MRF102 Electronic Circuit Breaker

Warning when the current exceeds 80%

2 Channels with adjustable current range 1A...10A

Sequential output switch startup. Reduced Inrush Current

Power Boost 150%

Two output switchable in Parallel (max 15A)

Power limitation of the output to 100 VA, in according to NEC Class 2

Monitoring the trigger shutdown output for maximum current or minimum voltage on the channel Alarm Output Open Collector

ADELBus I/O for driver, monitoring and configuration

DIN Rail and Wall Mount

General

The MRF102 2-channel electronic circuit breaker with Din Rail and Wall mounting is designed for current distribution and protection of 12V or 24V load circuits.

Technical Data

Input Data

Supply voltage / at DC / Rated value	**12 – 24 V**
DC Input Voltage range (Vdc)	**8 – 32 V**
Overvoltage overload capability	**35 V**
Input current / at rated input voltage 12 - 24 V / Rated Value	**20 A max (30A peak max 10 sec)**
Maximum current consumption	**10mA A (12 VDC) – 10mA (24 VDC)**
Required Back Up Fuse	**Not required. Integrated fail-safe element (internal fuse)**
Input Voltage Reset Output	**7 …32 Vdc**

Output Data

Voltage curve / at output	**Controlled DC voltage**
Drop Out	**0.2 V**
Number of outputs	**2**
Output current / up to 60 °C / per output / rated value	**10 A**
Adjustable switch Off out current	**1A …10A**
Type of response value setting	**via code blinks Led**
Parallel switching of outputs	**Yes**
Bridging of equipment's	**No**
Start Up	**< 0.5 sec.**
Surge voltage shutdown load circuit	**>32 Vdc**
Max Capacitive Load	**50.000 uF**
Rated Surge Voltage	**0.5 KV**

Efficiency

Efficiency	**97%**
Power loss [W] (typ)	**1.5 W (Nominal Operation)**
Power dissipation	**0.9 W (No Load operation)**

Switching - off per output

Iout = 1.2 ...1.5 x set value	**switch-off after approx. 5 s**
Iout = 1.5 ...1.8 x set value	**switch-off after approx. 1 s**
Iout = 1.8 ...2 x set value	**switch-off after approx. 0,1 s**
Iout > 2 x set value	**switch-off after approx. 0,03 s**
Iout > set value and Vin < 15% (24V); (12V)	**switch-off after approx. 0,03 s**
Turn On Output after Switch Off	- **Manual Reset** - **By Press Button**
Waiting time after switch off Out	- **5 sec (Over load / Short Circuit)**

Protection and Monitoring

Internal Fuse protection type	**16A per output (not replaceable)**
Dielectric strength	**Max 32 Vdc (on Load Circuit)**
Display version	- **GREEN Led for "Output switched through"** - **RED Led for "Output switched off manually"** - **RED Led Blink for "Output switched off due to protection"** - **ORANGE Led: Verify and Configure**
Connection for monitoring device:	**AUX1: connection 2 pin AMP**
Configuration Aux1	**1: as ADELBus for Driving, Monitoring, Configuring** **2: Out Alarm for switch Off Output**
Diagnosis	- **Common Signaling for disconnection Last Output** - **Single Channel: Current, set current threshold, Status On/Off** - **Reason for Output disconnection**

Connection

Input 12 or 24V	**1 Screw Type:**	**0.2 - 2.5 mm² (24 – 12 AWG); 0.6 - 0.8 Nm**
Input 0V	**1 Screw Type**	
Outputs	**1 Screw Type**	
Signal Output:	**AUX1: connection 2 pin AMP**	

Ambient Conditions

Nominal Temperature operation	**-25 up to +60°C (>60°derating 2.5%°C)**
Ambient Temperature operation	**-25 up to +70 °C**
Ambient Temperature storage	**-40 up to +85 °C**
Humidity at 25 °C, no condensation	**95 % to 25 °C (acc. to IEC 60721)**
Vibration (operation) IEC 60068-2-6	**<15 Hz, amplitude ± 2.5mm** **<15Hz-150Hz, 2.3G 90 min.**
Altitude: 0 to 2 000m - 6560 to 20 000ft	**No restrictions**

General Data

Protection Class (EN/IEC 60529)	**IP20**
Reliability: MTBF IEC 61709	**> 700.000 h (Automatically Switch Off Back Light after 30 sec)**
Protection class	**III**
Housing material	**Polycarbonate**
Foot latch material	**Plastic POM**
Screw type connection	**0.2 - 2.5 mm² (24 – 12 AWG)** **0.6 - 0.8 Nm**
Dimension (w-h-d) mm	**18 x 90 x 61**
Weight	**0.1 kg approx.**

Immunity and Emission

The CE mark in conformity to EMC 2014/30/EU: Electromagnetic Compatibility Directive; 2014/35/EU: Low Voltage Directive; ROHS 2011/65/EU: Restriction of the use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS), as amended by 2015/863/EU

- EMC Immunity: EN61000-6-2
- EMC Emission: EN61000-6-3, EN 55022 Class B

Electrical Safety for mounting

According to:

- Electrical Equipment for Machinery EN 60204
- Electrical safety (of information technology equipment) IEC/EN EN62368-1.
- Safety requirements for electrical equipment for measurement, control and Laboratory use IEC/EN 61010

Accessory

- RTConn: connector cable for the connection to AUX1. It drives the MRF102 through ADELbus network.