



K315 - Frequency Output & MIN alarm KIT for Paddlewheel Flow Sensor

INSTRUCTION MANUAL

EN 10-11

Table of Contents

1. Introduction.....	2
Safety Instructions.....	2
Unpacking.....	2
2. Description.....	2
3. Specifications.....	3
Technical Data.....	3
Dimensions.....	3
4. Installation.....	4
Sensor Assembly.....	4
Wiring.....	4
5. Calibration.....	6
Calibration Mode.....	6
Operative Mode.....	6
6. Troubleshooting.....	7
7. Ordering Data.....	7

1. Introduction



1.1. Safety Instructions

General Statements

- ❑ Do not install and service the device without following the Instruction Manual.
- ❑ This unit is designed to be connected to other instruments which can be hazardous if used improperly. Read and follow all associated instrument manuals before using with this sensor.
- ❑ Installation and wiring connections should only be performed by qualified staff.
- ❑ Do not modify product construction.

Installation and Commissioning Statements

- ❑ Remove power to the device before wiring any connection.
- ❑ When the unit is powered and the cover is open, protection against electric shocks is not ensured.
- ❑ Do not exceed published specifications using this instrument.
- ❑ To clean the device, use only chemical compatible products.

1.2. Unpacking

Please verify that the product is complete and without any damage. The following items must be included:

- K315 – Frequency Output & MIN Alarm KIT for Paddlewheel Flow Sensor with black sensor cap included
- Instruction Manual

2. Description



This Kit consists of an additional IP65 housing plugged on the sensor. It is equipped with an open collector frequency output and a mechanical SPDT contact. The MIN alarm set-point can be freely set by a potentiometer from 0.15 to 1 m/s (0.5 to 3.3 ft/s). When the flow velocity drops below the adjusted limit the relay output opens and the Local Status Indicator changes colour. It has been designed to protect a pump from running dry or pumping against a closed valve in the main pipeline.

3. Specifications

3.1. Technical Data

Associated Flow Sensor: Hall effect (F3.01.H.XX Compact version)

Supply voltage: 12 to 24 VDC regulated

Output signal: square wave

Output frequency: 45Hz per m/s nominal (13.7 Hz per ft/s nominal)

Output type: transistor NPN open collector

Output current: 10 mA max.

Relay Output: mechanical SPDT contact, 3 A @ 30 VDC, 3 A @ 250VAC resistive load

Flow trip point: 0.15 to 1 m/s (0.5 to 3 ft/s) freely adjustable

Local Status Indicator: GREEN Led = Flow RED Led = No Flow

Enclosure: IP65

Operating temperature: 0 to 60°C (32 to 140°F)

Relative humidity: 0 to 95% non-condensing

Housing material: PVC

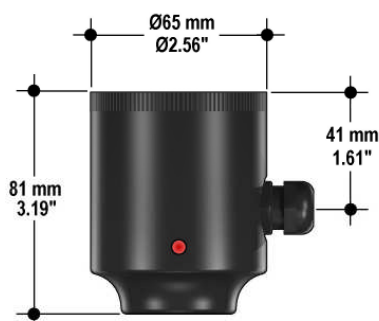
Standards & Approvals

Manufactured under ISO 9002

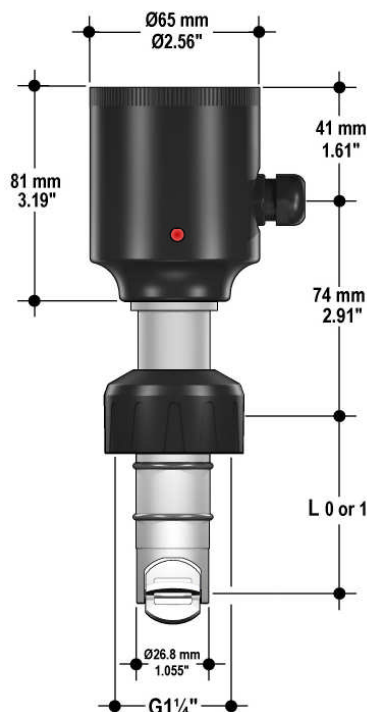
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3.2. Dimensions

