

### NRS 1-40.1

Self-monitoring temperature switch with periodic self-checking feature to be used in conjunction with a resistance thermometer type TRG 5-6.. and pre-amplifier TRV 5-40. The equipment operates as a safety temperature controller, or in conjunction with an external lock-out in accordance with VDE 0116 (EN 50156) as a safety temperature limiter. An alarm is given as soon as the temperature exceeds a preset limit value. The TRV 5-40 features digital indicators for the actual temperature and switching-off temperature.

### Examples of Installation

- Superheaters for steam boiler plants operating without constant supervision (TRD 604).
- Superheater cascades with up to 4 steps
- In pressurized hot-water plants as temperature limiter for the secondary circuit in accordance with TRD 604 or 12952/..53.
- Furnaces in accordance with DIN 30 683 up to 800 °C.
- Control systems for product heating or cooling

### TRS 5-40

The MIN/MAX temperature switch TRS 5-40 in combination with temperature sensor TRG 5-63 and pre-amplifier TVRV 5-40 serves as temperature controller. Application in steam boilers, pressurized hot-water plants operating without constant supervision (TRD 604) as well as any other type of heat generator. The equipment raises an alarm when the preset MIN/MAX limit value is attained.

### Technical Data of Temperature Sensor

Type	PN	Connections			Pt 100	Max. temperature	Ambient temperature	Lengths available L [mm]
		Screwed BSP	TRV...	Welding stub				
TRG 5-63	40	½"	5-40	–	1	400 °C	100 °C	100 bis 400
TRG 5-64	40	½"	5-40	–	2	400 °C	100 °C	100 bis 400

Accuracy class A

TRG 5-65	160	–	5-40	Form 4	1	540 °C	100 °C	115
TRG 5-66	160	–	5-40	Form 4	1	540 °C	100 °C	140
TRG 5-67	160	–	5-40	Form 4	1	650 °C	100 °C	200
TRG 5-68	160	–	5-40	Form 4	1	650 °C	100 °C	200

Accuracy class B

#### Pt 1000

TRG 5-69	40	½"	CANopen	–	1	400 °C	85 °C	160
TRG 5-70	160	–	CANopen	Form 4	1	540 °C	85 °C	140

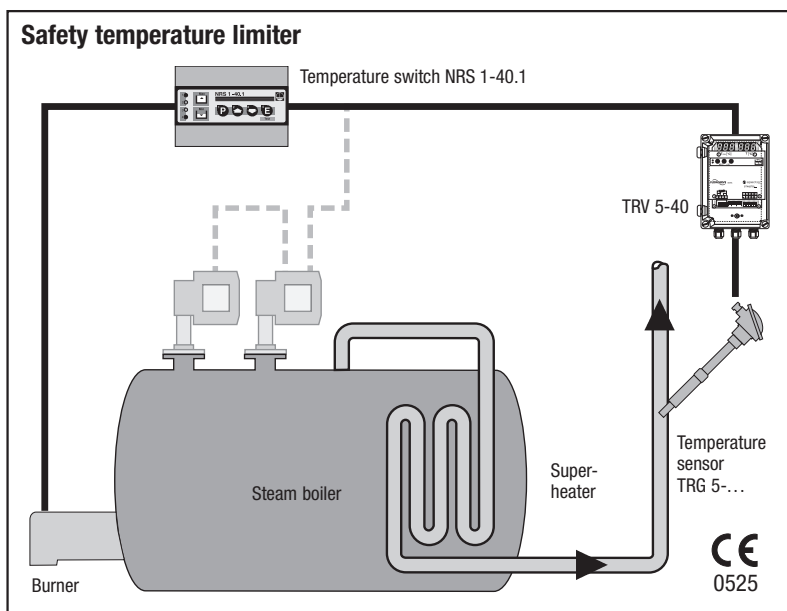
### Technical Data of Temperature Pre-Amplifier

Type	Output	Adjustment range	Auxiliary power	Version	Performance test	TÜV	EC
TRV 5-40	CANopen	650 °C	24 V, DC	a	annual	●	●

