› Monitoring Relays
Voltage Control Relays
Voltage (under and over) detection in window mode

- › Automatic recognition of AC/DC
- › Overvoltage and undervoltage control in window mode
- › Control of AC and DC voltage
- › True RMS measurement
- › LED status indication

MUSF80

MUSF260

Selection guide					
Type	**Function**	**Measuring range**	**Output**	**Power Supply**	**Part-Numbers**
MUSF80	Over and Undervoltage	20 → 80 V~	1 x 5 A (changeover)	24 → 48 V~	**84872151**
MUSF260	Over and Undervoltage	65 → 260 V~	1 x 5 A (changeover)	110 → 240 V~	**84872152**

	MUSF80	MUSF260
Timing		
Timing	0.1 → 10 s (0, +10 %)	
Repetition accuracy with constant parameters (according to IEC/EN 60255-1)	± 0.5 %	
Power ON delay	500 ms in AC / 1 s in DC	
Reset time max (ms)	1500	
Supply		
Voltage type for actuating	AC/DC	
Rated control supply voltage Un at AC	24 → 48 V	110 → 240 V
AC supply voltage frequency 50/60 HZ	± 10 %	
Rated control supply voltage Un at DC	24-48 V	110-240 V
Operating range	15 → 100 V~	50 → 270 V~
Polarity with DC voltage	Yes	
Galvanic isolation of power supply/Input circuit	No	
Galvanic isolation of power supply/Output circuit	Yes	
Galvanic isolation of Input circuit/Output circuit	Yes	
Immunity from micro power cuts: typical	10 ms	
Maximum Power consumption at Un	AC: 2 VA DC: 0.5 W	AC: 4 VA DC: 1 W
Insulation		
Rated Insulation voltage (according to IEC/EN 60664-1)	250 V	
Insulation coordination (according to IEC/EN 60664-1)	Overvoltage category III; pollution degree 3	
Insulation resistance between supply and Input circuit (according to IEC/EN 60664-1 and IEC/EN 60255-27)	> 1 MΩ (500 V⎓)	
Dielectric strength (according to IEC/EN 60664-1 and IEC/EN 60255-27)	2 kV / 1min / 1mA / 50Hz	

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Description:

Crouzet's Monitoring Relays are essential for enhancing the safety and efficiency of electrical systems by providing continuous and precise monitoring. These relays help in detecting and alerting users to abnormalities such as overvoltage, undervoltage, phase failure, and phase sequence errors. The relays are designed to be compact and easy to use, making them suitable for an easy integration into various electrical panels without taking up excessive space.

For more information about **Monitoring Relays** please visit **www.crouzet.com**

