

Mechanical Temperature Switch

ML1H

Local mount type

Features

- Local mount type single switch
- Terminal clip integrated, set point adjustment in °C and °F under tamper protected cover
- Protection class: IP65, NEMA 4 / 13
- Thermowell in stainless steel and brass 3/4" NPT male thread
- Optional:
 - Disconnection with manual reset, G (RD)-micro switch
 - Adjustable hysteresis (deadband), S-micro switch
 - Option thermowell: W = Brass
WS = Stainless steel SS316Ti, 1.4571
- Approvals: Ex ia,
UL, CSA (on request)
- Suitable for SIL2/3 (IEC 61508) acceptance

Adjustment ranges

- -45 °C...+24 °C to +66 °C...+232 °C

Applications

- Temperature monitoring
 - Antifreeze
- Machine and machine tooling industry
 - Heating systems
 - Compressors
- Shipbuilding
- Power plants

Technical Data

Housing material	Die-cast aluminium, anodized
Process connection	Standard 1/2" NPT male, option W/WS 3/4" NPT male
Temperature sensor material	Standard: brass / copper, version S: stainless steel (SS304 / 1.4301). If not equipped with thermowell the sensor may only be used up to 21 bar max. For W and WS pressure values refer accessories datasheet
Operation pressure without thermowell with thermowell	max. 21 bar (max. 300 psi) see accessories datasheet
Operation temperature Housing	-40°C...+75°C (-40°F...167°F) except temperature code 454: -18°C...+75°C (0°F...167°F)
Sensor	see table "Adjustment range" (Sensor temperature limits)
Electrical values	All models are equipped with SPDT contacts

Micro switch type	H, M, GH, GM, S, G (RD)
Electrical connection	1/2" NPT female, internal screw terminal, cable gland in PA, for cable size 6...12 mm is included
Protection class	IP65, NEMA 4 / 13
Set point adjustment	Turn adjustment knob clockwise to increase the actuation point
Intrinsically safety	The switches are also suitable for intrinsically safe applications. In this case we recommend gold contacts. Add "Exi" in case of ordering. Maximum rating according to ATEX: Umax = 28 V I _{max} = 50 mA
Approvals	Ex ia, UL, CSA (on request)
Weight	approx. 1.0 kg

Adjustment ranges

Code adjustment range	Sensor temperature limits (°C)	Adjustment range (°C) ¹	Hysteresis (°C)* for micro switch			
			H, GH	M, GM	S	G (RD)
201	-73 ... +121	-45 ... +24	0.5 ... 1.6	1.6 ... 3.3	3.3 ... 11.2	2.8 ... manual
202	-73 ... +121	-9 ... +60	0.5 ... 1.6	1.6 ... 3.3	3.3 ... 11.2	
203	-73 ... +121	+24 ... +93	0.5 ... 1.6	1.6 ... 3.3	3.3 ... 11.2	
204	-73 ... +121	-45 ... +93	0.5 ... 1.6	1.6 ... 3.3	3.3 ... 11.2	
351	-73 ... +205	+38 ... +107	0.5 ... 1.6	1.6 ... 3.3	3.3 ... 11.2	
354	-73 ... +205	+38 ... +177	0.5 ... 1.6	1.6 ... 3.3	3.3 ... 11.2	
454	-18 ... +260	+66 ... +232	1.6 ... 3.3	3.3 ... 5.0	5.5 ... 16.8	

* Dependent on medium

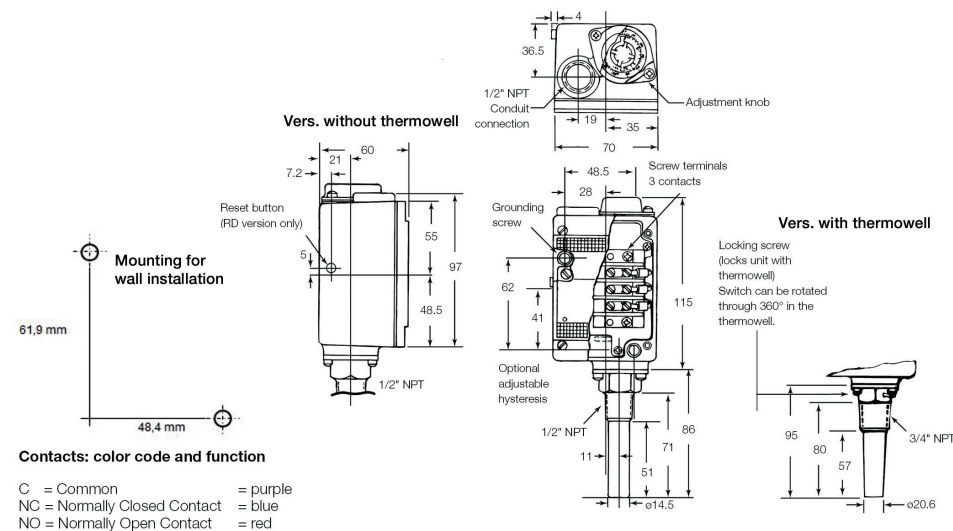
¹ Factory presetting available from -15°C to +175°C



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Dimensions (mm / inch)



Electrical Ratings

Micro switch	Special features	Volt AC 50/60 Hz	Ind. Load A	Res. Load A	Volt DC	Ind. Load A	Res. Load A	Comments
H	Silver contacts	125 250 480	10 10 3	10 10 3	6 bis 28	0.5	0.5	Small hysteresis; High AC / low DC loads
M	Silver contacts	125 250 480	10 10 3	10 10 3	12 24 250	5.00 1.00 0.25	15.0 2.0 0.4	Medium hysteresis; High AC and DC loads
GH	Micro switch with gold contacts for low voltage and low current (e. g. "Exi")	125	1	1	24	1.00	1.00	Small hysteresis
GM		30	0,1	0.1	30	0.10	0.1	Medium hysteresis
S	Silver contacts	480	15	15	125	0.05	0.4	Adjustable hysteresis
G (RD)	Silver contacts	480	10	10	125	0.4	0.75	Manual reset (RD)

Hermetically sealed micro switch (HML1H) on request

Order Code

Base model**

ML1H	Micro switch				
	-H	with silver contacts			
	-M	with silver contacts			
	-GH	with gold contacts			
	-GM	with gold contacts			
	-S	with silver contacts			
	-G (RD)	with silver contacts			
	Code Adjustment range	Adjustment range, (°C) - factory presetting available from -15°C to +175°C			
	201	-45... +24			
	202	-9... +60			
	203	+24... +93			
	204	-45... +93			
	351	+38 ...+107			
	354	+38 ...+177			
	454	+66 ...+232			
	Sensor material	Brass / copper			
	S	Stainless steel			
	Options 1				
	-W	Thermowell of brass			
	-WS	Thermowell of SS (1.4571, SS316 Ti)			
	Options 2				
	-EXI	for intrinsically safe application, Ex ia			

Example

ML1H -GH 202 S -WS -EXI

** Standard parts without UL approval