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Product Specification VIBROCONTROL 1800 Series

Features

VIBROCONTROL 1800 Series enables cost effective machine protection for all critical rotating equipment with roller element bearing as well as sleeve bearings.

- 4-vibration channels, plus
- 2-channels process & speed
- · extremly flexible with modular link concept
- time waveform recording and data storage

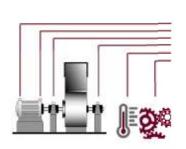
Dedicatated solution via 3 types:

- VIBROCONTROL 1850
 Acceleration Sensors (CCS)
- VIBROCONTROL 1860
 Velocity Sensors
- VIBROCONTROL 1870
 Displacement Sensors

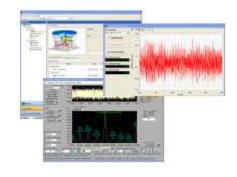


Applications

VIBROCONTROL 1800 Series of Vibration Monitors are machine protection devices with 4 real-time vibration input channels, 1 tacho input and 1 process input channel. These vibration monitors are combining protection with condition monitoring of roller bearings machines, by means of a variety of bearing failure detectors like Envelope, Kurtosis and Crest factor. VIBRONCONTROL 1800 offers 4-20 mA outputs, danger and alarm relays, a RS-485 and USB port for communication and time waveform recording of RAW data. Several features support the ISO/EN 13849-1 standard.









Technical Data

6 Input channels:

- 4 configurable vibration sensor inputs: VIBROCONTROL 1850 - accelerometers CCS VIBROCONTROL 1860 - velocity sensors VIBROCONTROL 1870 - displacement sensors
- 1 Input for process data, selectable analogue 4-20 mA, 0-20 mA, 0-22V
- 1 Tacho input for NPN, PNP, AC speed sensor

Sensor types:

VIBROCONTROL 1850

Accelerometers 10-500 mV/g, type CCS
Maximum input ±5.4 Vpk
Transducer Bias 5 mA

VIBROCONTROL 1860

Displacement sensors0.8-8 V/mmMaximum voltage input-2 to -22 VPeak detector, attack time1-1,000 msPeak detector, decay time0.1-100 s

VIBROCONTROL 1860

Velocity sensors 50-100 mV/mm/s Maximum input ±6.0 Vpk

Input Resistance / Impedance ≥ 450 kΩ, 10 nF

6 Measurement results per vibration channel:

2 Overall vibration values

Detectors

Sample rates
Filter ranges

True RMS, Pk-Pk or Pk
4,800 or 24,000 Hz
0.7 Hz to 10 kHz
Measuring parameter

mm/s, m/s², g, µm, mm

4 Roller bearing condition units

Detectors True RMS, 2 Envelope
Filter ranges 1 - 500 Hz
Kurtosis/Crest factor acc. VDI 3832

Configurable measuring ranges:

 Full scale vibration measuring ranges up to 1-100 mm/s,1-300 m/s²,0.1-15 mm Pk Pk

Standard frequency ranges:

• 10 Hz - 1,000 Hz, -1 dB, 24 dB/oct.

Selectable ranges e.g. 1-300/1,000 Hz
 or multible filters settings 0.7-10,000 Hz

 Filter response High pass and low pass filters; refer to the setup part for the specific parameters for the Cut-off freq., pass band attenuation, Stop band freq. and Stopband attenuation.

up to 4 configurable outputs:

4 Analogue DC outputs

Can be configured as 0/4 - 20 mA, 0/2-10 V, Each output can be assigned to any of the measuring parameters.

 $\begin{array}{lll} \mbox{Voltage load:} & \mbox{min. 10 k} \mbox{\Omega} \\ \mbox{Current load:} & \mbox{max. 400 } \mbox{\Omega} \end{array}$

or

4 Alarm relay drivers

Relay drivers for external coil: With breakfunction, can be user configured as Alert or Danger with latch function or auto reset. Max voltage 30 V Max current: 100 mA

Alarm detectors:

 Alert and Danger per each detector with adjustable alarm limits.

