Hansford Sensors
Excellence in Vibration Monitoring

HS-429 Vibration Trip Manual

CONTENTS

An instruction is indicated by "►":

Example: ► Check whether the unit operates correctly.

Important note

Non-compliance can result in malfunctions or interference

Information

Supplementary note

1. SAFEY INSTRUCTIONS

- Please read the product description prior to set-up of the unit Ensure that the product is suitable for your application without any restrictions
- The unit conforms to the relevant regulations and EC directives.
- Improper or non-intended use may lead to malfunctions of the unit or to unwanted effects in your application
- That is why installation, electrical connection, set-up, operation and maintenance of the unit must only be carried out by qualified personnel authorised by the machine operator

2. FUNCTIONS AND FEATURES

The vibration sensor detects the vibration in the system (measured / evaluated physical unit = vibration velocity) This is converted into an analogue signal at the current output The switching output behaviour is determined using the two setting rings

3. INSTALLATION

► Mount only in a thick housing wall (e.g. transport thread).

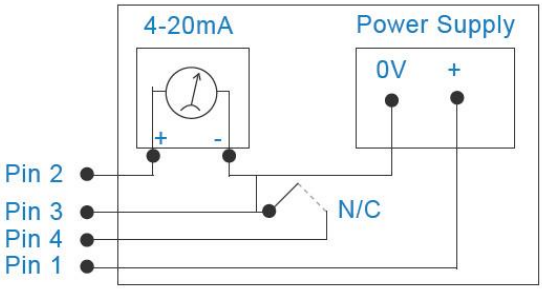
► Ensure that the signal direction is correct

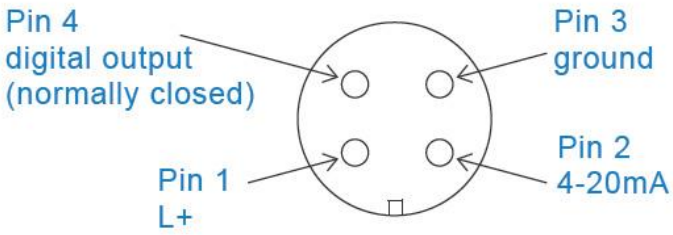
► Ensure a safe vibration transmission and allow no elastic intermediate layers

► Tighten the sensor with a tightening torque of 15 Nm

4. ELECTRICAL CONNECTION

The unit must be connected by a qualified electrician. The national and international regulations for the installation of electrical equipment must be adhered to.





5. SETTINGS

RMS Set

Effective value of the switching threshold, defining the limit value of the vibration velocity

