ERICH OTT

EX MU 5

Selector switch

Characteristics

- Only 1 controller for up to 5 test points necessary
- Ideal for heating circuit monitoring
- Cost minimization
- Simple overview

The device serves for the conversion of sensor circuits, which are switched on a common measurement input and for cyclical analysis and saving of the signal conditioning command with potential free contact for controlling.
* Switchings of the five test points are made by use of a relay, which ensure as save galvanical separation with respect to the supply voltage.
* Adapted for switching of intrinsically safe measuring lines.
* The signal conditioning command, if the signal is not yet exceeded, is entered by means of a potential free contact. Due to this each switching contact of a controller is suitable signaler for saving.
* The memory content of the five test points is signalled on the front side. Beside it is signalled, which temperature sensor is connected. The time base (stroke rythm) of the switching can be selected.
* The analysis, if the signal „heating on“ is valued with a and-register or a or-register, is adjustable. That means that if a measuring sensor has already exceeded the desired value, it is switched off (or), or all measuring inputs must have exceeded the desired value, only then it is switched off (and).

PRODUCTION NUMBER

xxxx / 03.03

	Year
	Month
	Serial number

TYPE CODE

EX MU 5 — **1** — **2**

1	-	Standard for not intrinsically safe devices
	i	Ex i version

2	-	Standard Switches heating on, when a test point is below the desired value
	s	Special device Switches heating on, when all test points are below the desired value

GENERAL TECHNICAL DATA

Nominal voltage	220 V ~ (200 V - 252 V), bzw. 24 V~	
Current	32 mA	
Fuse	80 mA	
Sensor current	≥ 1 mA	
Measuring system	2 or 3-wire switch	
Ambient temperature	0 - 55 °C	
Design	19“ - euro board 100 x 160; 3 HE, 10 TE, (12 TE, 14 TE)	
Connector strip	Design 32-pol. DIN 41612 Configuratin d + z for Ex i - version, b + z for standard version	
Type of protection (gas)	EEx ib IIC	
Interference voltage protection	EMC-compatibility (measured in mounting enclosure)	
Relay	max. 250 V ~, 6 A	
Measurement currents	0,1 - 500 mA, depending on signal conditioning device	
Signal outputs/inputs	Ui ≤ 30 V, Ii ≤ 500 mA	
EC-type examination certificate	ZELM 04 ATEX0203	
Identification	CE 0344	Ex II (2) G [EEx ib] IIC

Erich Ott GmbH & Co. KG
Partner für den Ex-Bereich
D-65189 Wiesbaden
Rüdigerstrasse 15
Telefon 0611 - 761 393
Telefax 0611 - 711 462
mail info@erich-ott.de
web www.erich-ott.de

PROTECTIVE MEASURE

The sensor inputs are „intrinsically safe“ inputs. For 3-wire switch the most adversarial measuring sensor is is valid. Installation specifications for this must be observed. The user instructions have to be complied with after consultation of the competent expert for the plant. When properly installed no further values to be considered arise for the signal conditioning device.

SWITCH POSITION

Switch 5 ON	Controller ON = Relay ON. Special device „MU5s“: all 5 test points must have a temperature below the desired value, then the heating switches on
Switch 6 ON	If only one test point falls below the desired value, the heating is switched on
Switch 5 and 6 OFF	For Type MU5s: Relay has no function (OFF)

Switch 1- 4:

Switch	1	2	3	4		Coefficient	Cycle time
	1	1	1	1	2,4 sec	2^0	12 sec
	0	1	1	1	4,8 sec	2^1	24 sec
	1	0	1	1	9,6 sec	2^2	48 sec
	1	1	0	1	38,4 sec	2^3	
	1	1	1	0	10 min, 14 s	$256\ 2^8$	51 min, 12 s

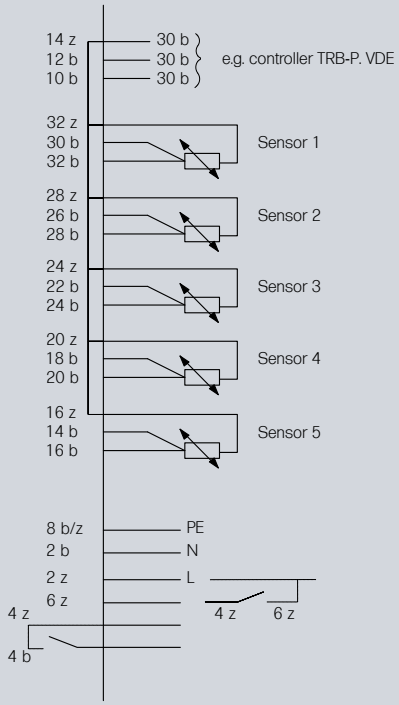
If multiple switches are switched off, the coefficient of addition of the binary code applies

INSTALLATION SITE

The selector unit MU5 is designed for the operation within substations, mounted in a mounting enclosure type AG or equivalent 19“ subrack, according to ICE 297-3/ DIN 41494 part 5, 3HE board depth 160mm, in a control cabinet. Observe EMC measures! Especially the distance to the main contactors. For 3-wire switch a substantially greater capacity against earth potential at the measuring input results for the signal conditioning device.

CONNECTION PLAN

All sensor inputs must be connected, if necessary switch 2 or more inputs parallel.



SIGNAL CONDITIONING DEVICE

All measured values as well as the EMC are measured with the temperature controller and limiter Ex TRB-P xx. For other processing units the necessary measurements must be defined first.

Further manifestations for the temperature controller - limiter are also available as download on www.erich-ott.de

CABLES AND LEADS

Cables for the analog signals must be laid separated from the cables which carry supply voltage. If this is not possible, appropriate EMC-tests must be made. Minimum cross-section of the cables 0,75 mm², if voltage drop on the line or maximum admissible output resistance do not make larger cross-sections necessary.
VDE 100, VDE 106
The regulations for the laying of intrinsically safe cables and its connection must be observed

SENSOR

We supply suitable, certified Pt100 sensors in two basic versions.

Type EX TF Pt100L as remote sensor with minimal dimesions of 7,4 cm x 2,1 cm x 2,1 cm. Fully encapsulated in an aluminium cabinet with a measuring temperature of up to 200°C.

Type EX TF Pt100Ks with a sensor tip of 5 mm and a length of 23 cm. Fully encapsulated in an aluminium cabinet, a stainless steel sensor tip and a measuring temperature of up to 400°C.

Both sensors are proof of voltage stability.
Please take further details from the product literature Pt-100Ks or Pt-100L.

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