ERICH OTT

SRSB

Voltage regulator - limiter

Characteristics

Easy installation
Effective constant current transmitter
Current transformer output
Actual value display

The device serves for voltage regulation - limitation and for current monitoring. By means of the voltage regulator the effective current for the heating is adjusted.. The adjustment is controlled at the amperemeter.

- Constant output voltage due to regulation to the adjusted desired value
- Activation and disconnection via optocoupler (VDE 700 - 730)
- Max. monitoring individually adjustable (for SRSB with current limitation continuous current components are also monitored)
- Limiter function regardless of load unit
- Limiter disconnection interrupts the circuit galvanically (relay)
- Current transformer output (according to VDE 0551)
- SRSB with current limitation: voltage monitoring at the limiter contact with „Off" - function for the load current.
- Galvanically separated output (Open-Collector-switch) (VDE 700 - 730) for standby signal
- Effective value display
- Correcting element für analogue controller (y-input)
- As effective constant current transmitter

TYPE CODE

SRSB [1] [2] [3] [4] [5] [6]

1	-	standard version current limiter
	a	only for arbitrary contact control

2.0	2,5	measuring range display (A) 2,5 *without current limitation
	4	measuring range display (A) 4 *without current limitation
	6	measuring range display (A) 6 *without current limitation

2.1	6	measuring range display (A) 6 *with current limitation
	16	measuring range display (A) 16 *with current limitation
	20	measuring range display (A) 20 *only SRSB S with current limitation
	25	measuring range display (A) 25 *with current limitation

3	-	Nominal voltage 230 V (20 - 220 V)
	3	Nominal voltage 400 V (35 - 380 V)
	5	Nominal voltage 500 V (40 - 500 V)

4	-	nput opto-coupler
	y	input 4 - 20 mA y-signal
	ey	input 4 - 20 mA y-signal intrinsically safe

5	K	compact unit
	M	module device (consists of Me+MK)
	Me	operating panel for module device
	MK	cassette panel for module device
	S	Einschubgerät

6	-	Standard version
	G	Constant current generator

TECHNICAL DATA

	SRSB without current limitation	SRSB with current limitation
Controller		
Nominal voltage	230 V (400 V)~	230 V (400 V, 500 V) ~
Nominal current max.	2,5 - 4 - 6 A (10 A) J^2t = 450 (10 ms)	25 A, 16 A, 6A (for SRSB . S 20 A)[6]
Control ranges voltage	20 - 230 V~ (40 - 380 V~)	20 - 230 V~ (40 - 400 V~)
Max. electrical load of the semiconductor	0,2 s; 200 A - 500A	0,2 s; 200A .. 500 A[1]
Built-in fuses	10 A, 2 X 80 mA	2 X 80 mA
Limiter		
Tripping range current		1,35 .. 4 A (6 A)
Relay nominal current		10 A
Switching capacity		2500 W
Max. switching capacity		10 ms, 32 A
Current transformer output	5/1 A R_l = 1,5 kΩ	25/1 A (6/1, 15/1); R_l ≤ 1,5 kΩ
Input opto-coupler	6 .. 24 V, R_l = 5 kΩ Cut off according to VDE 0700	6 .. 24 V, R_l = 2 kΩ Cut off according to VDE 0700
Output opto-coupler	.. 20 mA; 24 V = Cut off according to VDE 0700 - 730	
Auxiliary voltage	- 21 V=; R_l = 5 kΩ	- 21 V=; R_l => 10 kΩ
Dimensions[2][4]	Euro board 100 x 160 mm	Euro board 100 x 160 mm 14 TE; 3 HE
Excess length cooling element[4]		+ 93mm
Multiple plug[4]	DIN 41612 Form H	DIN 41612 Form F; H
Cassette[2]		H=157; B=93 (144); T=205
Connector[2]		D15
Temperature range	0 .. 55°C	0 .. 55°C (Cassette)
Cassette[3]		H=150; B=85 (144); T=232
Input y- Signal	4 - 20 mA; 5 V	4 - 20 mA; R_l ≤ 20Ω

[1] depends on design   [2] only for SRS   [3] only for SRS..S   [4] only for SRS..K   [5] option 50A for SRSB..K (S40A)
[6] depends on angle of current flow Pleaste take max. loads from our information sheet

TECHNICAL DESCRIPTION

Display
According to demand the display device can, for the purpose of optimal reading of the operating current, be delivered with upper full scale 2,5 A, 4 A or 6 A. The SRSB with current limitation with 25 A, 16 A or 6 A, other measuring ranges at request.