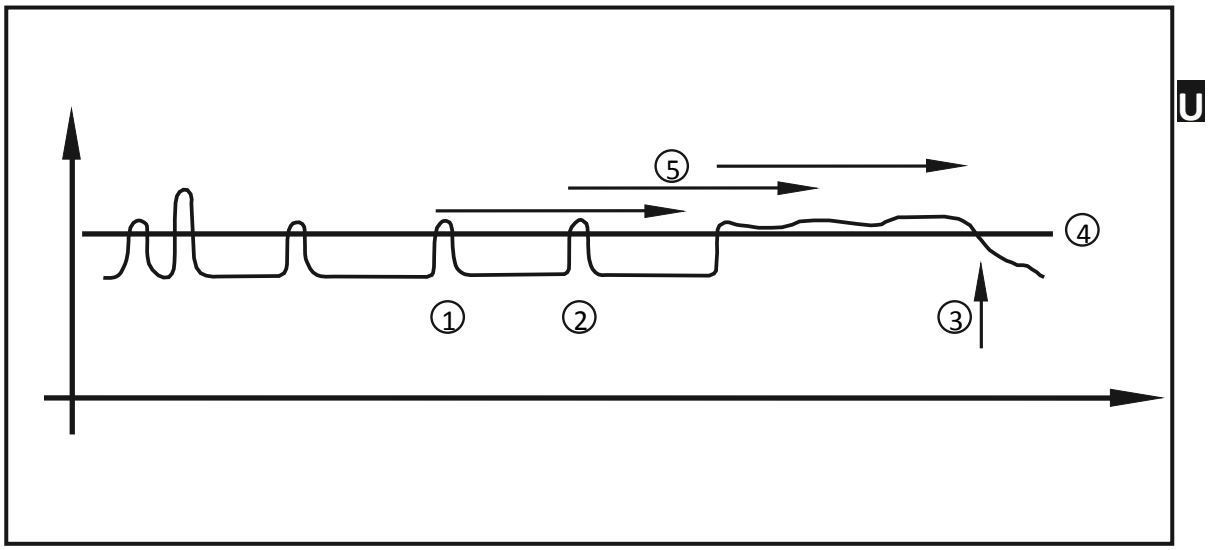
Delay Set

Time in seconds during which the limit value must be effectively above the switching threshold (RMS Set) to activate the switching output (normally closed pin 4)

6. MEASUREMENT RANGE

Velocity Range	0-25 mm/sec or 0-50mm/sec 0-1 IPS or 0-2 IPS
Iout	4-20mA
Response delay	1- 60 sec

7. SWITCHING OUTPUT BEHAVIOUR



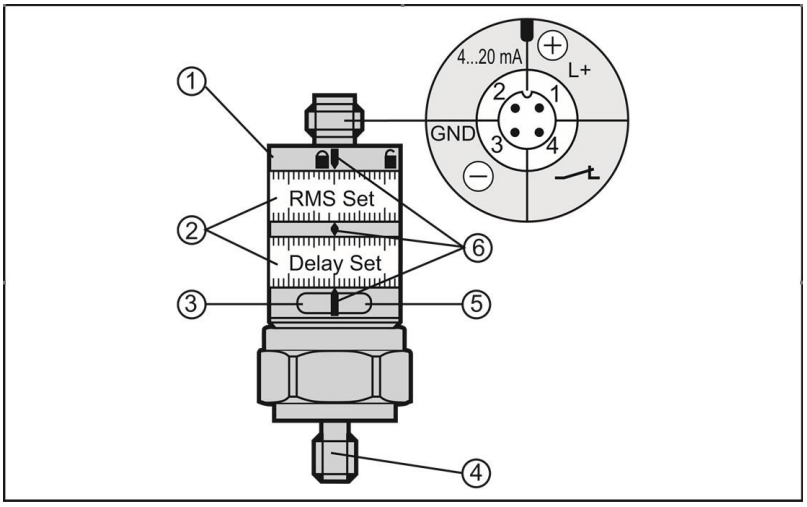
1: Time delay after the switching threshold has been exceeded
2: Time delay after the switching threshold has been exceeded
3: Switch-off
4: Switching threshold
5: Delay
V_{ss} = vibration
velocity t = time

Implementation of the time delays

The time delay starts when the defined switching threshold is exceeded (1) / (2)

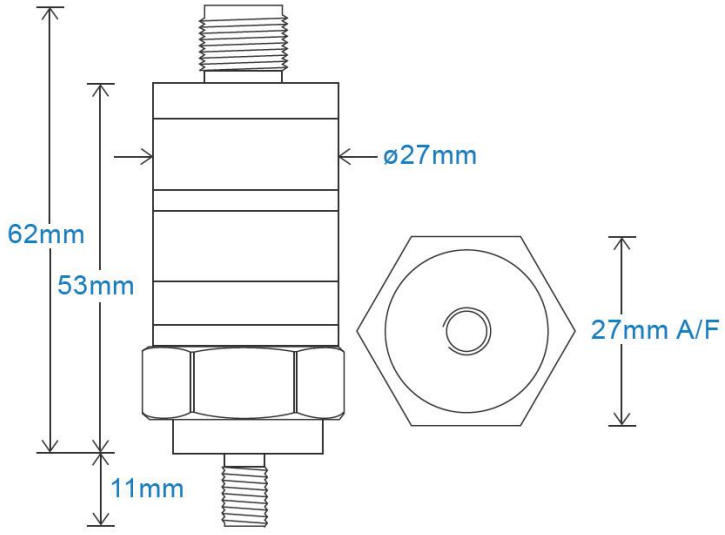
The time delay is cancelled when the value falls below the switching threshold (without switch-off) The switch-off is triggered when the switching threshold is exceeded during a full time delay (3)

