TUNING FORK LEVEL SWITCH



- LIQUIDS OR SOLIDS FROM 0.6 G/CM³
- NO MOVING PARTS
- OUTPUT PNP · NPN · RELAY
- MEDIUM UP TO +150 °C
- IP67 · STAINLESS STEEL · M12

IP67 · M12 · Stainless Steel · High Temperature –40…250 °C

VERSIONS

Feature	Versions
Housing	compact: stainless steel 304, M12 connector · rugged: die-cast aluminium, valve plug
Process connection	G1/2, G3/4, G1, R1 male · sanitary flange 50.5 mm
Output	PNP · NPN · relay (changeover)
Fork	standard length · custom length
Medium temperature	–20 … +80 °C (standard temperature) · –40 … +150 °C (high temperature)
Power supply	12 … 30 V DC

office@octogon.org | +43 676 3628453
octogon GmbH | Roseggerstrasse 16 8700 Leoben | Austria

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OVERVIEW

Tuning fork level switch for liquids and solid particles – no moving parts, independent of the density and electrical properties of the medium, with PNP, NPN or relay output.

A piezoelectric drive makes the tuning fork oscillate. When the fork is immersed in liquid or bulk solids, the oscillation frequency changes; the electronics detect the change and switch. Turbulence, agitation, bubbles and vibration do not affect the measurement, and as nothing moves the switch needs neither maintenance nor adjustment. Two housings are available: a compact stainless steel housing with M12 connector and a rugged die-cast aluminium housing with valve plug and adjustable delay. Typical uses are hydraulics and lubrication, pump protection, cooling systems, pulp, water treatment and food and beverage.

≥ 0.6 g/cm³	20 bar	+150 °C	IP67
density of medium	pressure resistance	max. medium temperature	protection class

DETECTION

- liquid or solid particles
- density ≥ 0.6 g/cm³
- response time 1 s
- no moving parts

DESIGN

- compact or rugged housing
- G1/2 · G3/4 · G1 · R1 · sanitary flange
- output PNP, NPN or relay
- high temperature up to +150 °C

TECHNICAL DATA

MEASUREMENT

Measuring principle	tuning fork, piezoelectrically excited
Medium	liquid or solid particles
Density of medium	≥ 0.6 g/cm³
Response time	1 s
Delay	1 … 20 s adjustable (rugged housing only)
Pressure resistance	20 bar

TEMPERATURES

Operating temperature	–20 … +80 °C
Medium temperature	–20 … +80 °C (standard temperature) · –40 … +150 °C (high temperature)

MECHANICAL PROPERTIES

Compact housing	stainless steel 304
Rugged housing	die-cast aluminium
Fork	stainless steel 316
Process connection	G1/2, G3/4, G1, R1 male · sanitary flange 50.5 mm
Protection class	IP67
Electrical connection	compact: M12 connector · rugged: valve plug

ELECTRICAL PROPERTIES

Power supply	12 … 30 V DC
Power consumption	≤ 1 W
Protection	reverse polarity protection

OUTPUT

Output type	PNP · NPN · relay
Relay	changeover, normally open and normally closed (NO / NC / COM)
Relay load capacity	220 V AC (110 V AC) / 3 A

PIN ASSIGNMENT – PNP / NPN

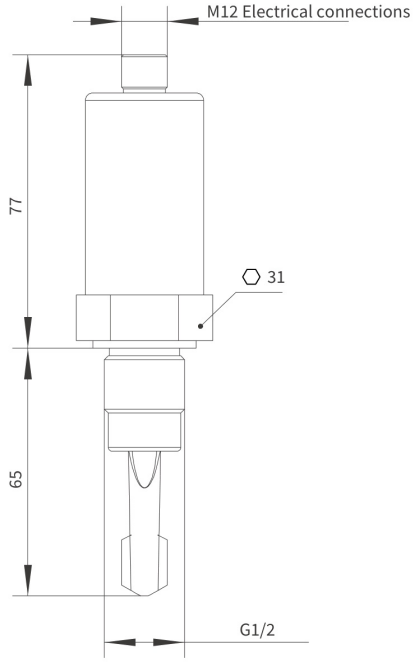
Pin · wire	PNP	NPN
1 · BN brown	+U	+U
3 · BU blue	0 V	0 V
4 · BK black	switching output · load between pin 4 and 0 V	not used
2 · WH white	not used	switching output · load between +U and pin 2

PIN ASSIGNMENT – RELAY

Pin · wire	Signal	Meaning
1 · BN brown	+U	supply +
3 · BU blue	0 V	supply –
2 · WH white	NC	normally closed
4 · BK black	NO	normally open
5 · GY grey	COM	common contact

DIMENSIONS (mm)

Version with M12 connector and G1/2 process connection



Dimensions in mm. Hexagon: 31 mm across flats. Drawings of other versions on request.

COMPLIANCE AND CERTIFICATION

Protection Rating	IP67
Compliance	CE marking (type label)