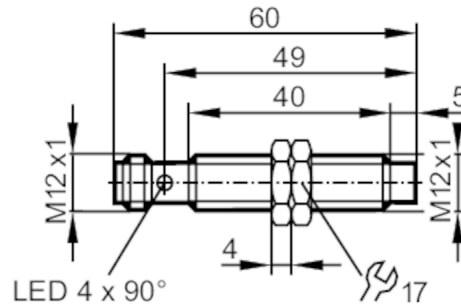


GF854S



Fail-safe inductive sensor

GIFK4004-2PO/SIL2/US



Product characteristics

Electrical design	PNP
Output function	2 x OSSD (A1 and A2)
Enable zone [mm]	> 6
Housing	threaded type
Dimensions [mm]	M12 x 1 / L = 60

Application

Special feature	Gold-plated contacts
Type of operation	permanent operation
Safety-related function	safe state when damped correctly
Application	Use in mobile and harsh applications

Electrical data

Operating voltage [V]	8...32 DC
Rated insulation voltage [V]	60
Current consumption [mA]	< 20
Protection class	III
Reverse polarity protection	yes
Max. power-on delay time [ms]	1000

Outputs

Electrical design	PNP
Output function	2 x OSSD (A1 and A2)
Max. voltage drop switching output DC [V]	2.5; (30 mA)
Minimum load current [mA]	1
Permanent current rating of switching output DC [mA]	50
Switching frequency DC [Hz]	10
Output data	Interface type C class 1
Output voltage at 24 V	compatible with EN 61131-2 inputs type 1, 2
Short-circuit protection	yes
Overload protection	yes
Max. capacitive load CL_max [nF]	20

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Detection zone	
Enable zone [mm]	> 6
Safe switch-off distance s(ao) [mm]	< 3

Accuracy / deviations	
Correction factor	steel: 1 / stainless steel: 0.7 / brass: 0.4 / aluminium: 0.4 / copper: 0.3
Hysteresis [% of Sr]	1...10

Response times	
Response time to safety request [ms]	5
Response time when approaching the enable zone [ms]	5
Risk time (response time for safety-related faults) [ms]	100

Operating conditions	
Ambient temperature [°C]	-40...85
Max. relative air humidity [%]	50; (70 °C; <70 °C: >50 %)
Max. height above sea level [m]	5000
Ionising radiation	not permissible
Protection	IP 65; IP 67; IP 68; IP 69K; (with ifm socket duly screwed on)

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Chemical media

test according to ISO 16750-5	
the following media were tested for 22 hours at 60 °C	coolants
	(HoughtonHocut4480
	Oemeta
	HYCUT ET 46)
The following media were tested for 22 hours at 75 °C	hydraulic fluids
	(Fuchs Renoling B15 VG 46 HLP
	Total BiohydranTMP 4HEES
	Fuchs Hydrotherm 46 M HFC)
	transmission oils
	(Fuchs TITAN ATF 3353 Dexron III)
	diesel
	biodiesel
	urea
	(AdBlue)
	brake fluid
	(K2 TURBO DOT 4)
the following media were tested for 22 hours at 23 °C	corrosion protection
	(Sonax special preservation wax)
	cold cleaner
	(Sonax cold cleaner S)
	ammonia-based cleaner
	(Weco Dr. Webers Salmiak-Konzentrat
	(concentrated ammonium chloride))
	battery acid
the following media were tested for 2 hours at 23 °C	wheel rim cleaner
	(Sonax Xtreme Plus)
the following media were tested for 10 minutes at 23 °C	premium-grade petrol lead-free



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Tests / approvals		
EMC	industrial environments	
	EN 60947-5-3	
	EN 61000-4-2 ESD	6 kV CD / 8 kV AD
	EN 61000-4-3 HF radiated	20 V/m
	EN 61000-4-4 Burst	2 kV
	EN 61000-4-5 Surge	2 kV
	EN 61000-4-6 HF conducted	10 V
	EN 61000-4-8	30 A/m 50/60 Hz / 1000 A/m 0 Hz
	EN 55011	class B
	mobile applications	only for operation with central load-dump suppression (58 V) / not for active operation during motor start phase in 12 V systems
	ISO 10605 ESD	8 kV CD / 15 kV AD
	ISO 11452-2, ISO 11452-5 radiated immunity	100 V/m
	ISO 7637-2, ISO 16750-2 conducted immunity	12 V / 24 V
	pulse	1 2a 3a 3b 4 5b
	severity level	III III III III III III 58V
failure criterion	B B B A A C/B A	
EN 55025		
Vibration resistance	EN 60068-2-6 Fc	20 g (10...3000 Hz) / 50 sweep cycles, 1 octave per minute, in 3 axes
Broadband noise	EN 60068-2-64 h	5,9 g (10...2000 Hz) / effective acceleration for chassis mounting
Shock resistance	EN 60068-2-27 Ea	100 g 11 ms half-sine; 3 shocks each in every direction of the 3 coordinate axes
Continuous shock resistance	EN 60068-2-27 Ea	40 g 6 ms; 4000 shocks each in every direction of the 3 coordinate axes
Fast temperature change	EN 60068-2-14 Na	TA = -40°C; TB = 85°C; t1 = 30 min; t2 = 10 s 100 cycles
Salt spray test	EN 60068-2-52 Kb	severity level 5 (4 test cycles)
Safety classification		
Complies with the requirements	ISO 13849-1: 2015 category 2, PL d	
	IEC 61508 SIL 2	
	IEC 62061 SIL 2	
Mission time TM [h]	≤ 87600	
Mission time TM (additional indication)	industrial environments Temperature range -25...70 °C ≤ 175200	
PFH [1/h]	< 5E-08	
Mechanical data		
Weight [g]	86.8	
Housing	threaded type	
Mounting	non-flush mountable	
Dimensions [mm]	M12 x 1 / L = 60	
Thread designation	M12 x 1	
Materials	threaded sleeve: brass white bronze coated; sensing face: LCP; LED window: PEI; lock nuts: brass white bronze coated	
Tightening torque [Nm]	< 7	

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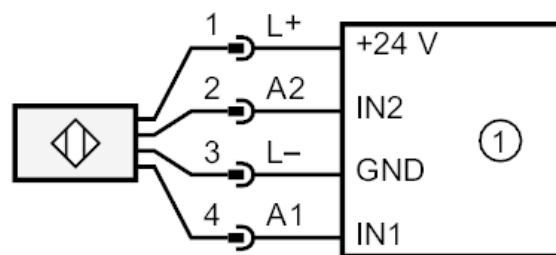
Displays / operating elements	
Display	Display switching status 4 LED, yellow
Accessories	
Items supplied	lock nuts: 2
Remarks	
Remarks	material for secure mounting not supplied; fixing must be done by the user meets the environmental and EMC requirements for operation in agricultural and forestry machinery, earthworks and construction machines as well as in industrial trucks When used in industrial trucks, the screen of the connection cable has to be connected to the sensor. Unless stated otherwise, all data refer to the reference target plate to IEC 60947-5-2 over the whole temperature range. (FE360 = ST37-2K) 12x12x1 mm
Pack quantity	1 pcs.

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: gold-plated



Connection



1: safety-related logic unit