8. OPERATING AND DISPLAY ELEMENTS



1) locking ring
2) setting rings (manually adjustable after unlocking)
3) LED green: voltage supply
4) M8 process connection
5) LED yellow: lights when switching threshold and time delay are exceeded
6) setting marks

To achieve the setting accuracy: first position the rings to the lower end stop value, then set the requested value



9. MAINTENANCE, REPAIR AND DISPOSAL

The operation of the unit is maintenance-free. It is not possible to repair the unit. After use dispose of the unit in an environmentally friendly way in accordance with the applicable national regulations.

10. TECHNICAL PERFORMANCE

Velocity Ranges:	to be specified with order, ±10% Nominal 80Hz at 22°C
Frequency response:	10Hz (600cpm) to 1kHz (60kcpm) ± 5% - ISO10816
False Trigger Delay:	Adjustable up to 60 seconds
Trip Setting:	Fully adjustable

11. ELECTRICAL

Current Output:	4-20mA DC proportional to Velocity Range
Supply Voltage:	18-32 Volts DC
Switching Output:	NC, PNP up to 500mA
Display OK LED:	Green
Trip LED:	Yellow
Current Consumption:	18-30volts DC at 50mA

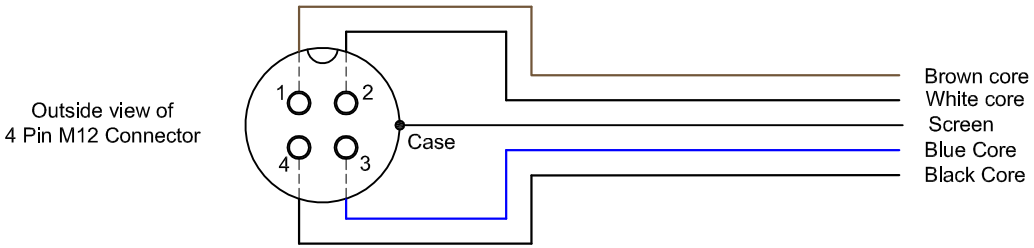
12. MECHANICAL

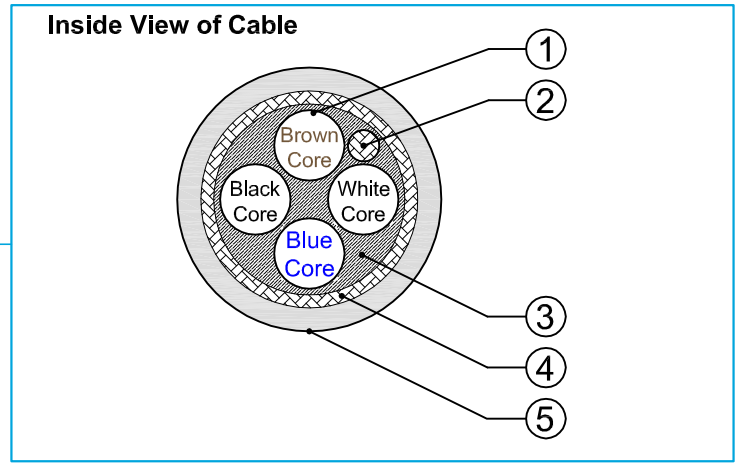
Case Material:	Stainless Steel 316L/Plastic
Mounting Torque:	15Nm
Weight:	116gms (nominal)
Screened Cable Assembly:	HS-AC010 (straight), HS-AC011 (right angle)
Mounting Threads:	M8 x 1.25mm male

