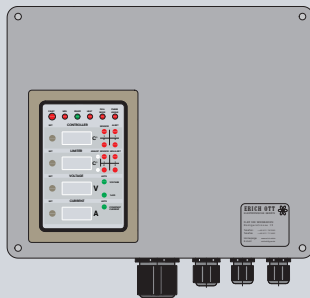


SIPT L

Power controller



Characteristics

- Field device for zone 1
- SIL 2 - Intrinsically safe sensor measuring circuits
- 18 different bus systems available
- Up to 4 measuring sensor inputs
- Double controller standard / Double limiter optionally
- Control range 0°C - 500°C
- Overview of actual value/ controller/ limiter/ voltage/ current (heating circuit)
- Continuous full wave or phase angle control

The complete solution for trace heatings. SIPT L provides temperature control, limitation and power control in one device.

SIPT L is qualified for the employment in the potentially explosive area according to zone 2 and zone 1. For zone 2 a declaration of conformity is available, for zone 1 a EC-type examination certificate. Cost-effective in maintenance and repair due to modular equipment practice. Digital display of all system conditions. 18 different bus systems available. If the device is ordered without bus system, a 24 V remote-off input and a current output of 4-20 mA are available. All functional units are integrated into an antistatic standard enclosure. The power supply cords up to 6 mm² are contacted with cage spring terminals. The sensor measuring circuits are intrinsically safe. The measuring circuit is designed in the ignition protection category „ic“ for zone 2, or rather „ib“ for zone 1.

Sensor

Sensors, which are installed in the potentially explosive atmosphere must meet the requirements of the guideline 94/9/EG for the respective zone. In this context we can offer you the temperature sensors from our product range. (See measuring sensors)

The load current is interrupted in the case of failure, no matter which of the three lines for the Pt 100 is interrupted. Furthermore an interruption takes place in the case of conductor fault.

The 3-wire circuit of the measurement input is by default reduced to a 2-wire circuit at the terminal block by use of a bridge for short sensor lines and can, if required, easily be changed to a 3-wire circuit.

Function

The controller is designed as two-step controller and measures the temperature via a Pt-100. The limiter works as an individual system and measures the temperature at the hotspot with an individual Pt 100. If the temperature exceeds the limit value, the limiter interrupts the heating permanently and a signalling takes place.

The limiter is certified as safety temperature limiter SIL 2. With the min.-monitoring a temperature drop under a predetermined limiting value can be recorded early enough to remedy a disturbance before a damage occurs. The adjustment of the temperature switching point is made via the controller menu. After supply voltage failure all previous functions switch on again automatically when the voltage returns, if the limiter circuit has not been blocked by an overtemperature triggering. This saves the maintenance personnel from restarting each controller manually (limiter resetting). The device is qualified for small load resistances. The fail safe relay responds to any of the following errors (drop in neutral position):

Limiter	Controller
Limiter triggered	Min.-Temperature undershoot
Measuring sensor short-circuit *	Measuring sensor short-circuit *
Measuring sensor break *	Measuring sensor break *

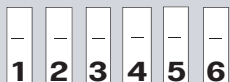
Generally
Heat conductor break
Power failure

* no matter which of the 3 measuring lines this concerns

GENERAL TECHNICAL DATA

Nominal voltage	230V ±10% (Operation at temporary voltage drops up to 175V ensured) 50-60 Hz	
Degree of protection	Min. IP65 / DIN 60529	
Admissible ambient temperature range	-40°C to +55°C	
Dimensions	Length 280 mm Width 230 mm Height 165 mm	
Electrical connection	≤2,5mm ² Sensor + signalling lines ≤6mm ² Load current circuit	
Screw joints	4x M 12 Sensor 2x M 20 Signals 1x M 25 Load current variant 1x M 32 Energy supply	
Fixation	Raster 260 mm x 180 mm for 4 x M4 screws	
EC-type examination certificate	ZELM12ATEX..... (available from Feb. 2012)	
Declaration of conformity	ZELM12ATEX..... (available from Feb. 2012)	
Used standards	EN 60079-0, EN 60079-1, EN 60079-7, EN 60079-11, EN 60079-18, EN 60079-30-1	
Safety integrity level	SIL 2	
Explosion protection hazard zone	Zone 1 or Zone 2 and standard environment	
Identification	 0344	 II 2G Ex e [ib] ib mb IIC Gb T4 II 2D Ex [ibD] ibD tDA21 IP6x Gb T135°C
PLANNED IDENTIFICATION ! SAMPLE DEVICE WITHOUT IDENTIFICATION!		

TYPE CODE EX SIPT L



1	R	1 Controller
	RR	2 Controller
2	B	1 Limiter
	BB	2 Limiter
3	-	1 Heating circuit
	2	2 Heating circuits
4	-	Without power control
	L	With power control (not possible with two heating circuits)
5	1	Zone 1
	2	Zone 2
6	-	Analog actual value output 4-20 mA 24V Remote - off input
	1	MODBUS
	2	BUS - system, please indicate when ordering

TECHNICAL DATA CONTROLLER

Nominal current	100 mA (120 mA) own consumption
Hysteresis	1 - 20 °C adjustable
Isolation voltage*	
Inputs - network	2,5 kV~
Network - enclosure	2,5 kV~
Input - enclosure	500 V~ (* Inputs short-circuited)
Measuring circuit	Pt 100
Measuring current	1 mA, 3-wire circuit
Messkreisüberwachung	All 3 lines
Setting range temperature	0 - 500°C
Controller adjustment	Digital

TECHNICAL DATA VOLTAGE CONTROLLER

Setting range voltage	30 - 400 V
Nominal current	30 A
Heating current	1A -30A (Current <1A- heat conductor break alarm)

