

# PFM 200N SERIES

## AUTOMOTIVE POWER FAIL SIMULATOR FOR OEM LV 124 AND LV 148 AND OTHER MANUFACTURER STANDARDS



### FOR TESTS ACCORDING TO ...

- › LV 123
- › OEM LV 124 (2013-02)
- › LV 148
- › OEM LV 148
- › BMW GS 95024-2-1
- › BMW GS 95026
- › MBN LV 124-1
- › VW 80000
- › GMW 3172
- › Chrysler CS-11979
- › Cummins 14269 (982022-026)
- › Fiat 9.90110
- › Hyundai/Kia ES 95400-10, Rev. D
- › Iveco 16-2103 Rev.15 (2010)
- › Nissan 28401 NDS 02
- › PSA B21 7110
- › Renault 36.00.808/--L
- › Toyota TSC7203G
- › Volvo STD 515-0003
- › many other automotive standards

### PFM 200N SERIES - THE UNIQUE AUTOMOTIVE POWER FAIL SIMULATOR FOR LV 124 / LV 148 AND MICROINTERRUPTIONS AS PER MANUFACTURER STANDARDS

The PFM 200N100.1 and PFM 200N200 have been designed to fully meet the requirements for E10, E13 and E14 of the LV 124 and the E48-09 of the LV 148. It also allows to perform microinterruptions with fast rise/fall time of as low as 200ns as required by GMW 3172, sec. 9.2.18.

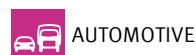
The PFM 200N series includes a switch for the power supply line from 100 mA to 200A and a separate switch in the ground return path. These switches can support very high inrush currents up to several hundreds of Ampères.

For signal- and data lines an additional 16 channel switch is included with current rating from 100 uA to 2 A per channel.

#### HIGHLIGHTS

- › **Switch for Power supply (100 A / 200 A) and signal/data lines (2 A)**
- › **Pulses E10 and E13 of the LV 124/LV 148 standard**
- › **Bidirectional current direction**
- › **Separate switch in the ground line**
- › **Rise/fall time less than 200ns**

#### APPLICATION AREAS



## TECHNICAL DETAILS

### MODELS

| MODELS        |                             |
|---------------|-----------------------------|
| PFM 200N100.1 | DUT current 100 mA to 100 A |
| PFM 200N200   | DUT current 100 mA to 200 A |

### TECHNICAL DETAILS

| POWER LINE SWITCH |                                                                             |
|-------------------|-----------------------------------------------------------------------------|
| Switch            | 2 Switches in the circuit<br>- DC+ Power line<br>- DC- Ground line          |
| DUT voltage       | ± 100 VDC                                                                   |
| DUT current       | 100 mA to 100 A, 200 A<br>@ 25 °C                                           |
| Current direction | Bidirectional                                                               |
| Switching time    | < 200 ns (rise/fall time)                                                   |
| Repetition rate   | 10 µs - 1 h                                                                 |
| Drop duration     | 1 µs - 1 h                                                                  |
| Peak current      | 400 A for 200 ms<br>1,350 A for 1 ms<br>automatic switch-off if I > 1,350 A |
| Safety            | Short circuit protection                                                    |

| SWITCH FOR SIGNAL- AND DATALINE SWITCH |                                                                                     |
|----------------------------------------|-------------------------------------------------------------------------------------|
| Channels                               | 16 independ switched lines                                                          |
| DUT voltage                            | Max. ± 40 VDC                                                                       |
| DUT current                            | 100 µA to 2 A, per channel<br>@ 25 °C                                               |
| Current direction                      | Bidirectional                                                                       |
| Switching time                         | < 1 µs (rise/fall time)                                                             |
| Repetition rate                        | 500 µs - 1 h                                                                        |
| Drop duration                          | 1 µs - 1 h                                                                          |
| Bandwidth                              | 50 MHz / 3 dB                                                                       |
| Peak current                           | 5 A for 200 ms                                                                      |
| Safety                                 | Short circuit protection                                                            |
| Connector                              | PHOENIX, DFMC connector,<br>1.5 mm <sup>2</sup> ,<br>Push-in-spring cage connection |

