

**MTC...Ex(/L),
MTL...Ex(/L),
MTCL...Ex(/L)**



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RESERVATION:

Technical data subject to change without notice. Changes, errors, and misprints may not be used as a basis for any claim for damages.

MANUFACTURER

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TYPE:

Safety temperature controller (STC)	MTC...Ex(L)
Safety temperature limiter (STL)	MTL...Ex(L)
Safety temperature controller/ limiter combination (STC/STL)	MTCL...Ex(L)

APPLICATION



Explosion-protected controller / limiter MTC...Ex(L), MTL...Ex(L), MTCL...Ex(L) are used for temperature monitoring / controlling in hazardous areas.

- Approved for zone 1, 2, 21, 22

When used in hazardous areas, the relevant provisions on the installation and operation of equipment in this area must be observed.

The terminal boxes can be used in hazardous areas zone 1, 2, 21 and 22 according to the certified max. surface / ambient temperature.

CERTIFICATION & LABELLING

Manufacturer: DIRAC Industries s.r.o.
Type: M**** ***_**** EX / ****
Certifications: EPS 23 ATEX 1229
Marking:  II 2G Ex eb ia IIC/IIB/IIA T6/T5/T4
 II 2D Ex tb IIIC T85°C/T100°C/T120°C



CE: 1026

TECHNICAL DATA

Switching capacity:

NC contact (pins 1-2), depending on the design (see label)

AC	400V + 10%	16A
AC	230V + 10%	16A(2,5) cos φ = 1(0,6)
AC	230V + 10%	25A(4) cos φ = 1(0,6)
DC	230V + 10%	0,25A

NO contact (pins 1-4), depending on the design (see label)

STC	AC	400V + 10%	6,3A
	AC	230V + 10%	6,3A(2,5) cos φ = 1(0,6)
	AC	230V + 10%	2A(0,4) cos φ = 1(0,6)
	DC	230V + 10%	0,25A
STL	AC	400V + 10%	2A
	AC	230V + 10%	2A(0,4) cos φ = 1(0,6)
	AC	230V + 10%	2A(0,4) cos φ = 1(0,6)
	DC	230V + 10%	0,25A

Fusing:
Switching point accuracy:

see maximum switching capacity
Safety temperature controllers (STC) are adjusted in the middle third of the scale as standard. Safety temperature limiters (STL) are adjusted in the upper third of the scale.

Mean ambient temperature influence related to the set point:

If the ambient temperatures at the switching head and the capillary deviate from the calibrated +22°C ambient temperature, the switching point is offset.
Higher ambient temperature = lower switching point
Lower ambient temperature = higher switching point
IP65, according EN 60529

Protection Type:
Admissible ambient-temperatures:

-55°C to +40°C (T6)	at 25A	(-60°C on demand)
-55°C to +55°C (T4)	at 25A	(-60°C on demand)
-55°C to +50°C (T6)	at 16A	(-60°C on demand)
-55°C to +80°C (T4)	at 16A	(-60°C on demand)

Terminals Nominal cross section:

MTC...Ex, MTL...Ex, MTCL...Ex,->	4 mm ²
MTC...Ex/L, MTL...Ex/L, MTCL...Ex/L,->	10 mm ²

FOR ADDITIONAL INFORMATION PLEASE READ EC-TYPE EXAMINATION CERTIFICATE

MTC...EX

Temperature Range (°C)	-20...50	0...120	0...190	60...300	140...500
Rating Voltage (VAC)	230	230	230	230	230
Switching Capacity (cos φ = 1) (A)	25	25	25	25	25
Switching Difference (%) of Full Scale Value approx	7	7	7	7	7
Max. Sensor Temperature(°C)	80	145	220	345	530
Protection Class	IP66	IP66	IP66	IP66	IP66
Capillary Tube Length (mm)	1000	1000	1000	1000	1000
Capillary Diameter (mm)	6	4	4	6	6
Dimensions (LxWxH in mm)	122x120x90	122x120x90	122x120x90	122x120x90	122x120x90
Cable Glands M20/M25	1/1	1/1	1/1	1/1	1/1
Clamping Zone M20/M25 (mm)	7-13/12-17	7-13/12-17	7-13/12-17	7-13/12-17	7-13/12-17
Cross Section (mm ²)	4/6	4/6	4/6	4/6	4/6
Weight (kg)	1.2	1.2	1.2	1.2	1.2

