoid using the sensor in potentially explosive environments.
5. **Electrical Work:** Electrical installation should only be performed by trained specialists due to the complexity of working with electrical systems.
6. **Specifications:** Adhere to electrical, technical, and climatic specifications at all times to ensure proper functioning of the device.
7. **Warranty:** Any modifications or alterations to the HyQuant will void the warranty and necessary safety approvals.
8. **Regulations:** Comply with electrical safety standards and relevant health, safety, and environmental regulations.
9. **Water Safety:** Provide and ensure the use of life jackets or buoyancy aids for workers at risk of falling into water during installation or maintenance near water bodies.

For detailed safety instructions, please refer to the user manual available for download from the product website.

Configuration Software

HyComm is **KISTERS** software utilized for local communication between a computer or portable device and the **HyQuant radar sensor.**

To connect:

1. Switch on the mobile hotspot in the HyQuant sensor by swiping a magnet across the lower bottom of the KISTERS "K" on the cover.
2. Click on the Wi-Fi icon in in your computer's taskbar.
3. Select the Wi-Fi access point named HYRYY-NNNN from the provided list, where YY-NNNN is the serial number of the HyQuant device.
4. The actual connection to HyQuant is made via the HyComm configuration software. The HyQuant will ask you to enter a password. The default PW of a new HyQuant is **Kisters123!** For IT security, we recommend that you change it to a secure PW of your choice.
5. The computer connects to the Wi-Fi hotspot.

Download HyComm Installer

SDI-12 Extended Commands

Name	Command	Response	Details
Enable Wi-Fi	aXWIFI!	a0<CR><LF>	a - sensor address Enable HyQuant Wi-Fi to configure via HyComm
Set staff gauge	aXSGs!	ad<CR><LF>	a - sensor address s - the current staff gauge value d - the new value of sensor height above riverbed stored in the sensor
Set sensor height above riverbed	aXSHARs!	ad<CR><LF>	a - sensor address s - the measured sensor height above riverbed d - the new value of sensor height above riverbed stored in the sensor

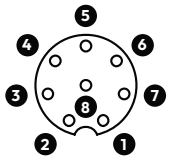
Modbus default settings

Parameter:	default	-	Baudrate:	9600
Parity:	none	-	Data bits:	8
Stop bits:	1	-	Byte order:	big endian
Float/unit:	32 word order; big endian	-	Slave Addr.:	1

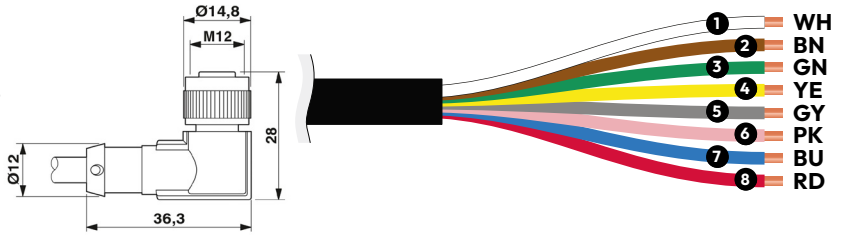
Cable and connector pinout

1	2	3	4	5	6	7	8
Power VCC +	Power GND -	SDI-12 GND	SDI-12 Data	RS485A	RS485B	NC	NC

Pin assignment (female view)



Connection diagram



Caution: Incorrect or faulty connection can damage the device. All interface and power cables are protected against reverse polarity, but incorrect connection of power cables to interface cables can damage the device.