# INCREMENTAL ENCODER MyInc

# FINS58
# FINH58

- Shaft (FINS) and hollow shaft (FINH) encoder with the same modular concept
- Shaft diameters Ø 6 and Ø 10 mm for shafted encoders
- Hollow shaft Ø 14 mm, aluminium reduction hubs of Ø 6, Ø 10 and Ø 12 mm
- Robustness, excellent shock and vibrationresistance
- Easily achievable high degree of protection IP 67 with special sealing flange for shafted versions
- High resolutions available up to 80000 cpt in 3 channels with complements
- Available output signals: square wave, square wave programmable and sine wave
- Simple programmable resolution through dipswitch, no software, no hardware required
- Universal electronic circuits from 4.75 Vdc to 30 VDC
- High operating temperature performance: -30 °C up to 100 °C (encoder temperature)
- High frequency response performance of the output signals: 300 kHz (push-pull & RS422)
- Glass disks in standard, available with unbreakable disks in Polyfas (Composite Mylar-Mica) in option for resolutions <2500 cpt and temperature <80 °C

Replacment for GHM5, GHT5, GHK5, GHO5.

## SPECIFICATIONS

| | FINS58 | FINH58 |
|---|---|---|
| • COVER | Zinc-aluminium alloy | Zinc-aluminium alloy |
| • BODY | Aluminium | Aluminium |
| • SHAFT/HOLLOW SHAFT | Stainless steel | Stainless steel |
| • TORQUE | 0,4 Ncm | 0,6 Ncm |
| • WEIGHT | 300 g | 300 g |
| • MAX. SPEED | 12 000 $min^{-1}$ | 9 000 $min^{-1}$ |
| • RADIAL SHAFT LOADING | 100 N | 100 N with DAC |
| • AXIAL SHAFT LOADING | 50 N | 50 N with DAC |
| • INERTIA | 10 $gcm^2$ | 22 $gcm^2$ |
| • PROTECTION | IP 65 | IP 65 |

### MECHANICAL FEATURES

Shock resistance: < 1000 $m.s^{-2}$ for 6 ms (EN60068-2-27)

Vibrations resistance: < 100 $m.s^{-2}$ from 50 to 2000 Hz
– Standard IP 65, IP 67 available with a special flange for the shaft encoders of Ø 10 mm
– Perfect sealing of the connectors (moulded in the encoder cover)

Max. Acceleration: 1.105 $rad.s^{-2}$

Lifetime of the bearings: 12 x $10^9$ turns

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## SQUARE-WAVE OUTPUT SIGNAL ENCODERS

Operating temperature: from –30 °C to 100 °C (encoder body)

## AVAILABLE ELECTRONICS

| | A5* | A7 |
|---|---|---|
| Supply voltage | 5–30 VDC, 75 mA max. | 4.75–30 VDC, 75 mA max. |
| Output signals | 4.5–30 VDC, push-pull 50 mA | 5 VDC RS422, 40 mA |
| Frequency response | 300 kHz | 300 kHz |
| | AT | A2 |
| Supply voltage | 10–30 VDC, 75 mA max. | 5 VDC±10 %, 75 mA max. |
| Output signals | 10–30 VDC, push-pull 20 mA | 5 VDC RS422, 40 mA |
| Frequency response | 120 kHz | 300 kHz |

Protection against short circuits and reverse polarity in all electronics, except for A2, against short circuits only. Note: *A5 is compatible RS422 if encoder is supplied with 5 VDC –0/+10 %

### Signals A, A\, B, B\, 0,0\ :

Channel B (mounting front) arrives before A clock-wise seen from the body side of the encoders (not cover side). The shift between each fronts is given by the formula a >135/F (a in time in µs, F, frequency in kHz). Ex. a > 0,45 µs at F=300 kHz.

**Available resolutions (100 °C electronic):** 5 10 20 25 30 50 60 100 120 125 127 150 180 200 240 250 256 300 314 360 375 400 500 512 600 720 750 762 768 800 927 1000 1024 1200 1250 1280 1440 1500 1800 2000 2048 2400 2500 3000 3600 4000 4096 5000 6000 7200 8000 8192 10000.

**Interpolated availabel resolutions (70 °C electronic):** 1080 2560 2880 3072 4320 5120 7500 5760 9000 10240 10800 12000 12500 12288 14400 15000 16000 16384 18000 20000 20480 24000 25000 28800 30000 32000 32768 36000 40000 40960 43200 48000 49152 50000 57600 60000 64000 65536 72000 80000.

