



# 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
- extremely flexible with modular link concept
- time waveform recording and data storage

Dedicated 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 bearing machines, by means of a variety of bearing failure detectors like Envelope, Kurtosis and Crest factor. VIBROCONTROL 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  $\pm 5.4$  Vpk  
Transducer Bias 5 mA  
Input Resistance / Impedance  $\geq 450$  k $\Omega$ , 10 nF
- **VIBROCONTROL 1860**  
**Velocity sensors** 50-100 mV/mm/s  
Maximum input  $\pm 6.0/8.0$  Vpk  
Input Resistance / Impedance  $\geq 450$  k $\Omega$ , 5 nF
- **VIBROCONTROL 1870**  
**Displacement sensors** 0.8-8 V/mm  
Maximum voltage input -2 to -22 V  
Peak detector, attack time 1-1,000 ms  
Peak detector, decay time 0.1-100 s  
Input Resistance / Impedance  $\geq 450$  k $\Omega$ , 10 nF

### 6 Measurement results per vibration channel:

- **2 Overall vibration values**  
Detectors True RMS, Pk-Pk or Pk  
Sample rates 4,800 or 24,000 Hz  
Filter ranges 0.7 Hz to 10 kHz  
Measuring parameter mm/s, m/s<sup>2</sup>, g,  $\mu$ m, 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/s<sup>2</sup>, 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 multiple 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.  
Voltage load: min. 10 k $\Omega$   
Current load: max. 400  $\Omega$   
or
- **4 Alarm relay drivers**  
Relay drivers for external coil: With break-function, 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 break-function (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**  $\pm 3.5\%$  of reading  $\pm 0.5\%$  of Full Scale setup, typical, @calibration ref: 100Hz, velocity, 25 °C, with current LP and HP filter setup.
- **Process Measurement**  $\pm 0.75\%$  of reading  $\pm 0.5\%$  of Full Scale setup
- **Speed sensors**  $\pm 0.5\%$  of reading, Pulse speed 1Hz to 30kHz (*RPM depending of pulse per revolutions setup*)
- **Analogue output**  $\pm 1.5\%$  of reading  $\pm 1\%$  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 "Compact 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:**

VIBROCONTROL 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 input channels, as well as for general system status.

**Temperature:**

- Operating:                                      -10 °C to +50 °C
- Storage:                                         -40 °C to +85 °C

**Housing:**

- DIN rail enclosure IP20 with screw terminals
- Dimensions:                                      H: 110, W: 23, D: 114 mm
  - Weight (measuring module):                                      160 g

**Compliance:**

- CE, ISO 13849-1, ISO 10816-3, VDI 3832, API 670

**Accessories:**

- External Power supply (e.g. AC-4111)  
 +24 V DC, ±5 %, max. power consumption; 10 W



## Ordering Information

### VIBROCONTROL 1850

Vibration monitoring unit for accelerometer 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