### Technical Data of Temperature Switches / Controllers / Indicators

Type	Outputs		Control characteristic			Mains supply Standard	Version			Performance test in acc. with DIN 3440	TÜV approval	EC
	Switchpoint	0/4-20 mA	MIN	MAX	Δ T		b	c	e			
NRS 1-40.1	1	–	–	–	–	230 V	●	–	–	annual	●	●
NRS 1-40.2	1	–	–	–	–	230 V	●	–	–	–	●	●
TRS 5-40	4	–	●	●	–	230 V	●	–	–	–	●	

**Safety temperature limiter**



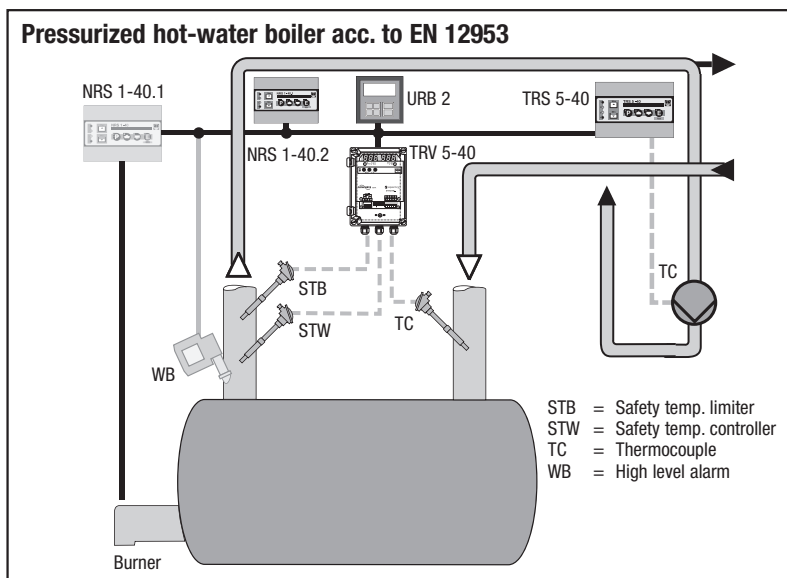
**Safety temperature limiter**

Combination	PN	Stock code
PT 100 T < 650 °C		
TRG 5-67 L = 200 mm	160	2671822
TRG 5-68 L = 200 mm	160	2671923
TRV 5-40 24 V, DC	-	2691040
NRS 1-40.1 230 V, 50-60 Hz	-	3222841

Combination	PN	Stock code
PT 100 T < 540 °C		
TRG 5-65 L = 115 mm	160	2671611
TRG 5-66 L = 140 mm	160	2671712
TRV 5-40 24 V, DC	-	2691040
NRS 1-40.1 230 V, 50-60 Hz	-	3222841

Type approval  
TÜV SWB/SHWS 03-413  
DIN CERTO STW (STB) 117906

**Pressurized hot-water boiler acc. to EN 12953**



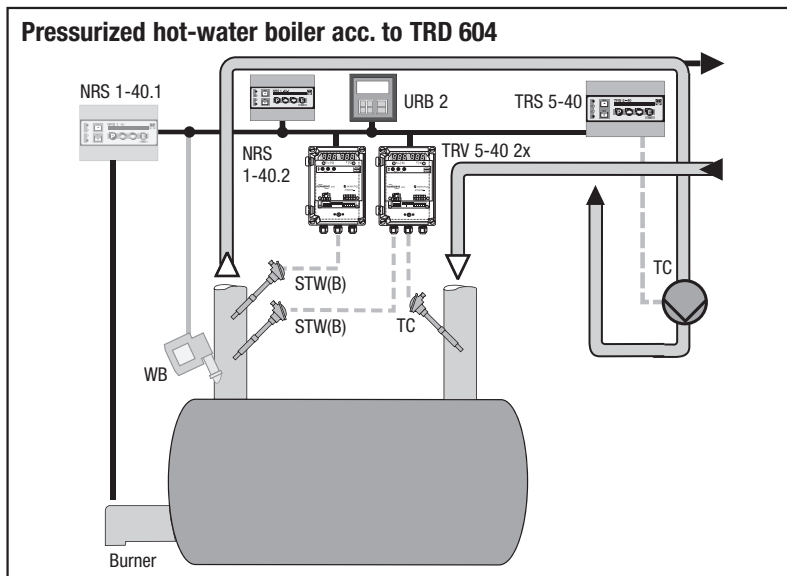
**Pressurized hot-water boiler**

Combination	PN	Stock code
PT 100 T < 400 °C		
TRG 5-63 L = 100 mm 2x	40	2671110
TRV 5-40 24 V, DC 1x	-	2691040
NRG 16-40	40	3514041
NRS 1-40.1	-	3222841
NRS 1-40.2	-	3228941
TRS 5-40 230 V, 50-60 Hz	-	2554041
URB 2	-	3382043