## PROGRAMMABLE ENCODERS: SQUARE-WAVE OUTPUT SIGNALS

Operating temperature: from -30 °C to 70 °C (encoder body)

## AVAILABLE ELECTRONICS

| | D5* | D7 |
|---|---|---|
| Supply voltage | 5–30 VDC, 75 mA max. | 4.75–30 VDC, 75 mA max. |
| Output signals | 4.5–30 VDC, push-pull 50 mA | 5 VDC RS422, 40 mA |
| Frequency response | 300 kHz | 300 kHz |

Protection against short circuits and reverse polarity for all electronics (except for A2, against short circuits only). Note: *D5 is compatible RS422 if encoder is supplied with 5 VDC –0/+10 %
Easy multiplication of the basic resolutions with a dipswitch, no hardware, nor specific software required. Interpolation factor: x1, x2, x3, x4, x5, x8, x10, x12, x16. For ex., with a basic resolution of 2500 cpt, the following resolutions could be programmed : 2500 5000 7500 10000 12500 20000 25000 30000 40000 cpt.

### Available basic resolutions:

– for shaft encoders FINS58: 250, 256, 360, 500, 1024, 2500, 3000, 3600, 4000, 4096, 5000, 6000 cpt
– for hollow shaft encoders FINH58: 250, 256, 360, 500, 1024, 2500, 3000, 3600, 4000, 4096, 5000, 6000 cpt
Max resolution 80000 cpt with basic resolution of 5000 cpt.

## SINE-WAVE OUTPUT SIGNALS

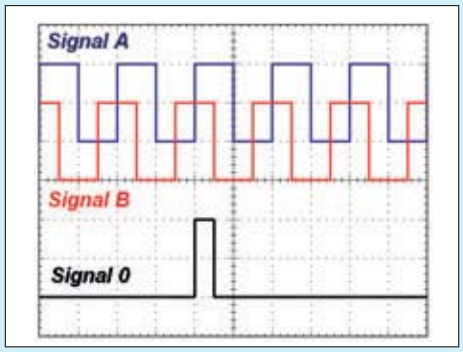
Electronics S1: supply voltage 5 VDC±10 %, 75 mA (without load), output circuits sine-wave output signals 1 VDC peak to peak. Protection against short circuits.
Operating temperature (encoder body): from -30 °C to 100 °C.

### Signals S, S\, C, C\, 0, 0\ :

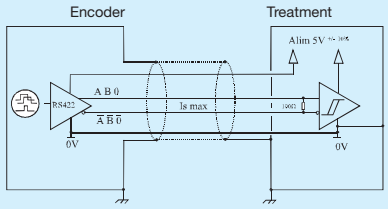
Channel C (cosine)arrives before channel S (sine) clockwise seen from the shaft side (for the shaft encoders) body side for the hollow shaft encoders: The secondary harmonics are 50 dB lower than first harmonics

### Available basic resolutions:

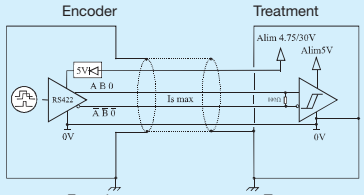
– for shaft encoders FINS58: 250, 256, 360, 500, 1024, 2500 cpt
– for hollow shaft encoders FINH58: 256, 360, 500, 1024, 2500 cpt



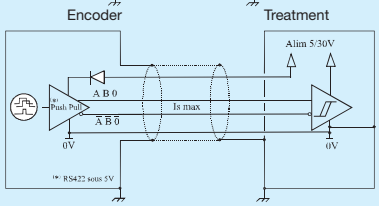

A2



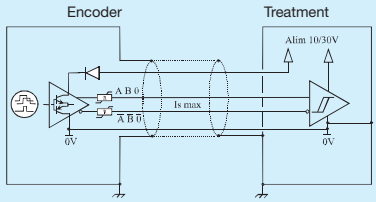

A7



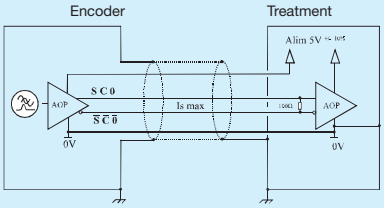

A5



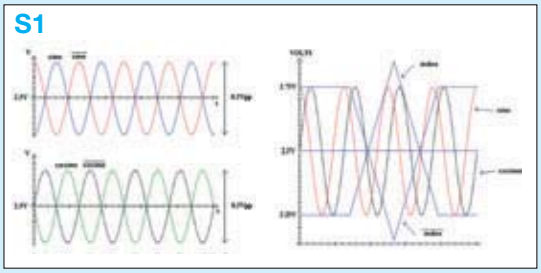

AT




S1




S1





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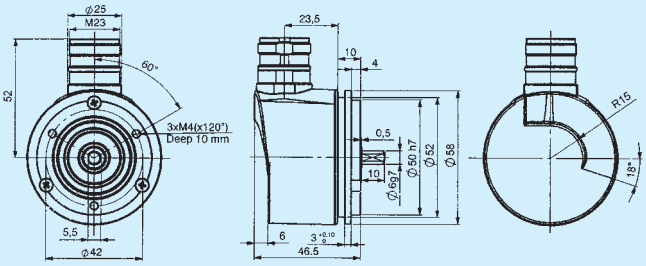
## Terminal assignment

