

## Datasheet

### Torque sensor

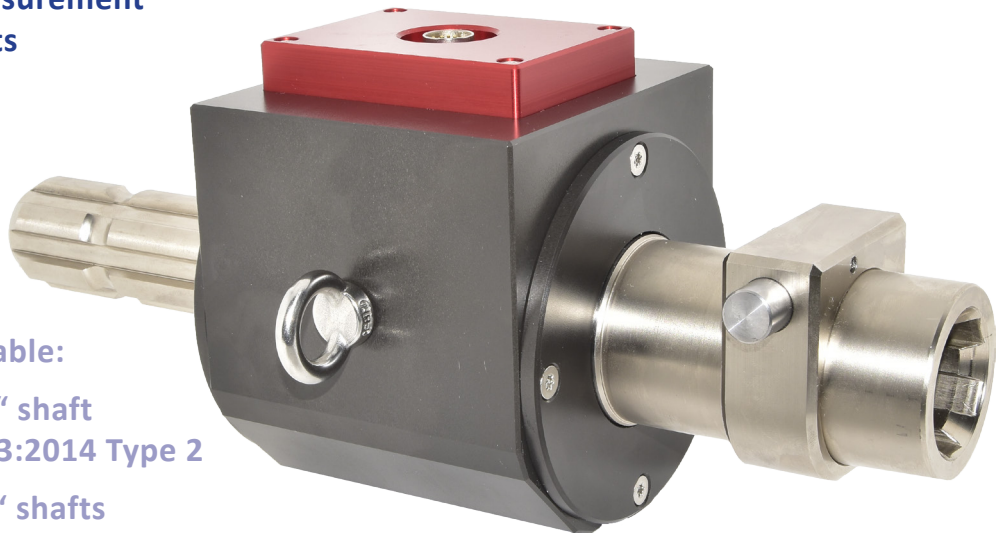
# DRVZ

1800 Nm max. on 1 $\frac{3}{8}$ " shaft  
according to ISO 500-3:2014 Type 1

for drives with PTO shafts

angle of rotation measurement  
with 2x360 increments

**NEW!**



On request also available:

1800 Nm max. on 1 $\frac{3}{8}$ " shaft  
according to ISO 500-3:2014 Type 2

2500 Nm max. on 1 $\frac{3}{4}$ " shafts  
according to ISO 500-3:2014 Type 3

### Features DRVZ

- contactless signal transmission
- built-in measuring amplifier
- rotation angle measurement (optional)
- extended EMC strength
- adjustable output level of rpm and angle signal (5V-24V)
- Frequency output 10kHz  $\pm$ 5kHz
- large input voltage range (10-28,8V)
- strain gauge technology
- robust design for use in field applications
- IP67
- easy installation
- accurate results (0.2% accuracy)

The torque sensor DRVZ provides a precise measurement of torque and angle of rotation when testing systems that are driven by PTO shafts, such as a tractor gearbox.

