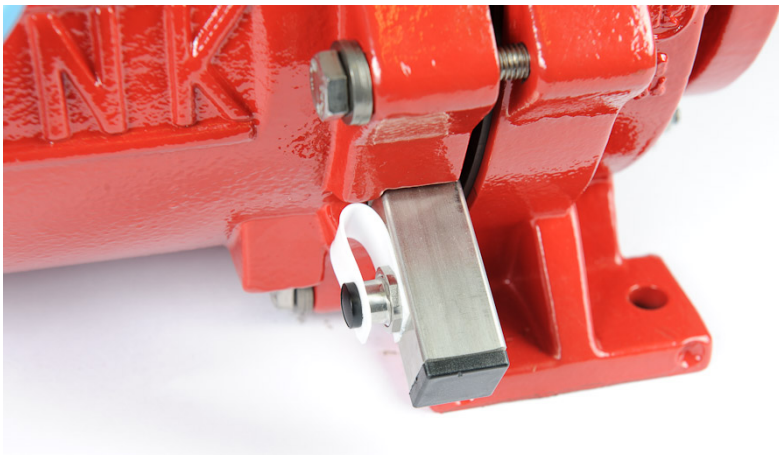


Installation and Operating Manual

(Translation of the original instructions)

Pump monitoring SAFERUN[®]

(Temperature sensor)



Read the instructions prior to performing any task!
Keep for future reference.

Edition 08/2015
Revision 1.1
9230-072-en

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1 Explanation of the symbols

1.1 Pictograms used

The warnings used in this manual are additionally provided with pictograms to make the nature of possible threat significantly.

The following pictograms are used:

Symbol	Meaning
	General warning
	Electrical hazard
	Special hazards by use in explosion-proof area
	Risk of pollution
	General information and useful advice for handling
	Special considerations when using the device in explosion-proof area
	Special considerations when using the device

1.2 Structure of warning

In the present operating instructions the following warnings are used:

	 DANGER Danger to life! Consequences of neglect ... ► Avoidance 1 ► ...
---	--

A warning of this danger level indicates an imminent hazardous situation. If the impending dangerous situation is not avoided it will result in death or serious injury.

Follow the instructions in this warning to avoid the risk of death or serious injury of persons.

	 WARNING Risk of injury! Consequences of neglect ... ► Avoidance 1 ► ...
---	---

A warning of this danger level signifies a possible dangerous situation. If the dangerous situation is not avoided, this could result in death or serious injury.

Follow the instructions in this warning to avoid the potential risk of death or serious injury of persons.

	⚠CAUTION
	Personal injury due to ... Consequences of neglect ... ▶ Avoidance 1 ▶ ...

A warning of this danger level signifies a possible dangerous situation. If the dangerous situation is not avoided, this may result in minor or moderate injuries.

Follow the instructions in this warning to avoid personal injury.

	CAUTION
	by ... Consequences material damage if ignored ... ▶ Avoidance 1 ▶ ...

A warning of this danger level signifies a possible property damage. If the situation is not avoided, may result in property damage.

Follow the instructions in this warning to avoid material damage.

	NOTE
	Note text...

A note indicates additional information that is important for further processing, or facilitate the operation described.

1.3 Limitation of Liability

The manufacturer assumes no liability for damage and malfunctions caused by:

- Failure to follow these operating instructions,
- improper use,
- Use of untreated or insufficiently trained staff,
- faulty connections,
- Failure to use original spare parts and accessories,
- technical changes and improvements, if they are not coordinated with the producer,
- Failure to implement the prescribed maintenance work.

1.4 Copyright

This documentation is protected by copyright.

All rights, including those of photomechanical reproduction, the duplication and distribution via special processes (eg data processing, data carriers, data networks), even partially, as well as substantive and technical changes.

1.5 Product Information

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Internet: <http://www.richter-ct.com>

1.6 Richter Service

For technical questions about the device, we ask you to contact directly with the manufacturer. (Address see section 1.5).

Please keep in this case the following information ready:

- Commission number (XX-XXXXXX-XX-XX)

The required disclosures are on the pump nameplate.

2 Safety

This chapter provides important information on all safety aspects for optimal protection of personnel as well as safe and trouble-free operation.

In addition to the specified in this chapter, basic safety precautions and instructions to special risks which are relevant for the safe handling of safety instructions are given in each action chapter.

Any hazards which could occur during a specific action step are described of each action step.

	⚠ DANGER
	Risk of death by non-observance of safety instructions! Failure to comply with the safety and handling instructions specified in these operating instructions dangerous situations can arise. ▶ Follow all warnings and instructions listed here. ▶ When referencing other documents also refer to the safety instructions contained therein.