MTC...EX/L

Temperature Range (°C)	-20...50	0...120	0...190	60...300	140...500
Rating Voltage (VAC)	230	230	230	230	230
Switching Capacity (cos φ = 1) (A)	25	25	25	25	25
Switching Difference (%) of Full Scale Value approx	7	7	7	7	7
Max. Sensor Temperature(°C)	80	145	220	345	530
Protection Class	IP66	IP66	IP66	IP66	IP66
Capillary Tube Length (mm)	1000	1000	1000	1000	1000
Capillary Diameter (mm)	6	4	4	6	6
Dimensions (LxWxH in mm)	160x160x90	160x160x90	160x160x90	160x160x90	160x160x90
Cable Glands M20/M25	1/1	1/1	1/1	1/1	1/1
Clamping Zone M20/M32 (mm)	7-13/16-21	7-13/16-21	7-13/16-21	7-13/16-21	7-13/16-21
Cross Section (mm ²)	10	10	10	10	10
Weight (kg)	1.9	1.9	1.9	1.9	1.9

MTL...EX

Temperature Range (°C)	70-190	130-190	150-300	140-500
Rating Voltage (VAC)	230	230	230	230
Switching Cap. (cos φ = 1) (A)	25	25	25	25
Switching Diff. (%) of full scale value approx	-	-	-	-
Max. Sensor Temperature (°C)	220	220	345	530
Protection Class	IP66	IP66	IP66	IP66
Capillary Tube Length (mm)	1000	1000	1000	1000
Capillary Diameter (mm)	4	4	6	6
Dimensions LxWxH (in mm)	122x120x90	122x120x90	122x120x90	122x120x90
Cable Glands M20/M25	1/1	1/1	1/1	1/1
Clamping Zone M20/M25 (mm)	7-13/12-17	7-13/12-17	7-13/12-17	7-13/12-17
Cross Section (mm ²)	4/6	4/6	4/6	4/6
Weight (kg)	1.2	1.2	1.2	1.2

MTL...EX/L

Temperature Range (°C)	70-190	130-190	150-300	140-500
Rating Voltage (VAC)	230	230	230	230
Switching Cap. (cos φ = 1) (A)	25	25	25	25
Switching Diff. (%) of full scale value approx	-	-	-	-
Max. Sensor Temperature (°C)	220	220	345	530
Protection Class	IP66	IP66	IP66	IP66
Capillary Tube Length (mm)	1000	1000	1000	1000
Capillary Diameter (mm)	4	4	6	6
Dimensions LxWxH (in mm)	160x160x90	160x160x90	160x160x90	160x160x90
Cable Glands M20/M25	1/1	1/1	1/1	1/1
Clamping Zone M20/M32 (mm)	7-13/16-21	7-13/16-21	7-13/16-21	7-13/16-21
Cross Section (mm ²)	10	10	10	10
Weight (kg)	1.9	1.9	1.9	1.9

MTCL...EX

Temperature Range (°C)	-20..50/70..190	0..120/130..190	0..190/130..190	0..120/70..190	0..190/70..190	60..300/150..300
Rating Voltage (VAC)	230	230	230	230	230	230
Switching Cap. (cos φ = 1) (A)	25	25	25	25	25	25
Switching difference (%) of Full Scale Value approx	7/-	7/-	7/-	7/-	7/-	7/-
Max. Sensor Temperature (°C)	80/220	145/220	220/220	145/220	220/220	345/345
Protection Class	IP66	IP66	IP66	IP66	IP66	IP66
Capillary Tube Length (mm)	1000/1000	1000/1000	1000/1000	1000/1000	1000/1000	1000/1000
Capillary Diameter (mm)	6/4	4/4	4/4	4/4	4/4	6/6
Dimensions LxWxH (mm)	220x120x90	220x120x90	220x120x90	220x120x90	220x120x90	220x120x90
Cable Glands M20/M25	2/1	2/1	2/1	2/1	2/1	2/1
Clamping Zone M20/M25 (mm)	7-13/12-17	7-13/12-17	7-13/12-17	7-13/12-17	7-13/12-17	7-13/12-17
Cross Section (mm ²)	4/6	4/6	4/6	4/6	4/6	4/6
Weight (kg)	2	2	2	2	2	2

