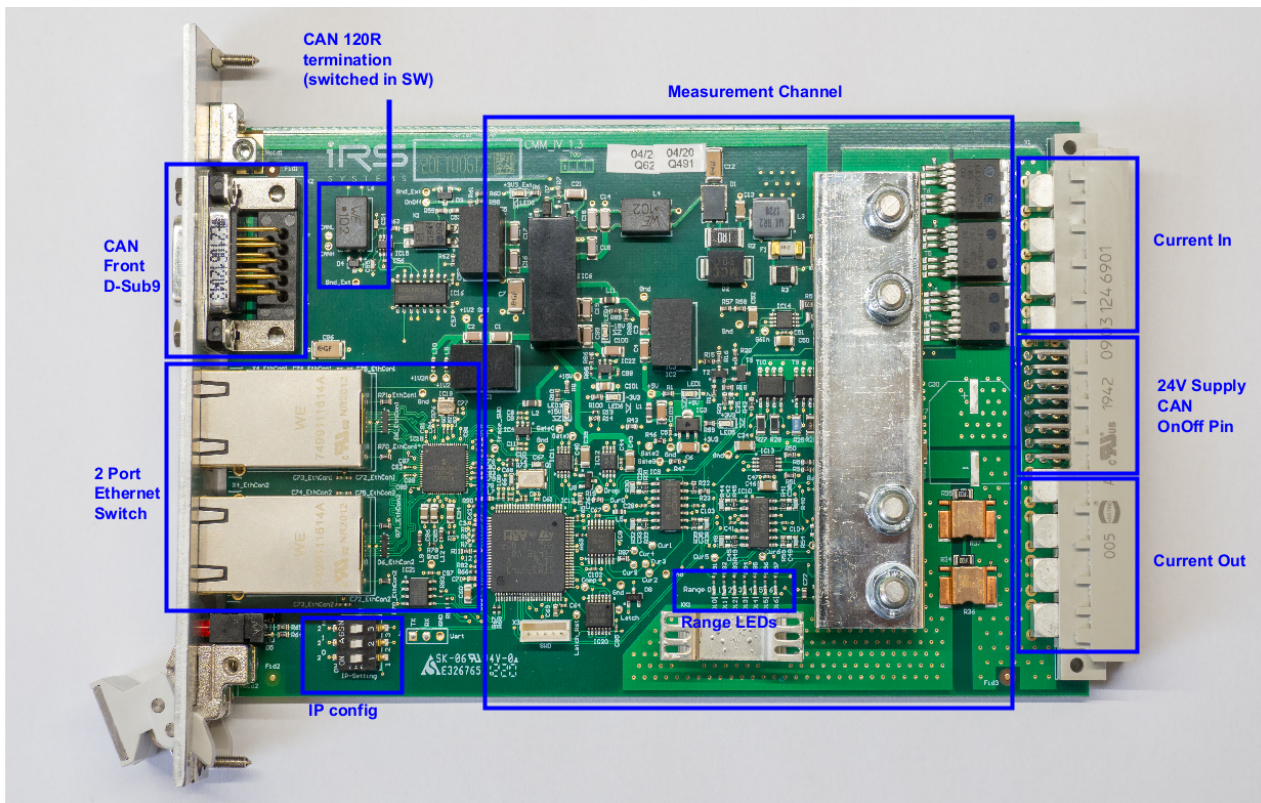


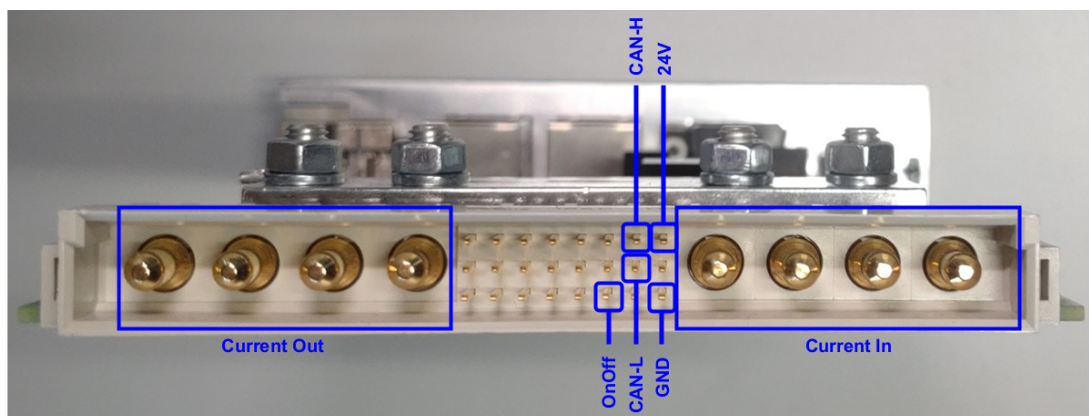
# CMM-IV: Getting Started

The current measurement module CMM-IV can be used to measure, evaluate and check current consumption of a dynamic DC load, typically an automotive electronic control unit. It can measure currents from 1µA to 100A (190A peak) with automatic range selection that switches within microseconds. The current range from 1µA to 190A is split into 7 ranges. The range LEDs marked in the image below show the currently used range. More details about the measurement process and the different ranges can be found in the CMM-IV Manual.



## Electrical Connection

The CMM-IV can be powered by a power supply with 11V to 26V. At 24 V the current consumption is about 130 mA. Use a power supply with a current limit of at least 1 A to have enough headroom for the inrush current peak. The measurement path (Current In / Current Out) must be connected in series to DUT. To simply the connection of the CMM-IV a backplane is available. The backplane or a mating connector can be ordered directly from IRS. To read the measured values either a CAN bus connection (front or back) or an Ethernet connection (one of the two ports) can be used. See CMM-IV Manual for more details on electrical connection.



## Download IRS-CMM-IV-GUI

You can find the latest GUI and documentation under <https://docs.irs.systems/>

## IP Address

At delivery the IP address of the module is set to 192.168.222.21. The IP can be changed in the GUI. See CMM-IV Manual for details.

