TORSO

Keep a watchful eye for harmful torsional vibration in shaft lines

Among the potential harmful conditions for turbomachinery, torsional vibration is one that is generally overlooked. Because it can lead extremely quickly to dramatic failures, effective protection systems must be able to react within seconds.

TORSO, ENGIE Laborelec's torsional vibration protection and monitoring system for turbomachinery, tackles this issue effectively and brings peace of mind back to your condition monitoring strategy.

The TORSO team has more than 15 specialist vibration engineers, and over 30 years experience in torsional vibration issues, with more than 30 systems installed worldwide.

INSTALLATION

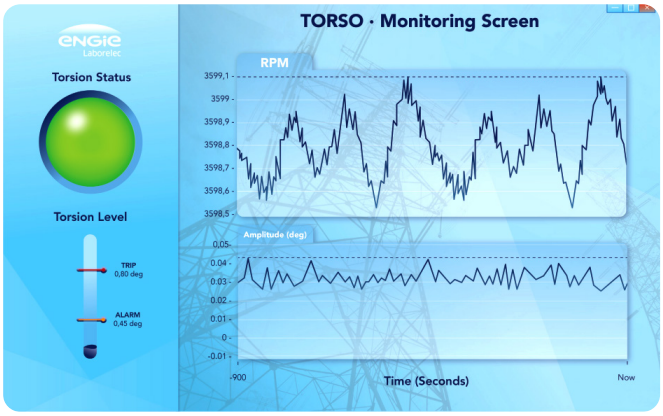
- 19" rack in a floor-supported or wall-mounted cabinet.
- Easy DCS connection (alarm, trip, watchdog & analogue outputs).
- Possibility of using existing sensors.

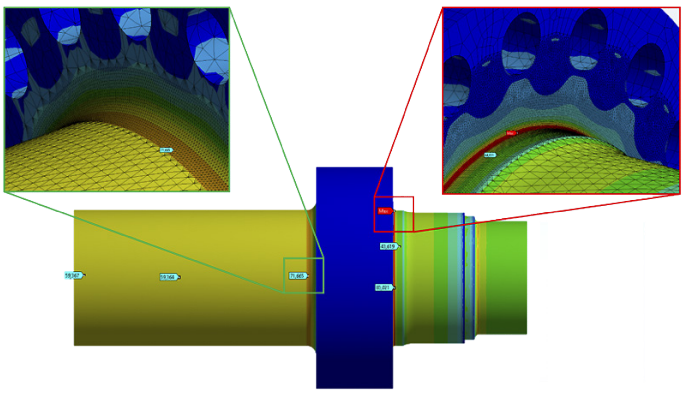
FUNCTIONING

- Continuous protection and monitoring for turbomachinery applications.
- Alarm strategy based on specific fatigue life time consumption for the shaft line.

STORAGE & POST-PROCESSING

- Significant torsional vibration events stored automatically and available for post-processing.
- RAW data stored in approximately two-month circular buffer (depending on number of sensors).





GENERAL SPECIFICATION

Input channels	Up to 6 galvanically isolated channels (analogue and digital)
Speed range	0.05 Hz - 20 kHz pulse rate (depending on sensor type)
Analogue outputs	4x 4 - 20mA
Digital outputs	6 dry contact relays
	2x redundant watchdog
	2x redundant alarm
	2x redundant trip
Pulse timing resolution	80MHz
Acquisition sampling rate	Up to 20 kHz depending on pulse rate and rotation speed
Post-processing capabilities	Dedicated software for post-processing
Amplitude tracking band-pass filters	Yes, configurable according to torsional modes

MECHANICAL SPECIFICATION

Dimensions	Standard 19" 3U EMC rack
Weight	~9,4 kg

ELECTRICAL SPECIFICATION

Power requirement	90-245V AC 5A 50/60 Hz
Internal power supply	3x 24VDC redundant

ENVIRONMENTAL

Rack operating temperature	-20°C - 55°C
Rack storage temperature	-40°C - 85°C
Rack operating humidity	10% RH - 90% RH, noncondensing
Rack storage humidity	10% RH - 90% RH, noncondensing

SHOCK AND VIBRATION

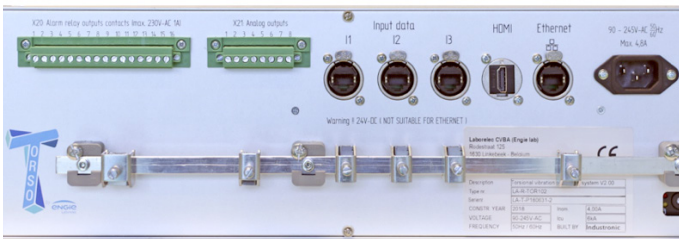
Random (IEC 60068-2-64)	5 g rms, 10 Hz - 500 Hz
Sinusoidal (IEC 60068-2-6)	5 g, 10 Hz - 500 Hz
Operating shock (IEC 60068-2-27)	30 g, 11 ms half sine; 50 g, 3 ms half sine; 18 shocks at 6 orientations

MEMORY

Data recorder	Integrated digital recorder – circular buffer (2 months)
	Permanent event storage in case of alarm or trip
Internal data storage	500GB
Pre - post event data	Yes

OTHERS

Remote connection	LAN/WAN
Ethernet integrated	10/100/1000 Mbps TCP/IP
USB	1xUSB3.0 for data back-up
Visualization	HDMI port integrated
Warranty	1 year for hardware components
	Extendable via optional service contract
Electro-magnetic compatibility (EMC)	EN 61326-1 (IEC 61326-1): Class A emissions; Industrial immunity
CE Compliance	Yes



Like to know more?

Please feel free to contact us via e-mail.

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