K315 KIT



F3.15 Sensor with O.C. output & MIN alarm

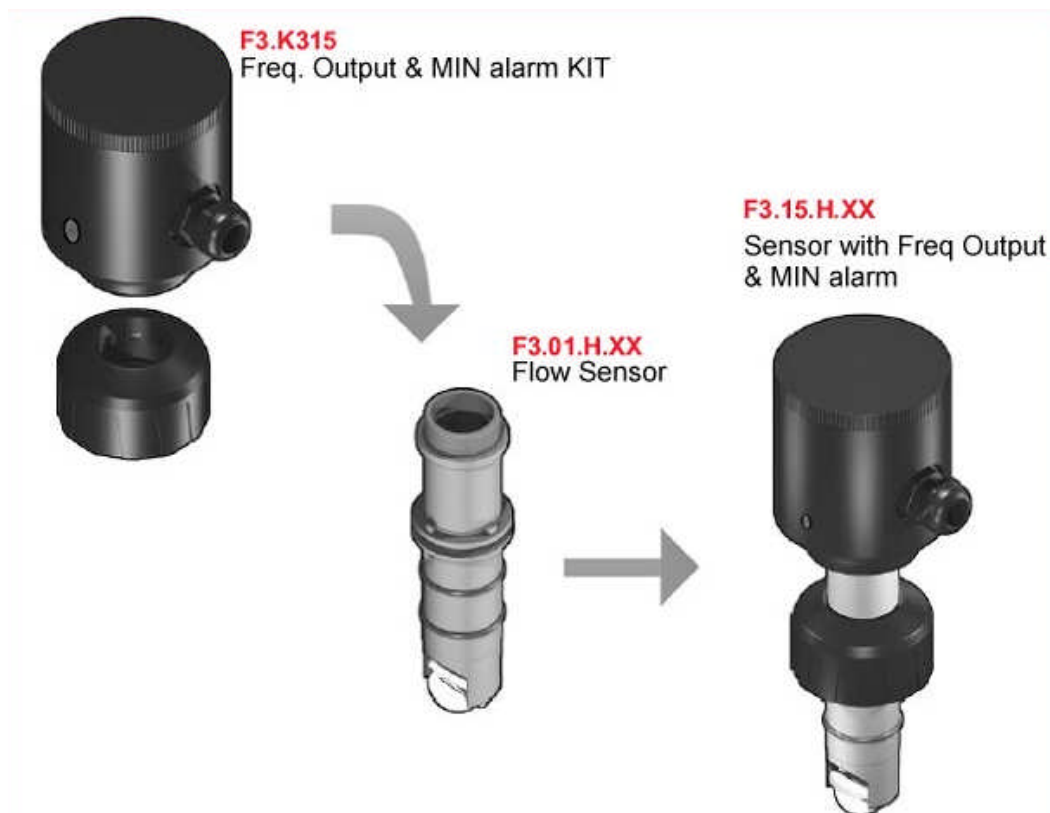


L0 = 68.3 mm (2.69 in)

L1 = 98.5 mm (3.88 in)

