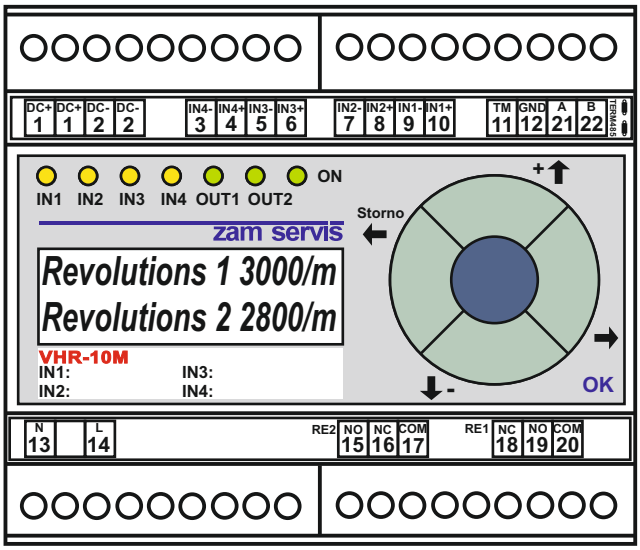
# VHR-10M Evaluation Unit




**Use**

The evaluation unit serves for monitoring and evaluating revolutions, frequency or time between impulses from the connected probes according to the set thresholds, e.g. in the system of conveyer monitoring. The VHR-10M evaluation unit contains two identical sections set independently which can be used in various modes of operation.

One section is set independently of the other, the VHR-10M is not affected during setting up. After entering new values, the newly set section is reset only. The section can be disabled (not used). The drive (section) can be commenced by a signal (the first probe impulse), a special input (the start-up spanning) or by one-off VHR-10M switching on.

Nominal revolution speed can be set either manually or automatically (by measuring) in the range from 2 to 99999 revolutions/minute with the step of 1 revolution/minute. A positive and negative deviation (thresholds) can be set in the range from 0 to 99% with a step of 1%. The time of start-up, run-out and deviation (the time of quiet before possible repeated start) can be selected in the range from 0 to 99 s with a step of 1 s.

The LCD display can show Revolutions (/minute), Frequency (Hz) or Period (ms). Various sensing probes can be used (PNP output, NPN output, passive contact, voltage signal up to 50 V DC, SHR-3, SHR-2+VHR-Z). Probes can be supplied by 24 V DC from VHR-10MxxA to 100 mA or from an external source.

Compatibility with older types:
An older type of VHR-10Z amplifier for SHR-2 can also be used to the VHR-10M unit but yellow LED will not flash on the amplifier. The new VHR-Z amplifier can be used for the older type of the VHR-10 unit without problems.

**After installation and setting via menu the VHR-10M evaluation unit is fully unattended device which requires minimum attention and care.**

**VHR-10M description**

The VHR-10M evaluation unit is manufactured in a module box consisting of 6 modules (6 single-pole circuit breakers) intended for being mounted on a 35mm DIN rail.

On the front panel of VHR-10M there is a two-line LCD display which serves for showing the status, measured value and setting in the menu mode, four yellow LEDs signalling input levels and impulses from probes, two green LEDs signalling the status of the output relay and a green LED indicating the supply. The VHR-10M is set intuitively by a cross control switch with five pushbuttons.

The VHR-10M is manufactured in the version with RS485 communication or without communication, with standard or slip-on terminals (for easy replacement) and the supply of 230 V AC (24 V DC) or 24 V DC only.

**Alternatives:**

**VHR-10M** _ _ _

- **A** the supply of 230 V AC or 24 V DC
- **D** the supply 24 V DC only
- **S** standard terminals - 4 $mm^2$
- **N** nslip-on (connector), terminals 2.5 $mm^2$
- **0** without communication
- **4** RS485 communication

The VHR-10MxxD unit can be supplied by SELV voltage of 19-28 V DC; 60 mA. In addition to 19-28 V DC, the VHR-10MxxA unit can also be supplied with the voltage of 200-250 V AC; 50 mA. Simultaneous connection of both types of supply is impossible. When using the supply from 230 V AC, the output voltage of 20-24 V DC can be used for supplying probes. The direct current of 24 V DC can be replaced by a back-up battery which must have its own SELV charging source dimensioned according to its capacity.