MTCL...EX/L

Temperature Range (°C)	-20..50/70..190	0..120/70..190	0..190/130..190	0..120/70..190	0..190/70..190	60..300/150..300
Rating Voltage (VAC)	230	230	230	230	230	230
Switching Cap. (cos φ = 1) (A)	25	25	25	25	25	25
Switching difference (%) of Full Scale Value approx	7/-	7/-	7/-	7/-	7/-	7/-
Max. Sensor Temperature (°C)	80/220	145/220	220/220	145/220	220/220	345/345
Protection Class	IP66	IP66	IP66	IP66	IP66	IP66
Capillary Tube Length (mm)	1000/1000	1000/1000	1000/1000	1000/1000	1000/1000	1000/1000
Capillary Diameter (mm)	6/4	4/4	4/4	4/4	4/4	6/6
Dimensions LxWxH (mm)	260x160x90	260x160x90	260x160x90	260x160x90	260x160x90	260x160x90
Cable Glands M20/M32	2/1	2/1	2/1	2/1	2/1	2/1
Clamping Zone M20/M25 (mm)	7-13/16-21	7-13/16-21	7-12/16-21	7-13/16-21	7-13/16-21	7-13/16-21
Cross Section (mm ²)	10	10	10	10	10	10
Weight (kg)	2.9	2.9	2.9	2.9	2.9	2.9

SAFETY INSTRUCTIONS



- Safety temperature controller / limiter are allowed to use only within the designated application
- The devices may only be operated in undamaged condition. It is not admissible to open the internal thermostat case. Explosion protection will be lost.
- It is not admissible to open the enclosure lid while energized.
- Cutting through or bending the capillary will lead to permanent failure.
- When routing the capillary ensure a bending radius of $\geq 5\text{mm}$.
- Liquid may escape in the event of a measuring system fracture.
- While occurrence of „Hybrid mixtures“ the suitability has to be checked by an relevant specialist agency.
- Electrical connection has to be done only by authorized staff.
- National regulations has to be considered.

SETTINGS & FUNCTIONS

When used as a safety device for explosion protection in compliance with Directive 2014/34/EU, there has to be made a function test in accordance with the applicable requirements. The installer must establish the switching point in a routine thermal test and put safeguards in place to prevent it being changed. Attention should be paid to:

- probe geometry & thermal coupling
- max. ambient temperature
- max. product temperature

SETTING THE LIMIT VALUE IN ACCORDANCE WITH THE SCALE

Use the internal scale to set the limit value on the setpoint adjuster.

Safeguard the setting by sealing the setpoint adjuster (e.g. with temperature-resistant screw-locking varnish).

SETTING THE LIMIT VALUE IN ACCORDANCE WITH INSTALLATION SPECIFIC OPERATIONAL CHARACTERISTICS

Heat up the temperature probe – in the plant – to the required temperature (at least 5 minutes long). Monitor the exact temperature on the probe by using a calibrated reference measuring device.

Turn the setpoint adjuster from the scale limit value towards the scale start value, determine the required switching point position (circuit 1-2 opens and electrical circuit 1-4 is closed). Safeguard the setting by sealing the set point adjuster (e.g. with temperature-resistant screw-locking varnish).

STL – RESET

If the temperature applied to the temperature sensor exceeds the set limit value, the circuit is opened and the microswitch is mechanically interlocked.

The microswitch can be manually unlocked after the temperature has fallen below the danger temperature of the adjusted setpoint by approx. 10 % of the scale range.

RESPONSE TO MEASURING SYSTEM FRACTURE

If the measuring system is destroyed when the expansion fluid escapes, the pressure in the diaphragm drops and permanently opens the circuit for the STC and STL. Unlocking is no longer possible.

