



Continuous Monitoring of vibration and temperature

'Stand Alone' no PC hardware necessary

Easy to Mount on the lubricating hole

Combination Option with an automatic lubricator

What kind of machines can be monitored?

Machines to be monitored by the **Easy Check** should comply with the listed requirements:

- **constant rotational speed, constant load, stable operating conditions**
- **machines have to be considered acceptable for unrestricted long-term operation (good condition) according to ISO 10816**

Examples of machines that can be monitored:

- carrying air fan of coal power plant
- exhauster of a cement mill
- agitator in a water treatment plant
- absorber pump for a desulphurisation unit
- coal mill of a coal power plant
- recirculation fan of a homogenisation furnace
- ...

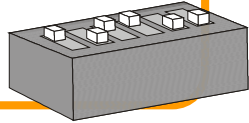
To select the exact mounting position please consider as follows:

- mounting position should be as close as possible to the critical parts of the machine
- good 'ring through'
- stud mounting technique is the first choice
- vertical positioning should be preferred
- **Easy Check** should be observable and, for mounting, the position has to be accessible
- environmental temperature at max 50°C / 122°F (special version at max 85°C / 185°F)



1 CONFIGURATION

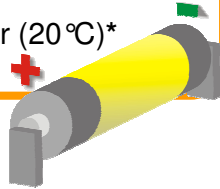
- alarm limits
- filter



The first step is to remove the casing cover to configure the **Easy Check**.
On the circular board is the DIP switch and the Teach in Button (please refer to the photo on the last page).
The **Easy Check** is delivered with a default setting for standard machines. This setting can be changed to adapt the system to monitor a specific machine (please refer to the table on the last page).

2 ACTIVATION

- insert a battery size AA
- lifetime: about 1 year (20 °C)*



Inserting the battery activates the **Easy Check**.
For exchanging or removing the battery please follow these steps:

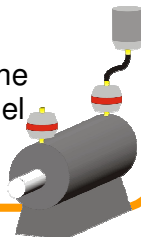
- 1) remove battery
- 2) wait at least 1 minute to reset the **Easy Check**
- 3) insert battery

The reference values of the good condition remain stored during a change of battery. This means there is no teach in mode necessary after a battery exchange.

* Battery lifetime depends on the ambient temperature.

3 MOUNTING

- best option: screw joint with the lubricating channel
- max. moment of torque: 10Nm



Preferably screw joint with the lubricating hole:

With the M8 external screw thread the **Easy Check** can be connected to any M8 tapped hole. The easiest option is to use the lubricating channel in the bearing housing. Doing this please take care to seal the internal M8 screw thread on top of the Easy Check with a screw plug, lubricating nipple or the flexible tube of the automatic lubricator (e.g. FAG Motion Guard) to avoid contamination of the bearing.

Adhesive-bounded joint:

An adaptor is affixed to the machine with a special adhesive. The **Easy Check** is then screwed on the adaptor.

4 TEACH IN MODE

- press the push button for about 4 seconds
- learning of the 'good condition'



Start of the Teach in Mode:

1. Run up the machine and wait until it reaches the regular operating condition.
2. Press the Teach in Button for about 4 sec – until red, yellow and green LED flash once.
3. 5 minutes remain to refit the casing cover. Then the teach in mode starts.

Do not mechanically manipulate the Easy Check any more!

Teach in Mode:

- yellow and green LED flash every 4 sec
- duration of the teach in mode: about 15 Minutes
- base values (benchmarks) for the good condition are determined

End of the Teach in Mode:

- The green LED flashes to indicate the regular monitoring mode.

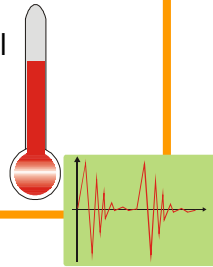
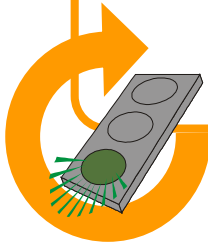
No new Teach in Mode is needed when:

- machine was stopped and started again
- battery change had taken place (see 2)
- false alarm had been triggered – reset alarm (see 8)



5 MEASURING

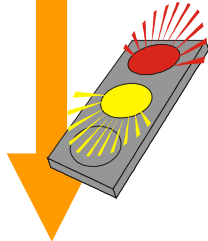
- compares actual measurements with the 'good condition'



Every minute a new measurement takes place. The measured values are compared with the base values and the configured alarm levels (for details please refer to the examples on the last page). The LEDs display the actual alarm status every 4 seconds.