### TECHNICAL DETAILS

| GENERAL SWITCH   |                                                            |
|------------------|------------------------------------------------------------|
| Switch Impedance | Power lines: < 50 mOhm<br>Data lines: < 500 mOhm           |
| Internal switch  | Short circuit switch (DC+ to DC-),<br>impedance <100 mOhm) |
| Internal switch  | 100 mOhm, per LV 124                                       |
| Internal switch  | Low                                                        |
| Internal switch  | High                                                       |

| TRIGGER     |                                                                                                                     |
|-------------|---------------------------------------------------------------------------------------------------------------------|
| Trigger Out | BNC Plug at the front panel,<br>Automatic release of the events<br>Trigger for oscilloscope,<br>negative slope 15 V |
| Trigger In  | BNC Plug at the front panel,<br>External release of a single event<br>Pull down                                     |

| PROTECTION            |                                                |
|-----------------------|------------------------------------------------|
| DC Input protection   | Max. voltage ±100 V,<br>Clamped > 100 VDC      |
| Data Input protection | Max. voltage ±40 V,<br>Clamped > 40 VDC        |
| Overtemperature       | NTC measurement on each mosfet<br>switch       |
| Overcurrent           | On each mosfet switch electronic<br>protection |
| Current measurement   | Overload measured at output                    |

| INTERFACE      |                                                                 |
|----------------|-----------------------------------------------------------------|
| Frame bus      | Control cable to AutoWave                                       |
| Monitor Output | DUT out, differential,<br>BNC plug on front panel<br>Ratio 1:20 |

| SUITABLE BUS SYSTEMS FOR DATALINE |                                                                                                             |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------|
| Bus systems                       | - Low Speed Can 100 kbit<br>- High Speed Can 500 kbit<br>- LIN Bus 19200 Baud<br>- FlexRay 10 Mbit<br>- ... |

## TECHNICAL DETAILS

## GENERAL DATA

| GENERAL DATA          |                                           |
|-----------------------|-------------------------------------------|
| Dimensions            | 19"/3 HU,<br>448 mm x 536 mm x 154 mm     |
| Weight                | approx. 10.5 kg                           |
| Supply voltage        | 100 V - 265 VAC, 50/60 Hz                 |
| Fuses                 | 2 x 2 AT                                  |
| Reference temperature | 23 °C ±5 °C                               |
| Temperature           | 10 °C to 35 °C                            |
| Humidity              | 25 % to 75 %, non condensing              |
| Atmospheric pressure  | 86 kPa (860 mbar) to 106 kPa (1 060 mbar) |

## OPTIONS

| CALIBRATION KIT |                                   |
|-----------------|-----------------------------------|
| CA LV 124       | Calibration Kit for PFM 200N100.1 |
| CA LV 124.1     | Calibration Kit for PFM 200N200   |

| CALIBRATION       |                                                                                                                                                                                             |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LV124 Calibration | Calibration kit for pulse verification, low inductive resistors,<br><br>Powerlines:<br>CA LV124-P1R<br>CA LV124-P100R<br><br>Datalines: For test 2 lines<br>CA LV124-D1R<br>CA LV124-D1000R |
| CA LV124-P1R      | Power line calibration<br>1.0 Ohm ± 1 %,<br>U max.: 12 V,<br>P max.: 30 W<br>P peak: 150 W max., 1 s                                                                                        |
| CA LV124-P100R    | Power line calibration<br>100.0 Ohm ± 1 %,<br>U max.: 100 V,<br>P max.: 30 W<br>P peak: 100 W max., 1 s                                                                                     |
| CA LV124-D1R      | Data line calibration<br>1.0 Ohm ± 1 %,<br>U max.: 2.0 V,<br>P max.: 1 W,<br>P peak: 4 W max., 1 s                                                                                          |
| CA LV124-D1000R   | Data line calibration<br>1000 Ohm ± 1 %,<br>U max.: 40.0 V,<br>P max.: 1 W<br>P peak: 4 W max., 1 s                                                                                         |

# COMPETENCE WHEREVER YOU ARE



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Information about scope of delivery, visual design and technical data correspond with the state of development at time of release. Subject to change without further notice.