Moreover, the country-specific installation standards apply (eg in Germany VDE regulations) as well as the applicable safety regulations, operational safety regulations and accident prevention regulations for the application of the device.

2.1 Notes on safety

The can SAFERUN® CMS-S complies with the general state of the art and has been designed and manufactured in compliance with all applicable regulations and guidelines.

For safe handling of the device observe the following safety principle:

Regularly check the can SAFERUN® CMS-S for visible damage and defects. A damaged unit must be replaced immediately.

Installation and/or maintenance have to be carried out only by authorized personnel.

Before any cleaning, maintenance and repair work secure the work area.

Adhere to prescribed intervals for recurrent tests inspections.

Replace worn or defective parts only with original spare parts.

Use suitable tools only.

After repair work, refit all protective devices and check electrically and mechanically.

Keep the operating instructions available for the personnel at all times.

2.2 Specific hazards

The can SAFERUN® CMS-S itself is not harmful. Depending on the location, special safety regulations for occupational safety and accident prevention regulations for the application of the device shall apply.

The device meets the requirements set out in Directive 94/9 / EC (ATEX 95) for use in explosion-proof environment. The examination certificate is annexed.

	 DANGER Danger to life from non-compliance with safety instructions when operating in an explosive environment! Failure to comply with the safety and handling instructions specified in these operating instructions dangerous situations can arise. ► Follow all warnings and instructions listed here. ► When referencing other documents also refer to the safety instructions contained therein.
	<i>NOTE</i> Notes on safety in potentially explosive environments are identified by this symbol especially.

2.3 Foreseeable misuse

The can SAFERUN® CMS-S is not designed as an alternative to plant-specific measuring equipment and must not be used as a substitute for safety-relevant measuring or monitoring systems.

For consequential damages, which might arise as a result of valuation errors in the system or misinterpretation of the displayed error messages, the manufacturer accepts no liability.

2.4 Operator responsibility

As the can SAFERUN® CMS-S is used in the commercial sector, the operator is subject to the legal obligations for occupational safety and health.

In addition to the safety instructions in these operating instructions that apply to the operation of the equipment safety, accident prevention and environmental protection rules must be respected.

The operator must:

be aware of the applicable health and safety regulations and determine in a risk assessment additional hazards that arise from the special working conditions at the unit. This must be implemented for the operation of the device in the form of operating instructions.

meet the necessary requirements for the installation site.

appropriate warning signs at the installation location attach that point to the dangers in the workspace.

Check for the entire operating time of the device, whether the operating instructions drawn up by him represents the current state of the regulations and adjust them if necessary.

regulate and specify the responsibilities of the personnel for the installation, operation, maintenance and cleaning.

ensure that all employees who handle the equipment have read and understood the operating instructions. Furthermore, he must train personnel at regular intervals and inform you about the existing hazards in the work area.

the safety and danger-conscious work of the staff regularly checked in accordance with the operating Instructions.

ensure that this installation and operating instructions and all other applicable rules are the operating and maintenance personnel available.

verify and document compliance with the specified cleaning and maintenance intervals.

provide the staff the necessary protective equipment.

2.5 Personnel requirements

2.5.1 Qualification of personnel

In this manual the following qualifications for different areas of activity are identified:

- Instructed person
was informed in a briefing by the operator on the tasks entrusted to it and possible hazards of improper conduct.
- Skilled personnel
is due to its technical training, knowledge and experience as well as knowledge of pertinent regulations able to carry out the tasks assigned to him and recognize possible hazards independently and avoid.
- An electrician
can perform due to their technical training, knowledge and experience and knowledge of the relevant standards and regulations capable of working on electrical systems and to detect possible hazards on their own and to be avoided. The qualified electrician is responsible for the special use, in which it operates, and know the relevant standards and regulations.

As personnel only persons authorized, can be expected of them that they carry out their work reliably. Persons whose reactivity is influenced, such as by drugs, alcohol or medicine are not allowed.

Make sure that trainee, personnel to be taught, instructed or as part of a general education only operate under the constant supervision of an experienced person on the machine.

	⚠ DANGER
	Fatal if insufficient qualifying! Improper handling of and on the machine can result in significant personal injury and damage. ▶ All work carried out has to be done only by qualified personnel.

	NOTE
	In the selection of personnel observe the applicable age and occupational regulations!

2.5.2 Unauthorized

	⚠ WARNING
	Threat for and by unauthorized! Unauthorized persons who do not meet the requirements described, cannot know the hazards in the work area. ▶ Keep unauthorized persons away from the work area. ▶ When in doubt speak to persons and send them off the work area. ▶ Interrupt work as long as unauthorized persons staying in the workspace.