TÜV ATW 1182 06  
DIN CERTO TR/TW 118206

For other PT 100 see Price List.

**Pressurized hot-water boiler acc. to TRD 604**



**Pressurized hot-water boiler**

Combination	PN	Stock code
PT 100		
TRG 5-63 L = 100 mm 2x	40	2671110
TRV 5-40 24 V, DC 2x	-	2691040
NRG 16-40	40	3514041
NRS 1-40.1	-	3222841
NRS 1-40.2	-	3228941
TRS 5-40 230 V, 50-60 Hz	-	2554041
URB 2	-	3382043

### TRS 5-6

Self-monitoring temperature switch with periodic self-checking feature to be used in conjunction with a resistance thermometer type TRG 5-... .

The equipment operates as a safety temperature controller, or in conjunction with an external lock-out in accordance with VDE 0116 (EN 50156) as a safety temperature limiter.

An alarm is given as soon as the temperature exceeds a preset limit value.

Use in combination with a twin PT 100 for temperature indication.

### TRS 5-7

Self-monitoring temperature switch with periodic self-checking feature to be used in conjunction with a resistance thermometer type TRG 5-... .

The equipment operates as a safety temperature controller, or in conjunction with an external lock-out in accordance with VDE 0116 (EN 50156) as a safety temperature limiter. An alarm is given as soon as the temperature exceeds a preset limit value.

### Examples of Installation

- Superheaters for steam boiler plants operating without constant supervision (TRD 604).
- In pressurized hot-water plants as temperature limiter for the secondary circuit in accordance with TRD 604 or 12952/..53.
- Furnaces in accordance with DIN 30 683 up to 1000 °C.
- Return-temperature control acc. to TRD 604.
- Control systems for product heating or cooling.

### TRS 5-8

The min./max. temperature switch TRS 5-8 in combination with temperature sensor TRG 5-53, TRG 5-54, TRG 5-55, TRG 5-57, serves as temperature controller according to DIN 3440. Application in steam boilers, pressurized hot-water plants operating without constant supervision (TRD 604) as well as any other type of heat generator. The equipment raises an alarm when the preset MIN/MAX limit value is attained.

### Technical Data of Temperature Sensor

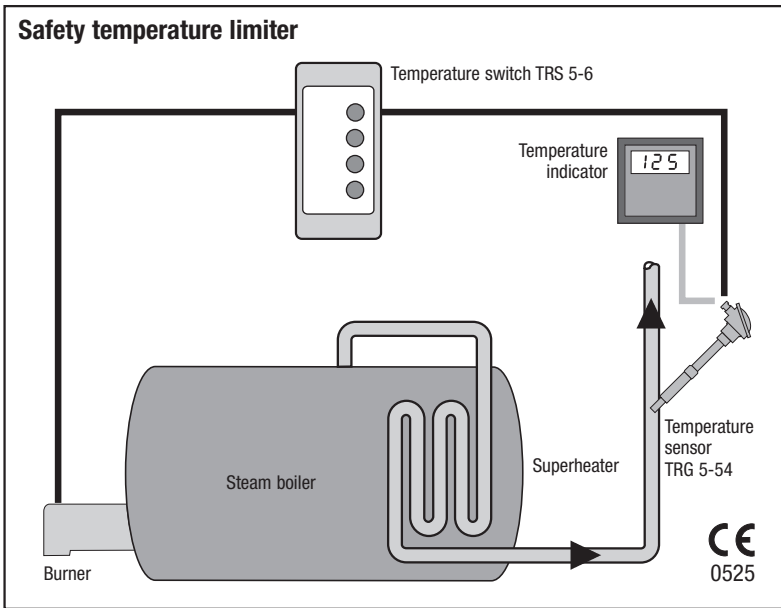
Type	PN	Screwed BSP	Connections		Pt 100	Thermocouple type K	Max. temperature	Ambient temperature	Lengths available L [mm]
			TRS...	Welding stub					
TRG 5-11	1	¾"	5-7	–	–	2	1000 °C	120 °C	710
TRG 5-41	160	–	5-7	Form 4	–	2	650 °C	120 °C	200
TRG 5-53	40	½"	5-6, 5-8	–	1	–	400 °C	100 °C	100 to 400
TRG 5-54	40	½"	5-6, 5-8	–	2	–	400 °C	100 °C	100 to 400
TRG 5-55	160	–	5-6, 5-8	Form 4	1	–	540 °C	100 °C	115
TRG 5-57	160	–	5-6, 5-8	Form 4	1	–	540 °C	100 °C	140