13. ENVIRONMENTAL

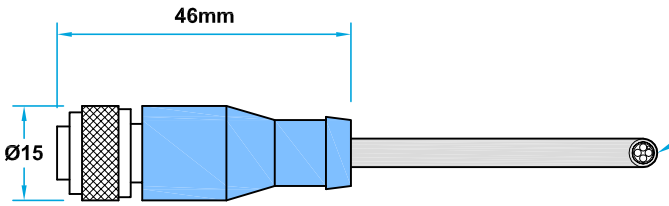
Operating Temperature Range:	-25 to 80ºC
Sealing:	IP67
Maximum Shock:	100g
EMC:	EN61326-1:2013
Reverse Polarity:	Protected
MTBF:	510 years

Connection Details of Cable Assembly

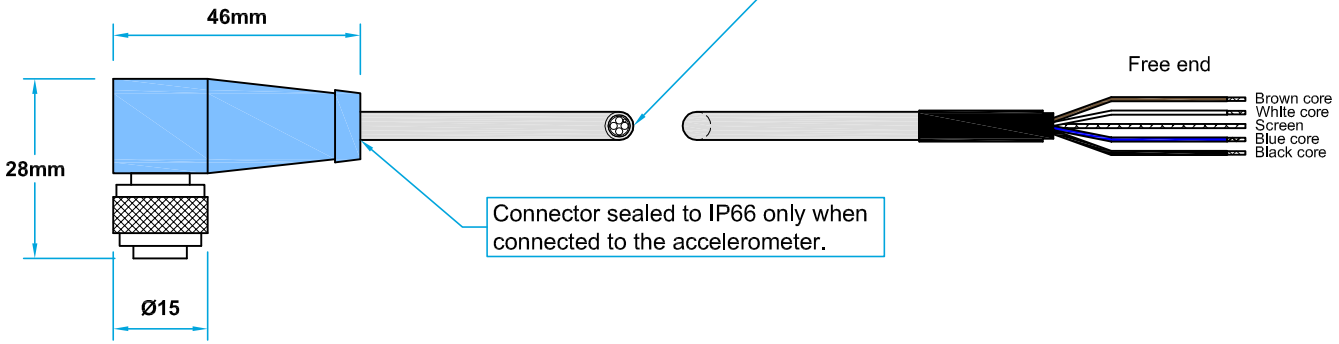




HS-AC010
M12 4 pole
straight connector



HS-AC011
M12 4 pole right
angle connector



Free end core details
White & black core is used for
HS-100, HS-102, HS-120, HS-420 series.

Brown, white & black used for
HS-100T, HS-421 & HS-423 series.

Brown, white, blue & black core used for
HS-420T & HS-422T series.

Materials of Cable				
Pos	**Description**	**Dimension**	**Overall Diameter**	**Remarks**
Cable description: LiF9YHC11YH 4 x 0.34mm2 with drain wire qualified for drag chains acc. to UL/CSA 20233		Bending radius	min.10 x outer-Ø	Moving
			min. 5 x outer-Ø	Fixed installation
1.	Conductor, bare soft copper wire		0.10mm	acc. to VDE 0295, cl 6
2.	Screen wire, tinned copper		0.20mm	
3.	Stranding, 4 cores surrounding a woollen inner core			Lengh of lay approx 43mm drain wire
4.	Screen, tinned copper			Coverage: 84% min
5.	Outer sheath, Polyether-Polyurethane PUR11Y Flame retardant acc. to VDE 0472, Part 804/B Oil resistant acc. to VDE 0472, Part 803 Halogen free, free of silicone, seawater-resistant		5.9 ±0,2mm	Grey similiar to RAL7040

Technical Data of Cable		
Technical Data	**Values at 20°C**	**Unit**
Resistance	≤57	Ω / km
Test voltage	2	KV
Normal voltage	300	V
Inductance	0.7	µH/m
Capacitance	Parallel wires: 66.7	pF/m
	Nonparallel wires: 63.1	
	Wire/screen: 120.0	
Temperature range	-40°C bis + 80°C	Moving
	-50°C bis + 80°C	Fixed installation

Hansford Sensors
Excellence in Vibration Monitoring

Tel: +44(0) 845 680 1957
Fax: +44(0) 845 680 1958
Email: sales@hansfordsensors.com
Web: www.hansfordsensors.com