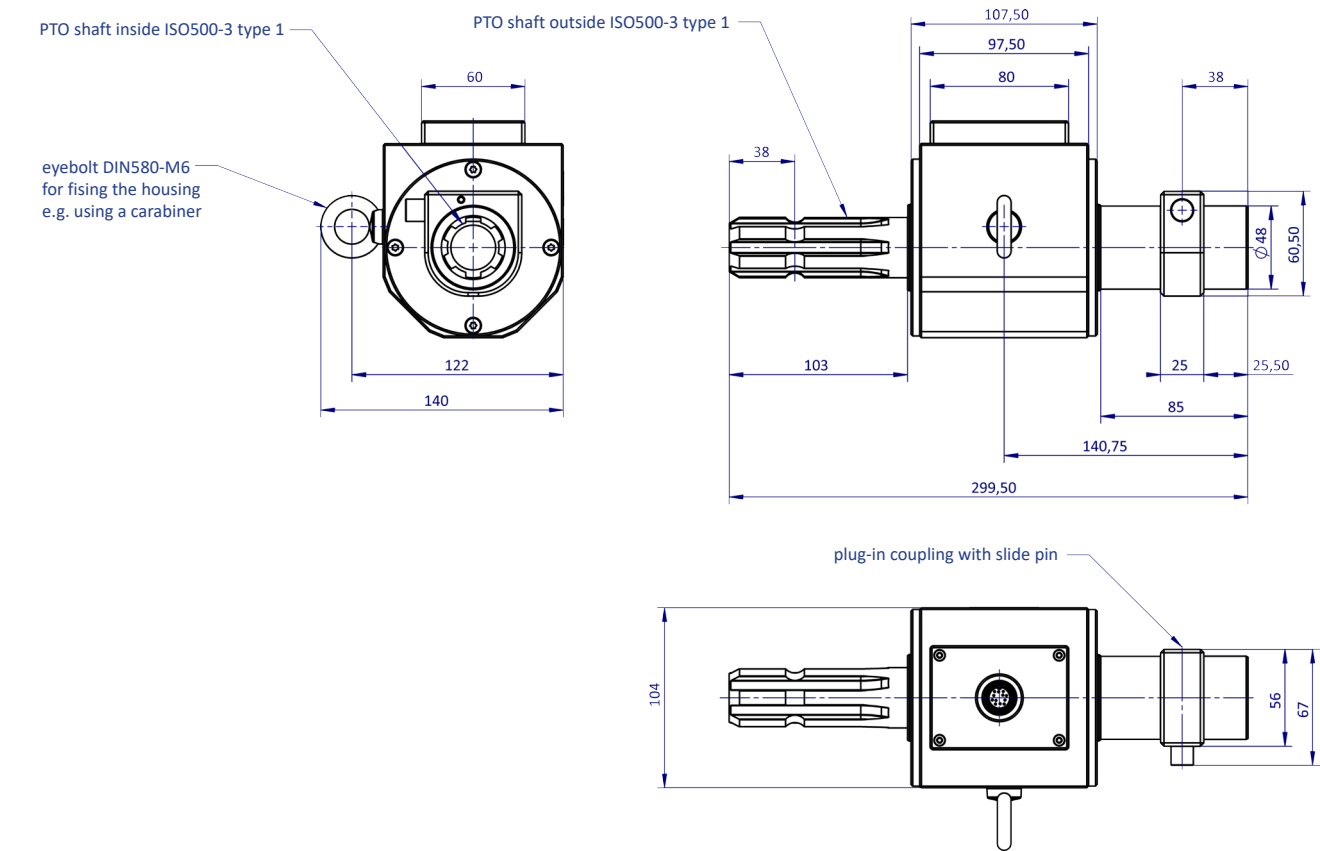
The contactless transmission of supply voltage and measuring signal enables low-wear and largely maintenance-free continuous operation. The integrated measuring amplifier provides an analog and galvanically isolated output signal of  $0 \pm 10V$  or 10kHz  $\pm$ 5kHz with a supply voltage of 10 to 28.8V DC.