RESPONSE TO LOW TEMPERATURE

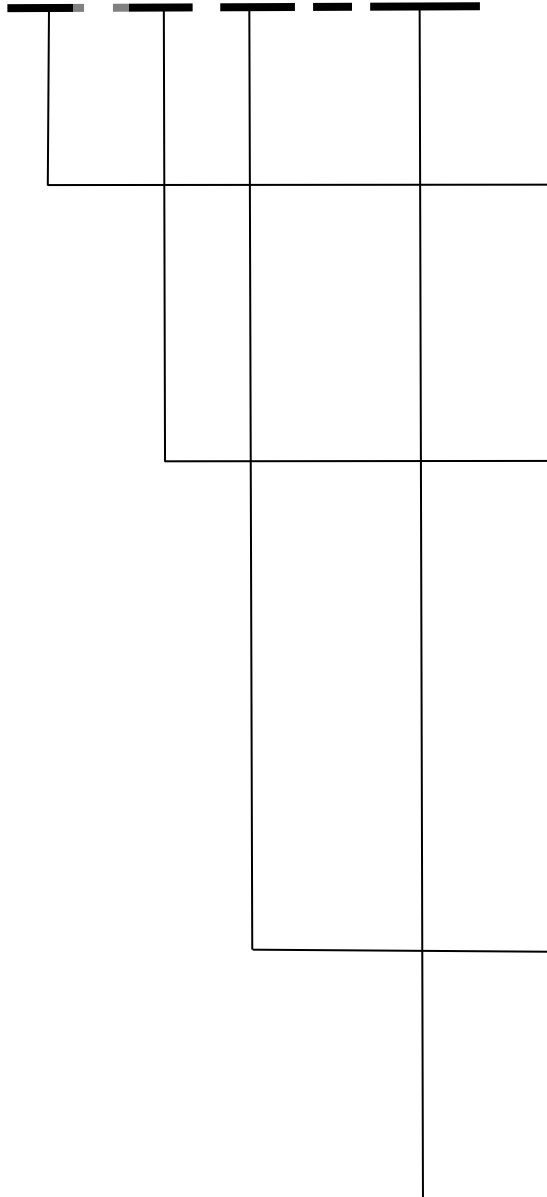
When the sensor of the STC/STL is cooled down to a temperature below approx. -40°C, the circuit opens, but closes again automatically when the temperature rises.

OPERATION, SERVICE & MAINTENANCE

The operator of an electrical system in a potentially explosive environment must keep the equipment in proper condition, operate it properly, monitor it and carry out maintenance and repair work (EN 60079-17). Maintenance and repair work on the product may only be carried out by trained and qualified personnel. Before maintenance and/or servicing, the specified safety regulations must be observed. Only original parts from the manufacturer must be used for maintenance and servicing. A regular check of the proper condition must be carried out (EN 60079-17). Damaged units must always be replaced immediately.

TYPE CODE

M* ***_** EX / *******



MTC	=	Safety temperature controller (STC)
MTL	=	Safety temperature limiter (STL)
MTCL	=	Safety temperature controller / Safety temperature limiter (STC/STL)

Temperature range °C, 1-fold: -20...+500°C
For example:

STC:	-20...+50°C	=	-2050
	0...+120°C	=	0120
	0...+190°C	=	0190
	+60...+300°C	=	60300
	+140...+500°C	=	140500
STL:	+130...+190°C	=	130190
	+70...+190°C	=	70190
	+150...+300°C	=	150300
	+140...+500°C	=	140500

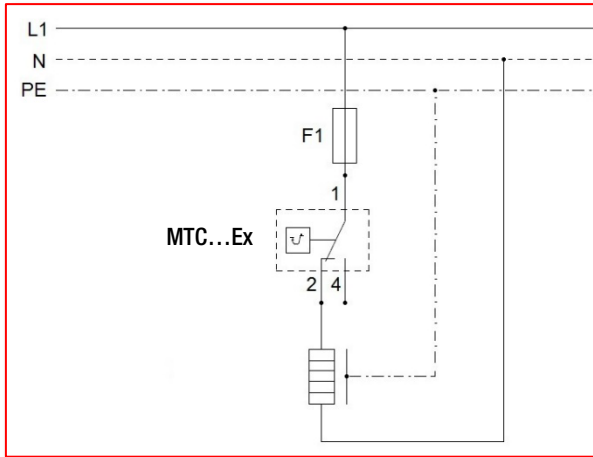
Temperature range °C, 2-fold: -20...+500°C
For example:

not available	=	0000	
STC:	-20...+50°C	=	-2050
	0...+120°C	=	0120
	0...+190°C	=	0190
	+60...+300°C	=	60300
	+140...+500°C	=	140500
STL:	+130...+190°C	=	130190
	+70...+190°C	=	70190
	+150...+300°C	=	150300
	+140...+500°C	=	140500