4. Installation

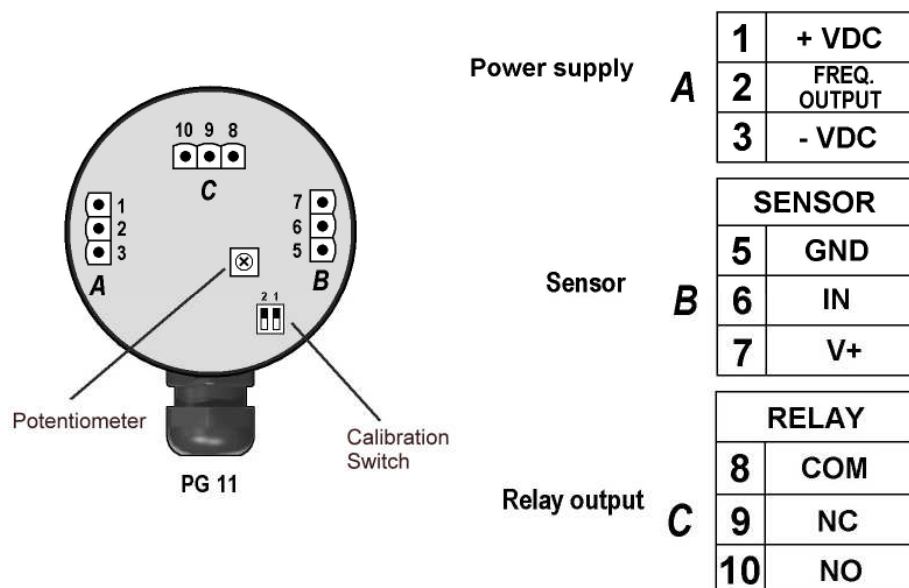
4.1. Sensor Assembly



Screw down completely the electronic box to have a perfect sealing between the sensor and the box.

4.2. Wiring

Unscrew the top cover to reach the electrical connections. All wiring connections to K3.15 are made via removable terminals.

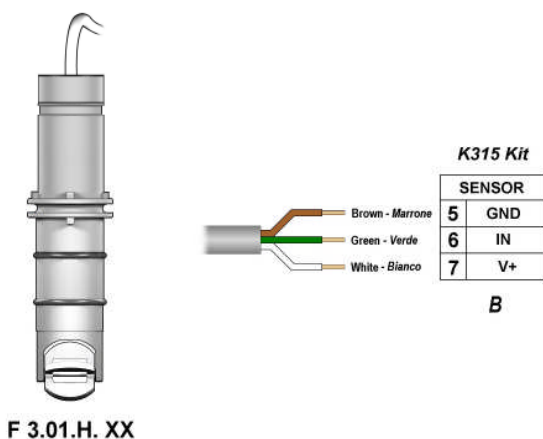




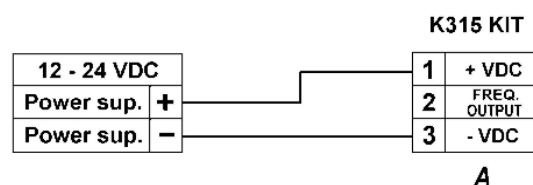
General recommendation

- ❑ Always ensure the power supply is switched off before working on the device.
- ❑ Terminals accept 26 to 12 AWG (0.08 to 2.5 mm²)
- ❑ Strip around 10 mm (0.4") of insulation from the wire tips and tin bare ends to avoid fraying.
- ❑ Ferrules are suggested when connecting more than one wire to a single terminal.
- ❑ Remove the upper part of the terminals for an easy cabling.
- ❑ Insert wire tip or ferrule completely into the terminal and fix with the screw until finger tight

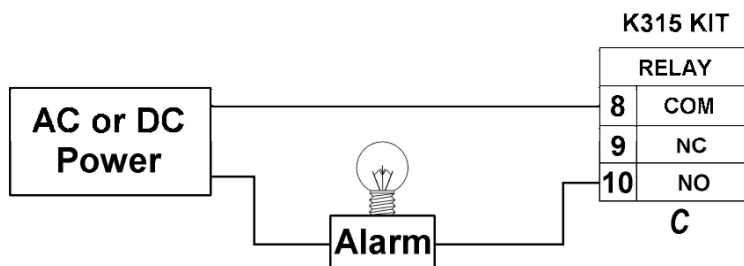
Sensor Wiring Diagram



Power Wiring Diagram



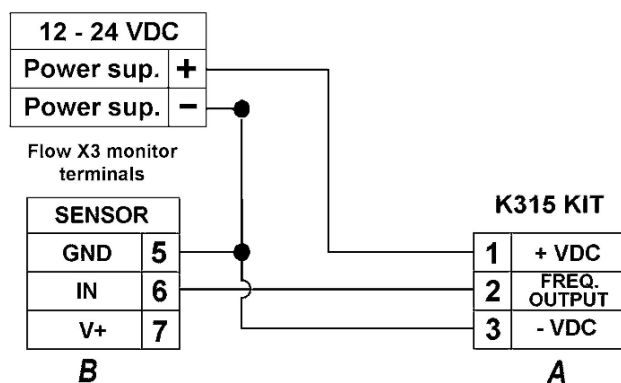
Relay Wiring Diagram



The alarm is OFF during normal operation. In alarm condition the Local Status Indicator (LED) is RED.