	MUSF80	MUSF260
Impulse voltage (according to IEC/EN 60664-1 and IEC/EN 60255-27)	4 kV wave 1.2 / 50 µs	
Input and measuring specifications		
Measurement range	20 → 80 V~	65 → 260 V~
Display accuracy (according to IEC/EN 60255-1)	± 10 % of full scale	
Measuring error with drift temperature	0.05 %/°C	
Measuring error with drift voltage	< 1 % across the whole range	
Repetition accuracy with constant parameters (according to IEC/EN 60255-1)	± 0.5 %	
Voltage threshold adjustment	20 → 80 V~	65 → 260 V~
Frequency of measured signal	0 Hz, 50...60 Hz	
Max. measuring cycle time	250 ms / True RMS measurement	
Voltage threshold hysteresis	3 % fixed of threshold	
Output specifications		
Maximum switching power (resistive)	2500 VA / 300 W	
Maximum rate (at max switching power)	360 operations/hour at full load	
Maximum breaking current	10 AAC 250 V~ resistive 10 ADC 30 V⎓ resistive	
Minimum breaking current	10 mA / 5 V⎓	
Operating categories (according to IEC/EN 60947-5-1 and IEC/EN 60947-5-2)	AC 12, AC 13, AC 14, AC 15, DC 12, DC 13, DC 14	
Nominal rating	5 A	
Voltage breaking capacity (according to IEC/EN 60255-1)	250 V~ / 8 AAC resistive 125 V⎓ / 0.3 A resistive	
Electrical life (operations)	1 x 10^5	
Mechanical life (operations)	1 x 10^7	
1 or 2 changeover relays, AgNi (cadmium-free)	1 C/O	
Functions		
Automatic recognition of AC/DC	True	
Overvoltage and undervoltage control	True	
Overvoltage or undervoltage control Selectable latching (memory) function	False	
Control of AC and DC voltages	True	
General characteristics		
Temperature limits use (°C) (according to IEC/EN 60068-2)	-20 → +50	
Temperature limits stored (°C) (according to IEC/EN 60068-2)	-40 → +70	
MTBF in hours (according to IEC/TR 62380)	1437392.70	
MTTF (according to IEC/TR 62380)	160 years	
Led status indicator	▪ Un: Green LED (power on) ▪ R: Yellow LED (relay status ON) ▪ OFF LED (under/overvoltage or measured fault) ▪ Flashing LED during time delay ▪ No Tt LED	
Creepage distance and clearance (according to IEC/EN 60664-1)	▪ 4 kV / 9.4 mm ▪ Pollution degree 3	
IP degree of protection Terminal block (according to IEC/EN 60529)	IP20	
IP degree of protection Housing (according to IEC/EN 60529)	IP30	
IP degree of protection Front face (according to IEC/EN 60529)	IP50	
Vibration resistance (according to IEC/EN 60255-21-1)	▪ 20 m/s² ▪ 10 Hz →150 Hz	
Relative humidity no condensation (according to IEC/EN 60068-2-30)	2 x 24 hr cycle 95 % RH max. without condensation 55 °C	

	MUSF80	MUSF260
Electromagnetic compatibility - Immunity to electrostatic discharges (according to IEC/EN 61000-4-2)	Level III (Air 8 kV / Contact 6 kV)	
Immunity to radiated, radio-frequency, electromagnetic field (according to IEC/EN 61000-4-3)	▪ Level I (1 V/m: 2.0 GHz →2.7 GHz) ▪ Level II (3 V/m: 1.4 GHz →2.0 GHz) ▪ Level III (10 V/m: 80 MHz →1 GHz)	
Immunity to rapid transient bursts (according to IEC/EN 61000-4-4)	Level III (direct 2 kV / Capacitive coupling clamp 1 kV)	
Immunity to shock waves on power supply (according to IEC/EN 61000-4-5)	Level III (2 kV / common mode 2 kV / residual current mode 1 kV)	
Immunity to radio frequency in common mode (according to IEC/EN 61000-4-6)	Level III (10V rms: 0.15 MHz → 80 MHz)	
Immunity to voltage dips and breaks (according to IEC/EN 61000-4-11)	▪ 0 % residual voltage, 1 cycle ▪ 70 % residual voltage, 25/30 cycles	
Mains-borne and radiated emissions (according to EN55032 (CISPR22), EN55011 (CISPR11))	Class B	
Fixing: Symmetrical DIN rail (according to IEC/EN 60715)	35 mm	
Mounting position	All positions	
Drop to concrete floor (according to IEC/EN IEC 60068-2-31)	High: 1m	
Rigid connecting capacity without ferrule	▪ 1 x 4² - 2 x 2.5² mm² ▪ 1 x AWG11 - 2 x AWG14	
Flexible connecting capacity with ferrule	▪ 1 x 2.5² - 2 x 1.5² mm² ▪ 1 x AWG14 - 2 x AWG16	
Tightening torque (according to IEC 60947-1)	0.5…0.6N.m	
Housing material (according to IEC/EN 60695-2-11)	▪ Self-extinguishing ▪ Incandescent wire test	
Shock and bump tests (according to IEC/EN 60255-21-2)	15 g - 11 ms	
Short interruption on power line (according to IEC/EN 61000-4-11)	0% residual voltage, 250/300 cycles	
Delivery: open terminals	True	
Type of electric connection	Screw connection	
Outline Dimensions		
Depth (mm)	69	
Height (mm)	90	
Weight (g)	70.8	
Width (mm) according to DIN 43880	17.5	
International Directives & Conformity Certification		
RoHS 2015/863/UE	Yes	
REACh regulation N°1907/2006/CE	Yes	
UK REACh regulation 2023 N°722	Yes	
LVD 2014/35/UE	Yes	
Directive 2012/19/EU	Yes	
European Directive 2005/20/CE	Yes	
ISO 14001: 2015	Yes	
Certification CE	Yes	
Certification UL	Yes	
Recycling notice	Yes	
Certification UK CA	Yes	
Certification CCC	Yes	