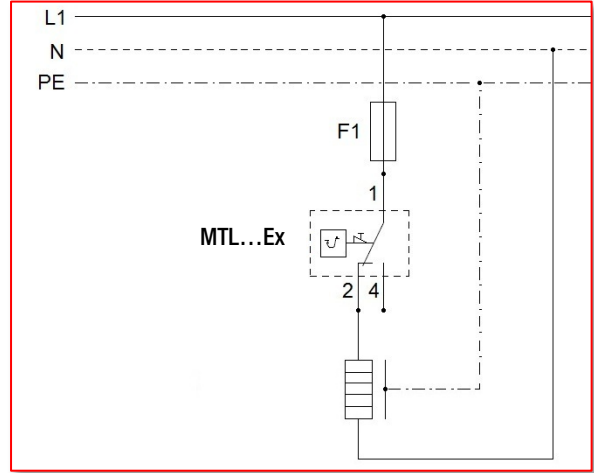
Marking without influence on explosion protection,
e.g. capillary tube length, OC number

WIRING DIAGRAMS

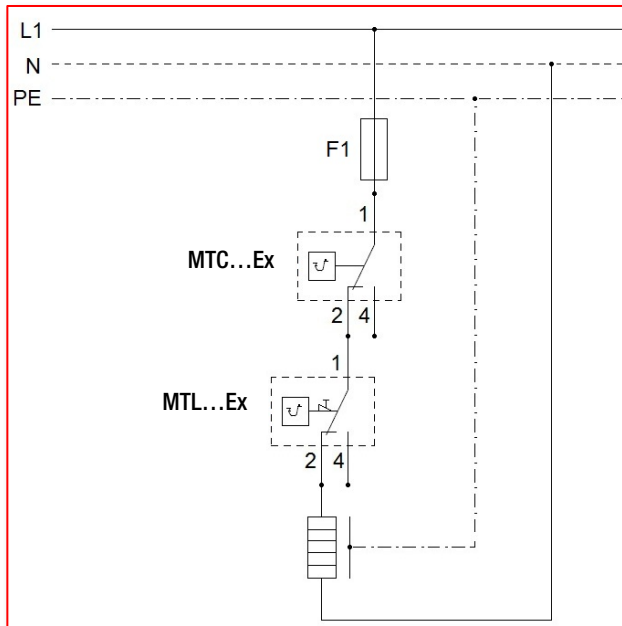
MTC...EX(/L)



MTL...EX(/L):



MTCL...EX(/L)



DECLARATION OF CONFORMITY

DECLARATION OF CONFORMITY

THIS DECLARATION OF CONFORMITY IS ISSUED BY THE MANUFACTURER:

Bussines name: DIRAC Industries s.r.o.
Seat: K Automobilce 585, 28002, Kolín – Sendražice
CIN: 27956628
VATIN: CZ27956628

FOR THE PRODUCTS:
 Ex-Capillary thermostat/-limiter

Notified body: Bureau Veritas

TYPE DESIGNATION:
 M****_****_**** EX / ****

THE PRODUCT CORRESPONDS TO:

EN IEC 60079-0:2018	EN 60079-1:2014	EN 60079-7:2015/A1:2018	EPS 23 ATEX 1 232	EN 60079-31:2014	FTZU 23 ATEX Q 001
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IT COMPLIES WITH THE FOLLOWING GUIDELINES:

Directive 2014/34/EU
 Directive 2014/35/EU
 Directive 2011/30/EU


PLACE OF ISSUE:

DIRAC Industries s.r.o.
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 280 02 Kolín – Sendražice

MANUFACTURER'S REPRESENTATIVE:

Martin Šimůnek
 Quality manager

STAMP, DATE, SIGNATURE

3. 10. 2023

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