Furthermore you can modify the IP address in a limited range with the DIP switches on the PCB. The switches are treated as a binary number and marked with their value ( $2^0$ ,  $2^1$ ,  $2^2$ ). The resulting value is added to the IP address. So for example if switch  $2^0$  and  $2^2$  are set to ON the value is 5 and the resulting IP address is  $192.168.222.21 + 5 = 192.168.222.26$

If all three switches are "ON" the configured IP address is ignored and the default 192.168.222.21 is used.

## Setup CAN-Bus

The CMM-IV broadcasts the measured current on the CAN bus. At delivery the CAN is configured to 1000 kBit/s. If necessary, the baudrate settings and the interval of the broadcasted message can be changed in the GUI. See CMM-IV Manual for more details.

A switchable termination resistor is installed on the board and can be activated in the CMM-IV GUI. This single termination resistor is sufficient for classic CAN and a single CMM-IV. If you want to connect multiple CMMs or want to use FDCAN a proper termination of the CAN bus with two resistors on both ends of the CAN bus is highly recommended. Without proper termination a reliable communication may not be possible.

## Configure Board and Channel

Multiple CMM-IVs can be connected via CAN bus. To avoid conflicting CAN-IDs the IDs can be set in the GUI.

## How to Read Measured Current Values

### **Use the CMM-IV GUI**

In the GUI either click CHART to see a live view of the measured currents or click TESTPANEL and use the MEASUREMENT commands on the bottom of the testpanel.

### **Use the Messy CMM API**

If the CMM-IV is connected to a MesSy-II or MesSy-II-FD you can use the integrated Messy CMM API to read min, max and average values. For details see MesSy documentation.

### **Use the IsoTP protocol**

You can use commands based on the CAN IsoTP protocol to read the measured current values and to configure the CMM-IV. For details see CMM-IV Manual.