| Signal: | OV | $+U_B$ | A | $\overline{A}$ | B | $\overline{B}$ | 0 | $\overline{0}$ | Shield |
|---|---|---|---|---|---|---|---|---|---|
| 12 pin plug cw (6R) Pin: | 1 | 2 | 3 | 6 | 4 | 7 | 5 | 8 | connector body |
| 12 pin plug cw (8R) Pin: | 10 + 11 | 2 + 12 | 8 | 1 | 5 | 6 | 3 | 4 | connector body |
| Cable colour: | WH | BN | GN | PK | YE | BU | GY | RD | general shielding |

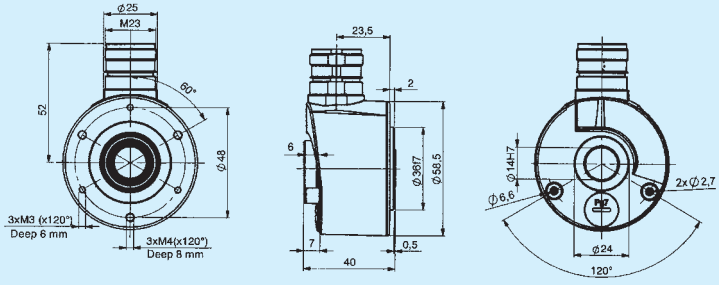
## DIMENSIONS

### FINS58 S6

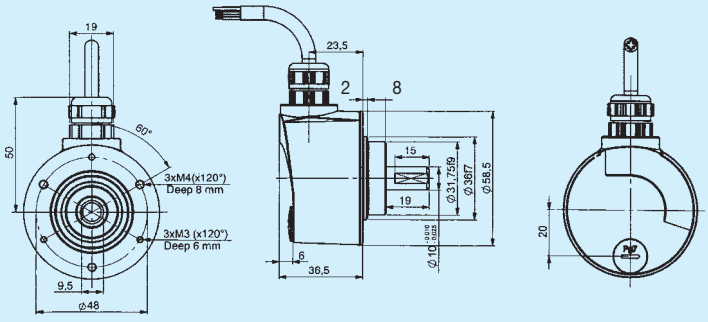
(FINS58 06 incl. flange 9500/003)



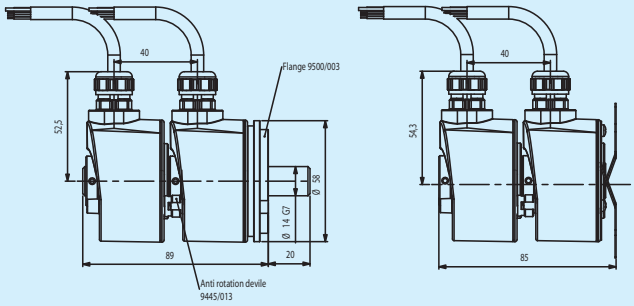

### FINH58 14




### FINS58 10




### FINx58 Double mounting




## ORDERING CODE

| | Shaft Ø | Output circuit (p. 36) | Output signals | Connection | Resolution |
|---|---|---|---|---|---|
| **FINS58 shaft** | 06 = 6 mm<br>10 = 10 mm<br>S6 = 06 mm<br>S0 = 10 mm | **Square-wave signals:**<br>A5 = driver push-pull 5–30 VDC<br>A7 = 4,75-30 VDC RS422<br>A2 = driver 5 VDC RS422<br>AT = driver push-pull 10 to 30 VDC transistorized<br>**Programmable:**<br>D5 = 5-30 VDC driver push-pull<br>D2 = driver 5 VDC RS422<br>D7 = 4,75-30 VDC RS422<br>**Sine-wave signals:**<br>S1 = Sine-wave 1 V pp (peak to peak) | 9= A, $\overline{A}$, B, $\overline{B}$, 0, $\overline{0}$ | 3R = cable gland + 2 m cable<br>6R = M23 12 pins clock-wise standard<br>8R = M23 12 pins counter clock-wise standard | standard encoder 80000 max.<br><br>programmable 6000 max. basic<br><br>sine-wave 2500 max. |
| **FINH58 hollow shaft** | 6 = 6 mm (with hub)<br>8 = 8 mm (with hub)<br>10 = 10 mm (with hub)<br>12 = 12 mm (with hub)<br>14 = 14 mm | | | | |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