# TORVIB

**VULKAN TORVIB** OFFERS CONDITION MONITORING OF THE DRIVE LINE BASED ON MEASURED VIBRATORY AMPLITUDES ON THE FLYWHEEL OR VIBRATORY TWIST ANGLE ACROSS FLEXIBLE COUPLING.



## KEY FEATURES*

| | |
|---|---|
| **Twist deflection** | 0 - 90 degree |
| **Vibratory Twist deflection** | 0 - 10 degree Amplitude |
| **Torsional Vibration deflection** | 0 - 10 degree Amplitude |
| **Speed Range** | 0 - 1600 rpm |
| **Order** | 0.5 - 7.5 |
| **Digital Outputs** | 5 x Relay |
| | 6 x PNP |
| **Analog Outputs** | 1 x 4-20 mA Torsional Amplitude / Twist Deflection Average |
| | 1 x 0-10 V Torsional Vibration |
| **Power Supply** | 20 -35 V |
| **Sensors** | 2 or 3 Inductive Sensors NPN /PNP |

*depending on number of pulses

## THE ADVANTAGES

for engine manufacturers, ship owners and shipbuilding industry

Increase of safety → crankshaft
→ gear
→ shaft line

- avoid overloading and unnecessary wear in the drive line
- ensuring highest reliability of non redundant components
- improvement availability of the complete drive line by avoiding failures due to preventive maintenance as well as purposeful planning of spare parts

→ **from this direct cost savings in the operation of the system results**

## SCOPE OF SUPPLY

- 1 x TORVIB Monitoring Device
- 2 x Inductive Sensors / 3 x Inductive Sensors (for vibratory amplitudes measurement on the flywheel) and connectors

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## THE LOGIC

TORVIB are able to indicate engine/motor overloading, resonances and engine misfiring. This device is designed to monitor two and four stroke diesel motor/prime mover and shaft lines.
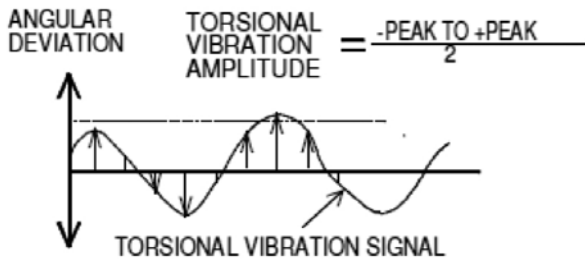
Torsional vibration measurement is done by measuring time interval of the teeth of flywheel. This time interval is converted to angular velocity, which is filtered and scaled to the correct value of torsional vibration.

Twist angle measurement is done with two pulse belts on both side of the flexible coupling. The device measures phase shift of these pulses and detects twist angle and twist vibration.
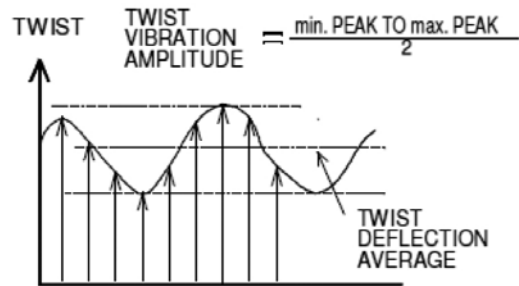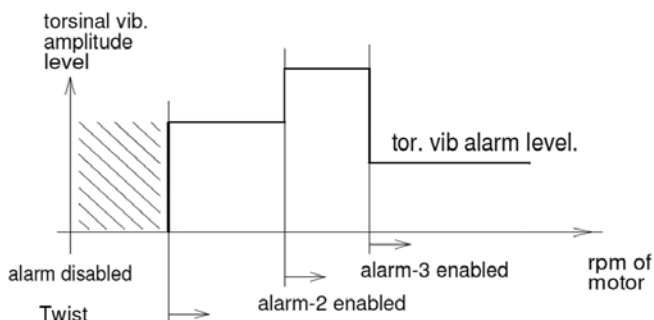
SIMPLFIED BLOCK DIAGRAM of TORVIB
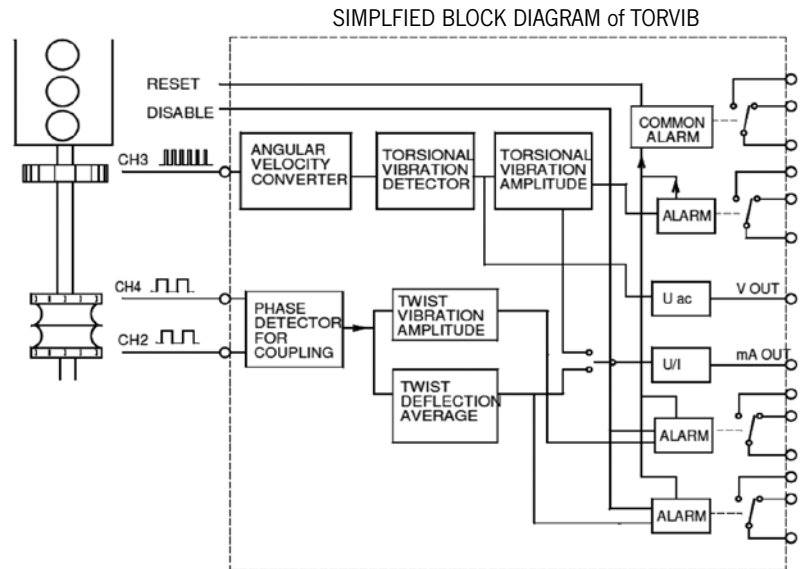


## MONITORING & ALARM

### Torsional Vibration Monitoring



$$\text{TORSIONAL VIBRATION AMPLITUDE} = \frac{\text{-PEAK TO +PEAK}}{2}$$

### Twist Angle and Twist Vibration Amplitude Monitoring



$$\text{TWIST VIBRATION AMPLITUDE} = \frac{\text{min. PEAK TO max. PEAK}}{2}$$

### Alarm Profile Torsional Vibration Amplitude



### Alarm Profile Twist angle and vibration Amplitude

08/2016