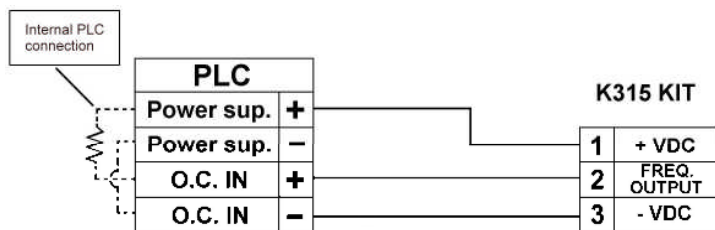
Frequency Output Wiring Diagram

Connection to FlowX3 Instruments



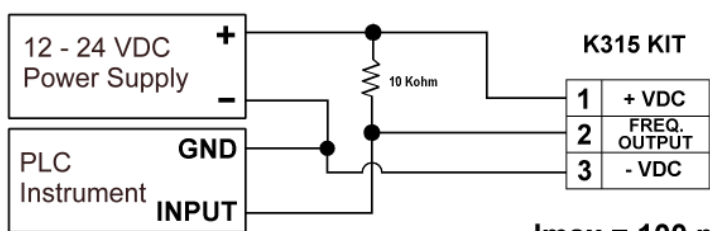
The FlowX3 monitor does not provide power supply to the K315 KIT. External power supply is required.

Connection to a PLC with built-in power supply



$I_{max} = 100 \text{ mA}$

Connection to a PLC/Instrument with separate power supply

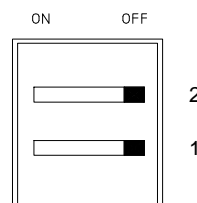


$I_{max} = 100 \text{ mA}$

5. Calibration

5.1. Calibration Mode

- Switch 1 must be in OFF position.
- Induce in the pipe the flow rate corresponding to your Alarm condition (it should be as stable as possible).
- Turn the potentiometer (**clockwise**) until the led becomes green (not necessary if the led is already green).
- Turn the potentiometer in the opposite direction (**anti clockwise**) until the led turns red. You must stop turning the potentiometer as soon as the led turns red.
- Now the Alarm calibration is complete.

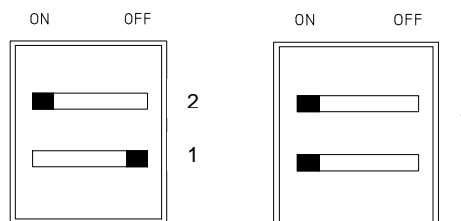


5.2. Operative Mode

Switch 1 must be in ON position.

Switch 2 can be used to select the most suitable switch delay:

- OFF position to select the 3 second switch delay
- ON position to select the 10 seconds switch delay



The electronics recognise switch 2 modification after ten seconds.

6. Troubleshooting

Problem	Reason	Solution
No output signal	<ul style="list-style-type: none"> No or wrong power supply Incorrect handling of O.C. output Incorrect cabling The rotor doesn't turn 	Verify : <ul style="list-style-type: none"> Power supply (sec. 4.2. Wiring) Connections between K315 and other electronic devices (sec. 4.2. Wiring) Wire insertions into in terminal holes (sec. 4.2. Wiring) Flow velocity: it must be $\geq 0,15\text{m/s}$
Relay no activated	<ul style="list-style-type: none"> No or wrong power supply Incorrect cabling Incorrect setting alarm 	Verify : <ul style="list-style-type: none"> Power supply (sec. 4.2. Wiring) Wire insertions into in terminal holes (sec. 4.2. Wiring) Unit Calibration (sec 5. Calibration)

7. Ordering Data

Part No.	Housing	Gaskets	Enclosure	Description
F3.K315	PVC	EPDM	IP65	Frequency Output & MIN Alarm KIT

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