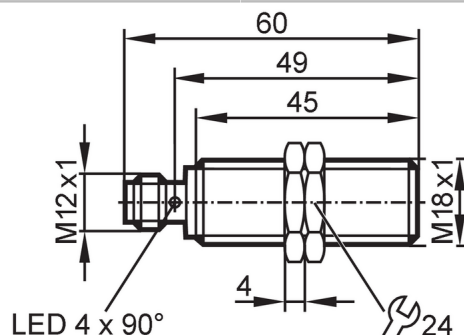


# GG855S



## Fail-safe inductive sensor

GIGK4005B2PO/SIL2/US



### Product characteristics

|                   |                      |
|-------------------|----------------------|
| Electrical design | PNP                  |
| Output function   | 2 x OSSD (A1 and A2) |
| Enable zone [mm]  | > 7.5                |
| Housing           | Threaded type        |
| Dimensions [mm]   | M18 x 1 / L = 60     |

### Application

|                             |                                      |
|-----------------------------|--------------------------------------|
| Special feature             | gold-plated contacts                 |
| Type of operation           | permanent operation                  |
| Safety-related sub-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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| Monitoring range                                    |           |                                                                            |
|-----------------------------------------------------|-----------|----------------------------------------------------------------------------|
| Enable zone                                         | [mm]      | > 7.5                                                                      |
| Safe switch-off distance s(ao)                      | [mm]      | < 4                                                                        |
| Accuracy / deviations                               |           |                                                                            |
| Correction factor                                   |           | steel: 1 / stainless steel: 0.7 / brass: 0.5 / aluminum: 0.4 / copper: 0.3 |
| Hysteresis                                          | [% of Sr] | 1...10                                                                     |
| Reaction 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                                                                       |
| Ionizing 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                                         |
|                                                         |                                                                        |
|                                                         |                                                                        |
|                                                         |                                                                        |



## Fail-safe inductive sensor

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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 | 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 per frequency; 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 changes                | EN 60068-2-14 Na                           | TA = -40°C; TB = 85°C; t1 = 30 min; t2 = 10 s<br>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]                                        | 109.2                                                                                                                            |     |     |     |     |       |
| Housing                                 |                                            | Threaded type                                                                                                                    |     |     |     |     |       |
| Mounting                                |                                            | flush mountable                                                                                                                  |     |     |     |     |       |
| Dimensions                              | [mm]                                       | M18 x 1 / L = 60                                                                                                                 |     |     |     |     |       |
| Thread designation                      |                                            | M18 x 1                                                                                                                          |     |     |     |     |       |
| Material                                |                                            | threaded sleeve: brass white bronze coated; sensing face: LCP; LED window: PEI; lock nuts: brass white bronze coated             |     |     |     |     |       |
| Tightening torque                       | [Nm]                                       | < 25                                                                                                                             |     |     |     |     |       |

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Displays / operating elements

|         |                          |               |
|---------|--------------------------|---------------|
| Display | Display switching status | 4 LED, yellow |
|---------|--------------------------|---------------|

Accessories

|                |              |
|----------------|--------------|
| Items supplied | lock nuts: 2 |
|----------------|--------------|

Remarks

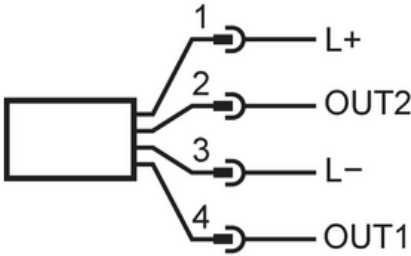
|               |                                                                                                                                                                         |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 |
|               | Unless stated otherwise, all data refer to the reference target plate to IEC 60947-5-2 over the whole temperature range.                                                |
|               | (FE360 = ST37-2K) 18x18x1 mm                                                                                                                                            |
| Pack quantity | 1 pcs.                                                                                                                                                                  |

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: 4, gold-plated



Connection



|             |      |       |
|-------------|------|-------|
| 1           | L+   |       |
| 2           | OUT2 | OSSD2 |
| 3           | L-   |       |
| 4           | OUT1 | OSSD1 |
| OUT: Output |      |       |