2.5.3 Instruction

Personnel must be instructed by the operator regularly.

i	NOTE
	In order to better track the implementation of the instructions and log can be acknowledged by the participants against signature.

2.6 Personal protective equipment

When working on the device by the operator prescribed for the place where the equipment protective clothing must be worn by persons.

	⚠ WARNING
	Risk of injury from incorrect or missing protective equipment! At work wearing personal protective equipment is required to minimize the health hazards. ▶ Always wear the prescribed protective equipment by the operator while working. ▶ Immediately replace any worn or defective protective equipment. ▶ Follow notices according to personal protective equipment attached in workspace.

3 Can SAFERUN® CMS-S

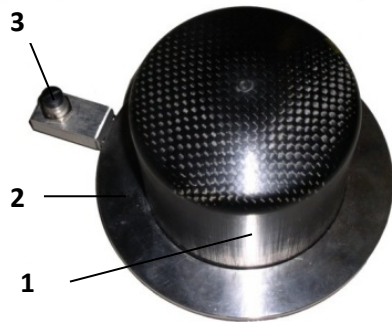


Fig. 1

1. Can
2. Support ring with sensor housing
3. Socket for connection to converter SAFERUN® CMS-T or for the temperature signal (PT1000)

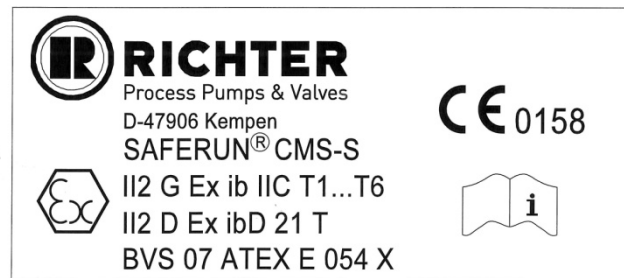
3.1 Sensor



Fig. 2

SAFERUN®-Sensor (integrated in can **SAFERUN® CMS-S**)

3.2 Type plate can SAFERUN® CMS-S



9299-00-5158/4-0

Marking according to ATEX (gas explosion protection):

Shortcut	Meaning
II2 G	Group II; categorie 2G
Ex	Symbol plate
ib	Intrinsic safety for zones 1, 2
IIC	Explosion group
T1 ... T6	Temperature classes T1 to T6

Marking according to ATEX (dust explosion protection):

Shortcut	Meaning
II2 D	Group II; categorie 2D
Ex	Symbol plate
ibD 21	Intrinsic safety for Zone 21
T	maximum surface temperature

EC-type examination certificate for can SAFERUN®.CMS-S:
 BVS 07 ATEX E 054 X

4 Layout and function

4.1 Functional description

With the present PT1000 in the can unit SAFERUN® CMS-S (for further information, see annex), the temperature in the can can be measured. This can either be done via a suitable temperature transducer, or with the aid of the converter SAFERUN® CMS-T.

The coil in the can unit SAFERUN® CMS-S can be used and analyzed only useful using the converter SAFERUN® CMS-T.

5 Wiring diagram

5.1 Protective cap can unit SAFERUN® CMS-S

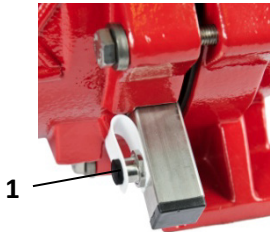


Fig. 3

Procedure:

1. Unscrew the cap (1) on the plug of the can SAFERUN® CMS-S. Pick the protective cap for future use.

5.2 Pin assignment can unit SAFERUN® CMS-S

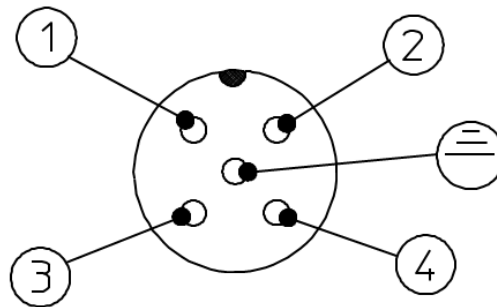


Fig. 4

Connectors Pin-Nr.:	Assignment	Wire
1	magnetic field sensor +	white
2	magnetic field sensor -	brown
3	shield	Shield and gray wire (on common insulated ferrules)
4	Temperature sensor	blue
5		black

5.3 Sensor cable for can unit SAFERUN® CMS-S



SAFERUN® sensor cable 0.3m or 5m (as a connection between SAFERUN® CMS-T and SAFERUN® CMS-S) or connection for the temperature signal (PT1000).