Limiter
The standard version is designed so that at the version without current limitation the operating currents can be adjusted between 1,35 A and 4 A over the complete phase angle. At the version with current limitation the operating currents can be adjusted between 12 und 100%. Other ranges on demand. If the voltage regulator panel is in good order, the output current can not rise more than 3% due to the control mode. At the version with current limitation it can not rise more than 8%. But if now the output current rises due to an error more than 10% larger than the adjusted nominal current, the limiter trips out.

Operatioin
Output signal via opto-coupler, (open-collector-switch). Depending on the design the collector path (N.C. switch) is controlled through:
a) when the device is ready for operation.
b) when it is ready for operation and the Min. - current is exceeded.

Switching input (heating off)
The switching input via opto-coupler is as standard designed for a voltage of 6 to 24 V=, alternatively for current input 1,5 to 20 mA. (Operating current principle or closed current principle, see switching examples).

Fuses
The voltage regulator SRSB has three fuses. Hereof two are microfuses. 80 mA for the internal supply voltage and one slow blow fuse of 4 A (6 A) for the operating current. Depending on the requirements this fuse can be raised up to 10 A.

Auxiliary voltage
The auxiliary voltage connections may not be connected, if a galvanical separation is necessary for the control unit according to VDE or if the input must be similar to a device, which is battery-powered. At the SRSB current limitation the auxiliary voltage is connected to the potential at plug contact 26/28 or terminal 1 by use of a protective resistor = 1KΩ.

Limiter calibration

1.	Voltage regulator at zero (left-hand limit stop)
2.	Limiter at maximum (right-hand limit stop)
3.	Switch in position "Operation"
4.	Switch on voltage
5.	Temperature controller at „heating on" (e.g. yellow pilot lamp at TRB-P)
6.	Adjust required current intensity y use of the voltage regulator
7.	Set switch to the midpoint (calibration position)
8.	Turn limiter poti to the left, once that the required current has been on longer than 30 sec., until shutdown of the device
9.	Set voltage regulator at zero
10.	Tap switch upside limiter reset and set back to „operation" (lower position)
11.	Set required operating current again by use of the voltage regulator poti

Note:
Depending on operating condition it can be necessary, that the nominal current to be adjusted must be adjusted higher than the operating current..

Voltage monitoring at the limiter contact
The maker connection of the signal relay of the current monitoring (contact plug 12z or terminal 11) is monitored related to the potential of the contact plugs 26/28 or terminal 1. When dropping below a specific voltage, the output voltage of the voltage regulator is set on zero. The internal resistance of this measure arrangement is ›50kΩ.

Current transformer output*
The current transformer output is designed as transmitter for the current input of the temperature controller TRB-P, TRB-PI (TRB-PC). Standard 25/1, on request 15/1 or 6/1. Display device with measuring range ›15A is also connected in the secondary circuit of the converter, or else in the current path.

Option: min. current monitoring
Version without current transformer and output opto-coupler type: SRSB.O
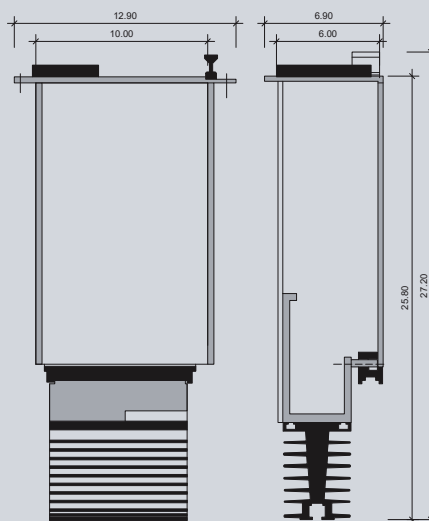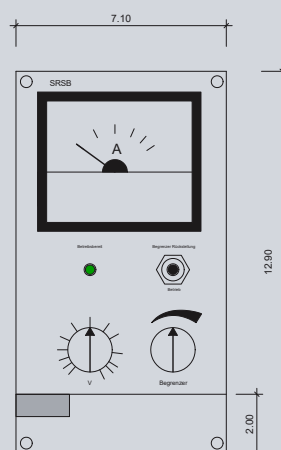
y-correcting variable input
Devices, which are equipped with this input, serve as controlling element for analog controllers. The output voltage must be limited with the potentiometer with voltage scale to the desired max. valule (serves as overload protection or power limitation to limit the overshoots during the initial adjustment), and changes thereby the proportional range.
* other measuring ranges on request

Effective constant current generator
This version is preferably used when the load resistance changes so heavy, dependant on the operating temperature, that the current between rating and start-up phase is so different, that due to the high starting current, the device otherwise would have to be switched one or two power stages higher (heating-up time is longer).

DIMENSIONS SRSB..S