TECHNICAL DATA OF THE SEMICONDUCTOR CIRCUIT

Nominal current of the semiconductor	45 A
--------------------------------------	------

TECHNICAL DATA LIMITER

Measuring sensor input	Temperature sensor Pt100
Measuring current	1 mA, 3-wire switch
Measuring circuit monitoring	All 3 lines
Cable breakage	> 550°C
Cable end	< - 50°C
Setting range	0 - 500°C
Limit adjuster	10 gear trimmer (manual)
Switching point accuracy	≤ 1°C
Switching hysteresis	1-3 K
Limiter relay	1 potential-free changeover contact 250/ 440 V ; 30 A ; cos φ ≥ 0,7 ;15 KVA
Resetting	At the operation panel (button)
Series fuse	≤ 30 A

TECHNICAL DATA MIN. MONITORING

Setting ranges (scales)	0 - 500 °C
Setpoint value adjustment	Digital
Switching point accuracy	≤ 0,1 K
Fault signalling	Via fail safe relay
1 potential-free make contact	250 V; 5 A cos φ 0,7; 1250 VA; 30 V~; 5 A; 150 W

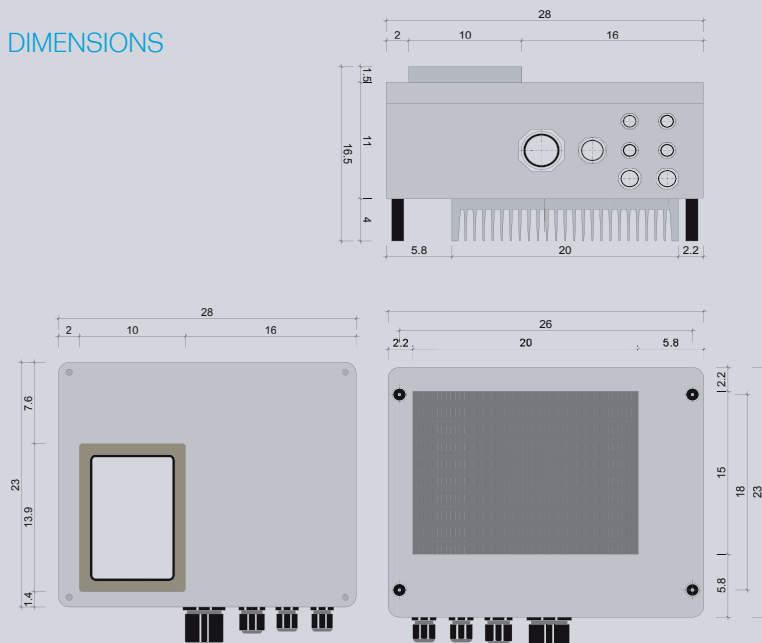
MEASURING SENSOR

Pt-100 measuring sensor are part of the EMV examination.

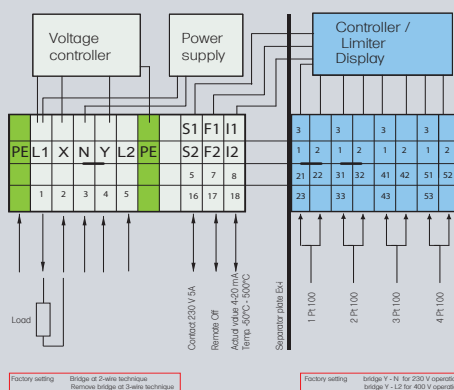
Ex TF-Pt100 L and **Ex TF-Pt100 Ks**

These products are recommended by us. But also other measuring sensors can be used.

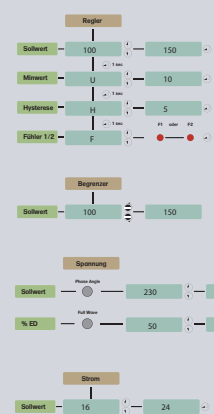
DIMENSIONS



CIRCUIT DIAGRAM



SETUP



Controller adjustment

Push the button REGULATOR SET and adjust the desired temperature by using the arrow buttons up and down. Confirm the temperature by pushing the ENTER button. To switch between sensor 1 and sensor 2, push the REGULATOR SET button once more. Which sensor is adjusted at the moment is visible at the blinking sensor LED SENSOR 1/ 2.

Limiter adjustment

Push the button LIMITER SHOW and adjust the desired temperature at the potentiometer by rotating with a screw driver.

Voltage adjustment

There is the possibility to adjust the current or the voltage. To adjust the voltage push the button VOLTAGE SET. Adjust the desired voltage by using the arrow keys UP and DOWN. Confirm with ENTER. The voltage (VOLTAGE V) as well as the current can be read off the display (CURRENT A).

Duty cycle(%ED) adjustment

You have the possibility to adjust the duty cycle. The operating mode must be set on full wave control. By pushing the button SET the display switches to the actual duty cycle. Now the duty cycle can be changed by pushing the button UP/ DOWN and by pushing ENTER be accepted.

Switch full wave control or phase angle control

Push the button SWITCH FULL WAVE/ PHASE ANGLE. The respective operating condition is visible with the LED FULLWAVE or PHASE ANGLE. Confirm the operating condition with the ENTER button.

Device reset

Push the buttons ENTER + UP + DOWN for 1 second.

Constant Current

Step 1 :	Selection of the desired operating mode	Phase angle control / full wave control
Step 2 :	Adjustment of the maximum voltage or rather of the maximum duty cycle for the heating circuit	Voltage / % ED
Step 3 :	Adjustment of the desired constant current	Constant Current.

Please take further data from the operating manual.
Download on www.erich-ott.de