Order-No. for 0.3m: #####

Order-No. for 5m : #####

Fig. 5

5.4 Temperature Transmitter

For the PT1000 in the can unit SAFERUN® CMS-S a certified universal temperature transmitter should be used.

The following table lists some of the approved devices are listed:

Type	EC-Type Examination Certificate	Manufacturer
KFD2-UT2-Ex1		Pepperl+Fuchs
KFD2-UT2-Ex1-1		Pepperl+Fuchs

5.5 Cleaning

Clean the can unit SAFERUN® CMS-S with a damp cloth. Do not use solvent-containing cleaners.

5.6 Maintenance

The can unit SAFERUN® CMS-S is maintenance-free.

5.7 Repairs

Repair of can unit SAFERUN® CMS-S may only be performed by the manufacturer.

5.8 Ban on conversions

Any conversions and modifications on the device are forbidden.

The manufacturer assumes no liability for any resulting damages.

5.9 Spare parts

	⚠ WARNING
	Injury due to incorrect or faulty spare parts! Wrong or faulty spare parts may result in injury, damage, malfunction or total failure and compromise safety. ► Only use original spare parts from the manufacturer.

5.10 Environmental notes

	CAUTION
	Environmental hazard due to incorrect handling of environmentally hazardous substances! A wrong handling of environmentally hazardous substances, particularly improper disposal, significant damage to the environment can arise. ► Observe the disposal instructions given in this manual.

6 Dismantling, storage and disposal

6.1 Notes on safety

Note the following safety instructions when installing the appliance:

	⚠ DANGER
	Risk of electrocution! Upon contact with live wires or components can be fatal! ▶ Switch off electrical supply before starting work and secure against reconnection.

	⚠ WARNING
	Risk of injury due to improper installation! Improper installation can result in serious injuries or property damage. ▶ Before starting work ensure sufficient installation clearance. ▶ Pay attention to tidiness and cleanliness in the workplace! Loosely stacked or scattered components and tools are sources of accidents. ▶ Dismantle components professionally. ▶ The operator has to wear the protective clothing prescribed for the place of the equipment.

6.2 Qualification of personnel

	⚠ DANGER
	Fatal if insufficient qualification of the staff! The dismantling must be carried out by specially trained personnel. ▶ Work on the electrical system may only be performed by qualified electricians. ▶ Comply with applicable safety regulations in the work area.

6.3 Dismantling

The dismantling of the can unit SAFERUN® CMS-S is only allowed to

6.4 Storage

If the can unit SAFERUN® CMS-S is not required for an extended period, screw back the protective cap and store the unit in a dry, clean and frost-free place.

6.5 Returning the can unit SAFERUN® CMS-S

When returning the can SAFERUN® CMS-T for repair or inspection, the device is accompanied by a detailed description of the fault.

6.6 Disposal

This can unit SAFERUN® CMS-S is subject to the WEEE directive 2002/96 / EC and national laws. Pass the can unit SAFERUN® CMS-S directly on to a specialized recycling company and do not use for the municipal collecting points.

Correct disposal avoids negative effects to persons and environment and ensures recycling of useful raw materials. materials: see chapter „Technical data“

7 Appendix

7.1 Technical data

Type	Can unit SAFERUN® CMS-S
Type of protection: category 2G (gas) Category 2D (dust)	 II 2 G Ex ib IIC T1...T6  II 2 D Ex ibD 21 T**

Type	PT1000 Sensor in the can unit SAFERUN® CMS-S
Characteristics	DIN IEC 751
Nominal resistance at 0 °C	1000 Ohm
Resistance tolerance at 0 °C	± 2.40 Ohm
Resistance temp. coeff. (0 °C, 100 °C)	3850 ppm/°C
TK - Tolerance	± 13 ppm/°C
Temperature range	-50 °C to +550 °C
Max. deviation from the nominal characteristic	0.06 °C – 0.007 x ϑ (°C)
Wire material	Ni $\varnothing$ = 0.25 mm

** Temperature class and maximum surface temperature as a function of maximum medium temperature at the installation site and the ambient temperature

Temperature class	Maximum Surface temperature (T**)	Ambient temperature	Maximum Medium temperature at the installation
T6	80 °C	- 20 °C ≤ Ta ≤ +40 °C	75 °C
T5	95 °C		90 °C
T4	130 °C		125 °C
T3, T2, T1	185 °C		180 °C

Edition 08/2015
Revision 1.1
9230-072-en