Accuracy class B

### Technical Data of Temperature Switches / Controllers / Indicators

Type	Outputs		Control characteristic			Mains supply Standard	Version			Performance test in acc. with DIN 3440	Temperature range	TÜV approval	EC
	Switchpoint	0/4-20 mA	MIN	MAX	Δ T		b	c	e				
TRS 5-6	1	–	–	●	–	230 V	●	–	–	annual	30 °C to 540 °C	●	●
TRS 5-7	1	–	–	●	–	230 V	●	–	–	annual	0 °C to 1000 °C	●	●
TRS 5-8	2	–	●	●	–	230 V	●	–	–	–	30 °C to 540 °C	●	–
KS 92-1	3	●	–	PID	–	230 V	–	–	●	–	–70 °C to 620 °C	–	–

**Safety temperature limiter**



**Safety temperature limiter**

Combination		PN	Stock code
PT 100	T < 400 °C		
TRG 5-54	L = 160 mm	40	2651716
TRS 5-6	230 V/50...60 Hz	-	2551741

**Type approval**

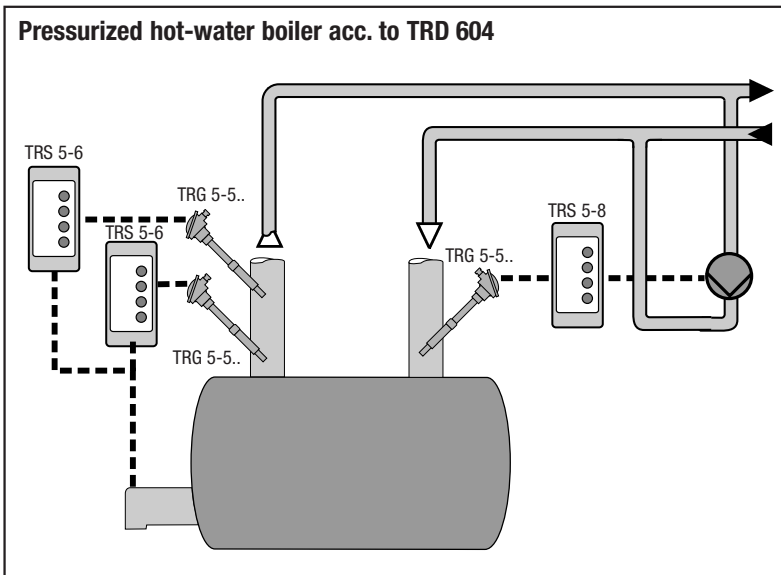
DIN STW (STB) 985 03 S  
EG 01 202 931-B-01-0008

Combination		PN	Stock code
<b>Thermocouple</b>			
Typ K	T > 540 °C to < 650 °C		
TRG 5-41	L = 200 mm	160	2671541
TRS 5-7	230 V/50...60 Hz	-	2551841

**Type approval**

DIN STW (STB) 986 03 S  
EG 01 202 931-B-01-0007

**Pressurized hot-water boiler acc. to TRD 604**



**Return-temperature controller**

Combination		PN	Stock code
TRG 5-53	L = 160 mm	40	2651610
TRS 5-8	230 V/50...60 Hz	-	2551941

**Type approval**

DIN TW 106895

For other PT see Price List.

Option: TRS 5-...

Voltage 24 V or 115 V AC on request