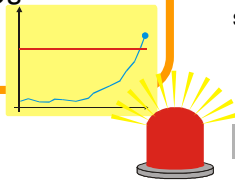
Blink code of the LEDs:

- **green LED** flashes: no alarm – everything is **OK**
- **yellow LED** flashes: pre-alarm of at least one measurement
- **red+yellow LEDs** flash: main alarm of the vibration measurement
- **red+green LEDs** flash: main alarm of the temperature measurement



6 ALARMS

- exceeding of the alarm limits triggers the LEDs
- refer to the blink code



If 5 succeeding measurements exceed the alarm limit, an alarm is triggered. This way false alarms are excluded. A main alarm overrules a pre-alarm and only the code with the red+green or red+yellow combination flashes. After a main alarm was triggered the regular monitoring mode stops, until the alarm is reset manually (step 8 - adjust alarm level), or the teach in mode was restarted after successful service.

Check the LEDs in regular intervals!

7 CHECK

- check regularly
- more detailed measurements?



If the **Easy Check** displays an alarm, please check:

- Are the process parameters still the same since the teach in mode was started?
e.g. load speed
- Are the mechanical parameters still the same?
e.g. reconstructions
Is the connection of the Easy Check still tight?
- Do you need a diagnose expert?

to step 4

8 SERVICE

- replacement of bearing
- balancing
- alignment



After successful service new basic values have to be determined. Press the Teach in Button again for about 4 sec until all 3 LEDs flash to start the teach in mode.

Adjust alarm level: If the alarm levels had been selected too sensitive and an alarm was triggered too early, the alarm levels can be readjusted without a new 'teach in'. First open casing cover, then alter DIP switches, press the Teach in Button **<1sec !** to reset the alarms - 5min remain to refit the casing cover. Then the regular measuring mode proceeds.



Set the Alarm Levels

The alarm levels are set by the position of the DIP switches which represent relative values (in % of the base value).

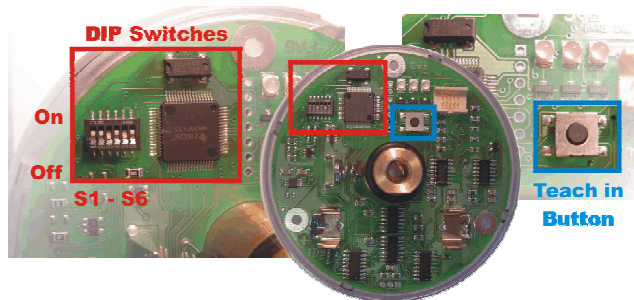
Examples:

Acceleration was determined in the teach in mode as 100mg.

- DIP-switches S3 and S4 are both ON (pre-alarm 140%, main alarm 200%, see table)
⇒ With a measured value of 140mg a pre-alarm is triggered, and with a measured value of 200mg a main alarm is triggered.

Temperature was determined in the teach in mode as 42°C.

- DIP-switch S5 is OFF, S6 is ON (pre-alarm +15°C, main alarm +20°C, see table)
⇒ A measured temperature of 57°C triggers a pre-alarm (42°C + 15°C), and a measured temperature of 62°C triggers a main alarm (42°C + 20°C).



S1, S2: SETTING TO MONITOR VIBRATION / BEARINGS

S1	S2	f _{HP}	machine
OFF	OFF	20 Hz	special application
OFF	ON	-----	
ON	OFF	-----	
ON	ON	500 Hz	standard

S3, S4: SETTING TO MONITOR VIBRATION

S3	S4	pre-alarm	main alarm	example
ON	ON	140%	200%	mill
OFF	ON	200%	280%	pump
ON	OFF	280%	400%	fan
OFF	OFF	400%	560%	electric motor (big)

S5, S6: TEMPERATURE SETTING

S5	S6	pre-alarm	main alarm
ON	ON	T _{REF} +5°C	T _{REF} +10°C
OFF	ON	T _{REF} +15°C	T _{REF} +20°C
ON	OFF	T _{REF} +25°C	T _{REF} +30°C
OFF	OFF	T _{REF} +35°C	T _{REF} +40°C

Grey lines represent the default setting!

Blink Codes of the LEDs:

none:	change battery
red yellow green:	teach in mode starts
green yellow:	teach in mode runs
green:	regular monitoring mode
yellow	at least one pre-alarm
red yellow:	vibration alarm
red green:	temperature alarm
3x yellow:	no reference values stored
2x yellow:	low battery was inserted
red:	serious defect – call support

Technical Data

type:	FAG Easy Check I
measurements:	vibration velocity (2 Hz to 1 kHz), min. rot. speed 120 rpm demodulated acceleration of vibration (bearing) HP: 20 Hz/ 500 Hz (selectable), LP: 5 kHz min. rot. speed 300 rpm temperature (-20°C up to +85°C)
alarm:	3 LED's (red, yellow, green)
environmental temperature:	-20°C to +55 °C (to +85°C with a special battery)
power supply:	1,5 V battery size AA
housing material:	Makrolon
safety class:	IP65 (according to DIN) dustproof / water jet proof
mounting:	M8 external screw thread with a feedthrough tube
connection:	M8 internal screw thread to optionally connect an automatic lubricator
dimension:	90 mm x 90 mm x 76 mm
weight:	260 g



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