Principles

MUSF voltage control relays monitor single-phase network voltages.

These products monitor their own supply voltage.

MUSF relays operate in window mode: they check that the controlled voltage stays between a minimum and maximum threshold.

An adjustable time delay, on threshold crossing, provides immunity from transient phenomena, thus preventing spurious triggering of the output relay.

Operating principles

MUSF80-MUSF260 - Under/Overvoltage controller

MUSF relays operate in window mode: they check that the controlled voltage stays between a minimum and maximum threshold.

The under and overvoltage threshold values are set by two graduated potentiometers by reading the Un scale to be monitored directly.

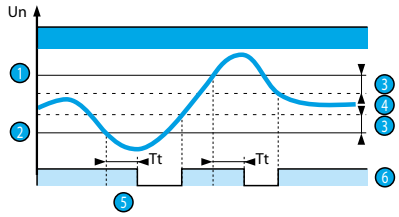
The hysteresis is fixed, value: 3 % of the preset thresholds.

If the controlled voltage exceeds the preset upper threshold, or falls below the preset lower threshold for longer than the time set on the front face (0.1 to 10 s), the output relay opens and LED R is extinguished.

During the time delay, this LED flashes.

Once the voltage returns to below the upper threshold value minus the hysteresis, or above the lower threshold value plus the hysteresis, the relay closes instantaneously.

When the unit is powered up with a measured fault, the relay stays open.

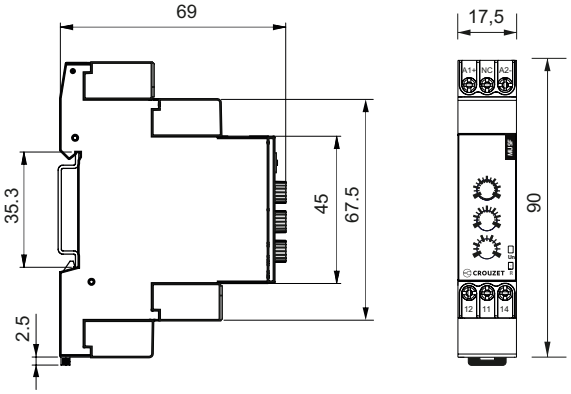


1. High threshold
2. Low threshold
3. Hysteresis
4. Controlled signal
5. Delay on threshold crossing (Tt)
6. Relay

Product Dimensions

Front and Side

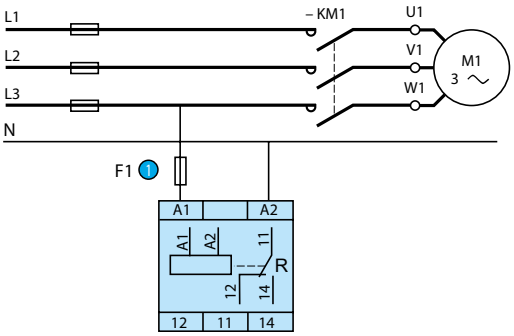
MUSF80-MUSF260



Electronic & Wiring Diagrams

Connections

MUS80F-MUSF260



1 A fast-blow fuse or cut-out