Alert delay time 0 - 100 s
Danger delay time 0 - 100 s
Reset time for Alert and Danger 0 - 100 s

up to 24 additional relays:

(VIBROCONTROL 1801)

Up to 2 Relay Modules consisting of 12 galvanic isolated relays each. Alert and Danger alarms can be directed to these relays.
 Max voltage: 30 V
 Max current: 100 mA

OK relay:

1 galv. isolated redundant relay with breakfunction (power fail-safe). Danger alarms can be forwarded to this relay, when the monitor is configured as a Protection Monitor according to ISO/EN 13849-1.All system failures, like cable short, cable break and internal system failure, will automatically trip the OK- relay.

Measurement accuracy:

- Vibration Measurement ±3.5% of reading ± 0,5% of Full Scale setup, typical, @calibration ref: 100Hz, velocity, 25°C, with current LP and HP filter setup.
- Process Measurement ±0.75% of reading + 0.5% of Full Scale setup
- Speed sensors ±0.5% of reading,
 Pulse speed 1Hz to 30kHz (RPM depending of pulse per revolutions setup)
- Analogue output ±1.5% of reading ±1% of Full Scale



Test function:

Can be activated digitally or by PC. As default the alarm relays activate and DC outputs increase to the specified test level of 102 %.

Time waveform recording:

Up to 4 input channels can record digital raw data (time waveform) simultaneously to a PC running "Commpact Analyzer". The recording can be done through:

RS-485/LAN (buffered) Up to 10 kHz
Mini USB (real-time) Up to 10 kHz
Time waveform recording is user activated and contains scalar values for vibration and process input data at start of recording.

Data storage:

(VIBROCONTROL 1803 /1804)

All input channels can be trended and alarms can be stored when connected to either EtherBridge or directly to a PC running "Compact Analyzer". VIBROCONTROL 1804 EtherBridge RAM can store trends and time wave-form recordings event or timer based.

Communication:

RS-485 interface 2 screw terminals Daisy chain, up to 255 units USB interface: Mini USB/B Remote access through EtherBridge Module (VIBROCONTROL 1803) is possible.

Link Concept modularity:

VIBROCONTRL 1800 Series –all components -Vibration Monitor, EtherBridge, Relay Module, Input and Output Modules can be interconnected by means of DIN rail bus connectors



Front panel:

5 light diodes indicate channel status (green, yellow, red) for each of the 4 vibration in- put channels, as well as for general system status.

Power supply (e.g. AC-4111)

+24 V DC, ±5 %, max. power consumption; 10W

Operating temperature:

-10 °C to + 50 °C

Housing:

DIN rail enclosure IP20 with screw terminals Dimensions: H: 110, W: 23, D: 114 mm

Compliance:

CE, GOST-R, ISO 13849-1, ISO 10816-3, VDI 3832, API 670, ETL listed



Ordering Information

VIBROCONTROL 1850

Vibration monitoring unit for acceleromter input Order Code: VC-1850

Standard Accelerometer AS-062 (CCS)

Order Code: AS-062

VIBROCONTROL 1860

Vibration monitoring unit for velocity sensor input Order Code: VC-1860

Standard velocity sensor VS-068 (horiz.) or VS-069 (vert.) Order Code: VS-068

VS-069

VIBROCONTROL 1870

Vibration monitoring unit for displacement sensor input Order Code: VC-1870

Please find alternative sensors out of B&K Vibro's large portfolio.

Additional modules within the VIBROCONTROL 1800 series - Link Concept

VIBROCONTROL 1801 Relay Module

for DIN Rail installation incl. 12 potential free relays 30V Order Code: VC-1801

VIBROCONTROL 1803 Ethernet-Bridge

incl. RS485, shared RS485/RS232 and LAN Order Code: VC-1803

VIBROCONTROL 1804 Ethernet-Bridge & Data Logger

incl. 4 GB RAM Order Code: VC-1804

Compact Commander Software for Configuration & Diagnostics

Compact Setup - Configuration Software for all VIBROCONTROL 18xx modules included in delivery

Compact Analyzer - Analyzing Software for stored measuring data on request

Optional: Accessories

Power Supply 24 VDC

Type: DSP 10-24; 230VAC / 24 VDC, 10 W Order Code: AC-4111

Field Housing for VIBROCONTROL 1800 components

Fibox, Polycarbonat AC-2131 on request

Field Housing for VIBROCONTROL 1800 components

IP67, Aluminium AC-2132 on request

Field Housing for VIBROCONTROL 1800 components

metal AC-2133 on request