Electrical specifications DRVZ

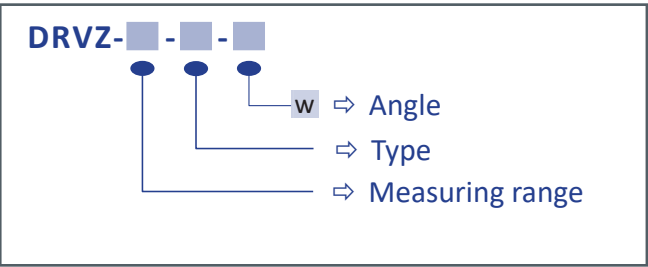
|                                                               |                                                       |                   |        |
|---------------------------------------------------------------|-------------------------------------------------------|-------------------|--------|
| Supply voltage:                                               | 10 - 28,8 V DC                                        |                   |        |
| Power consumption:                                            | at Ub 12 V approx. 180 mA (switching converter 2.2 W) |                   |        |
| Rise time 10-90 %:                                            | 400 μs                                                |                   |        |
| Limit frequency -3 dB:                                        | 1 kHz                                                 |                   |        |
| Output signal:                                                | Voltage output:                                       | Output frequency: |        |
|                                                               | 0 ± 10 V                                              | 10 kHz ± 5 kHz    |        |
| Resolution:                                                   | 16 bit ± 0,38 mV                                      | 16 bit ± 0,19 mHz |        |
| Max. output range:                                            | ± 11 V                                                | ± 6,3 KHz         |        |
| Internal resistance:                                          | 100 Ω                                                 | —                 |        |
| Ripple:                                                       | < 100 mVpp                                            | —                 |        |
| Nonlinearity/max. measurement error (of full scale)           | 0,2%                                                  | 0,2%              |        |
| Error of Hysteresis:                                          | 0,1 %                                                 | 0,1 %             |        |
| Deviation at zero point:                                      | ≤ 50 mV                                               | ≤ 50 Hz           |        |
| Operating temperature:                                        | 0 - 60 °C                                             |                   |        |
| Compensated temperature range:                                | 5 - 45 °C                                             |                   |        |
| Temperature error                                             |                                                       |                   |        |
| Zero point:                                                   | 0,05 % / K                                            |                   |        |
| Sensitivity:                                                  | 0,05 % / K                                            |                   |        |
| Mechanical overload:                                          | 50 %                                                  |                   |        |
| Internal protection:                                          | IP67                                                  |                   |        |
| Connection:                                                   | 12pin-connector (circular connector series 680)       |                   |        |
| <b>Interference emission</b>                                  |                                                       |                   |        |
| Basic standard                                                | Frequency range                                       |                   |        |
| EN55011      Limit class B                                    | 150 kHz - 6 GHz                                       |                   |        |
| <b>Immunity to interference</b>                               |                                                       |                   |        |
| Basic standard                                                | Testing accuracy                                      | coupling          | Result |
| EN61000-4-2:2009 Electrostatic discharge (ESD)                | 4 kV                                                  | direct            | A      |
| EN61000-4-2:2009 Electrostatic discharge (ESD)                | 4 kV                                                  | indirect          | A      |
| EN61000-4-3:2009 Electromagnetic fields                       | 10 V/m                                                | indirect          | A      |
| EN61000-4-4:2009 Bursts                                       | 2 kV                                                  | indirect          | A      |
| EN61000-4-5:2005 Surge voltages                               | 1 kV                                                  | direct            | B      |
| EN61000-4-6:2009 Conductor-borne RF disturbances              | 10 V/m                                                | indirect          | A      |
| EN61000-4-8:2005 Power frequency magnetic fields              | 30 A/m                                                | indirect          | A      |
| A: Deviation of outputs during the test < 0.3 % of full scale |                                                       |                   |        |
| B: Deviation of outputs during the test > 0.3 % of full scale |                                                       |                   |        |

|                    |                                                |
|--------------------|------------------------------------------------|
|                    | Angle (w)                                      |
| Output:            | TTL or over voltage on pin 5 V < U < 24 V      |
| Impedance:         | 22 Ω                                           |
| I <sub>max</sub> : | 20 mA                                          |
| Increments/rev.:   | 2 x 360                                        |
| Resolution:        | 1°                                             |
| Phase shift:       | Channel A 90° at right spin of propulsion side |

# Mechanical specifications DRVZ



|                                                                   |                                |
|-------------------------------------------------------------------|--------------------------------|
| Measuring range:                                                  | 0 - 1800 Nm                    |
| Max. RPM                                                          | max. 2000 min <sup>-1</sup>    |
| Spring constant:                                                  | 347 x 10 <sup>3</sup> Nm / rad |
| Mass moment of inertia:                                           | 7399 g x cm <sup>2</sup>       |
| Permissible axial load*                                           | 1300 N                         |
| Permissible radial load*                                          | 5200 N                         |
| * The axial and radial load values apply to the non-fixed housing |                                |



## Available accessories

Supply and display unit: GMV2  
ValueMaster<sub>base</sub>

ETH Measuring cable: AK12.4 with IP67  
AK12.4 with IP67