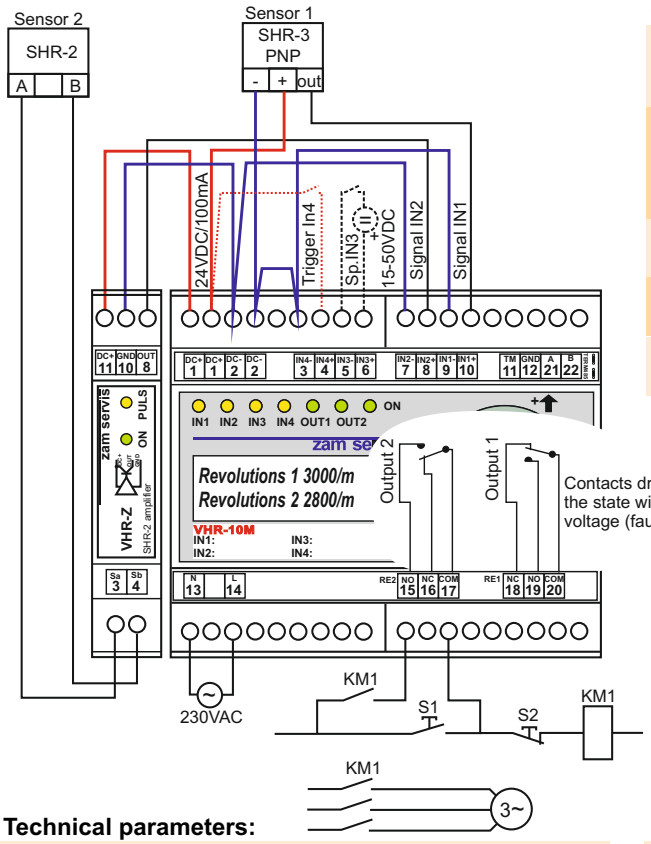
**The catalogue has only those selected important parameters for your final decision. For project designs always ask for the user's guide for this product and any engineering consultation about possible uses.**


ZAM-SERVIS s.r.o. Křišťanova 1116/14 702 00 Ostrava - Přívoz
tel.: +420 596 135 422, email: zam@zam.cz, www.zam.cz

THE EUROPEAN REGIONAL DEVELOPMENT FUND
AND THE MINISTRY OF INDUSTRY AND TRADE OF
CZECH REPUBLIC SUPPORT INVESTMENT IN YOUR FUTURE

zam servis

# VHR-10M Evaluation Unit




**Example of VHR-10MxxA connection with SHR-3 and SHR-2 sensors with a VHR-Z amplifier. Output 2 is used for switching of the KM1 contactor.**

**Other componets for VHR-10M:**

| | |
|---|---|
| **VHR-Z** | Voltage impulses amplifier, PNP transistor. Possible to use with SHR-2 Induction sensor. |
| **SHR-2** | Induction sensor reacting to magnet movement. It is necessary to use VHR-Z amplifier to connect SHR-2 to VHR-10M. |
| **SHR-3** | Induction sensor reacting to magnet movement, output PNP. |
| **MHR-2** | Magnets for monitoring the rotation diameter 90 mm, bolt M16. |
| **MHR-3** | Magnets for monitoring the rotation diameter 30 mm, bolt M8. |

**Technical parameters:**

| | |
|---|---|
| Supply of VHR-10MxxD | 19-28 V DC; 60 mA |
| Supply of VHR-10MxxA | 200-250 V AC; 50 mA or 19-28 V DC; 60 mA |
| Output voltage VHR-10MxxA | 20-24 V DC; 100 mA at the supply of 230 V AC |
| Frequency and network type | 50-60 Hz, TN, IT, TT |
| Signal (logical) inputs | 4 mutually galvanically separated inputs |
| Insulation voltage between inputs | 100 V |
| Maximum voltage of inputs | 50 V DC constantly |
| High level of inputs | 15 - 50 V DC |
| Low level of inputs | - 50 - + 6 V DC |
| Input current | 3 mA at 15 V, 6 mA at 24 V, 15 mA at 50 V DC |
| Repetitive frequency of inputs | Maximum of 8 kHz |
| Connectible probe types | NPN, PNP, voltage, passive contact, SHR |
| Optional commencement types | By signal, input, switching-on the VHR-10M |
| Range of setting the revolution speed | 2 - 99999 revolutions/minute with a step of 1 revolution/min |
| Range of setting the tolerance | 0 - 99% with a step of 1% |
| Range of setting the times of commencement, run-out and fault (calm) | 0 99 s with a step of 1 s |

| | |
|---|---|
| Reading slot distance | Maximum of 20 m |
| RS485 bus length | Maximum of 1 km, maximum of 32 devices without duplicating unit |
| Recommended data cables | Twisted twin cable, twin and earth cable, UTP, STP |
| Outputs | 2 relays with switch-over contacts |
| Nominal current | 8 A, see the characteristics |
| Nominal voltage | 250 V, see the characteristics |
| Maximum switched AC output power | 2,000 VA |
| Maximum switched DC output power | 200 W |
| Ambient temperature | -20°C - +60°C |
| Humidity | Maximum of 90% without condensation |
| Protection | IP20 |
| Dimensions | 106mm x 95mm x 60mm |
| Weight | Maximum of 0.45 kg |
| VHR-10MxSx conductor cross-section | Maximum of 4 $mm^2$ |
| VHR-10MxNx conductor cross-section | Maximum of 2.5 $mm^2$ |

Protection against dangerous touch of non-live parts is ensured by a safe SELF, PELF voltage in the case that the external supply source has an earthed pole, accessory protection is made by mutual connecting and connecting to an earth conductor.

**The catalogue has only those selected important parameters for your final decision. For project designs always ask for the user's guide for this product and any engineering consultation about possible uses.**

ISO 9001 : 2009
V140116

ZAM-SERVIS s.r.o. Křišťanova 1116/14 702 00 Ostrava - Přívoz
tel.: +420 596 135 422, email: zam@zam.cz, www.zam.cz