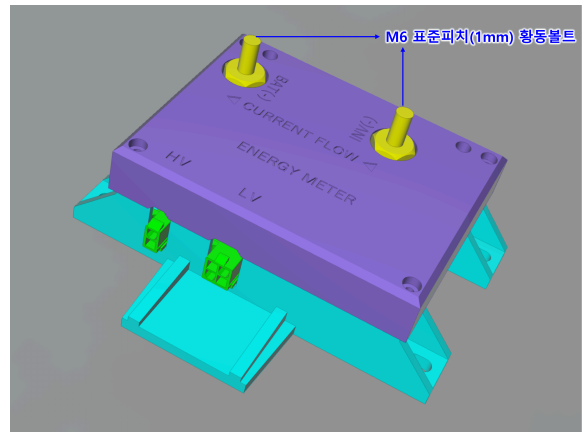
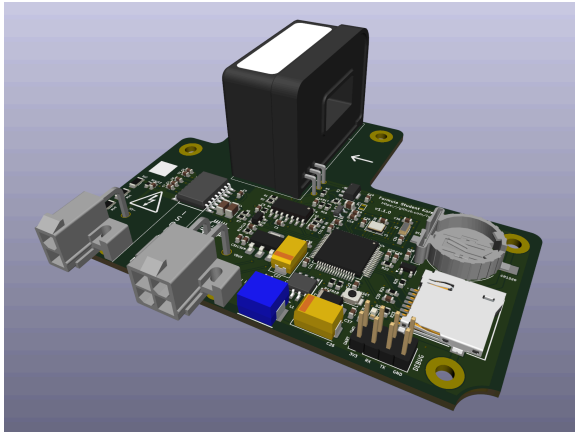


KSAE Electric Energy Meter Datasheet



0. Features

- Records following data:
 - HV bus voltage
 - HV bus current
 - LV supply voltage
 - Ambient (CPU) temperature
 - Real-world time of each record
- 100 Hz sampling rate
- Mounts as a USB Mass Storage device
- Data viewer available on most platforms

1. Specifications

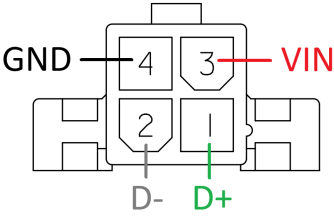
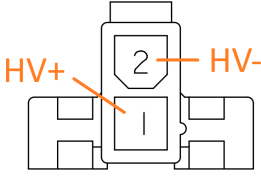
	MIN	TYP	MAX	UNIT
Supply voltage ¹	6		28	V
Power consumption		0.25	0.5	W
HV bus voltage	0		600	V
HV bus voltage resolution		0.24		V/LSB
HV bus current	-750		750	A
HV bus current resolution		0.32		A/LSB
Operational temperature	-10		80	°C
IP rating		IP 20		
Startup time		550		ms
Record interval		10	15	ms
Possible data loss on power brownout	0		100	ms

¹ When powered by USB, the device can startup with a minimum supply voltage of 4.5 V.

2. Connectors

Note

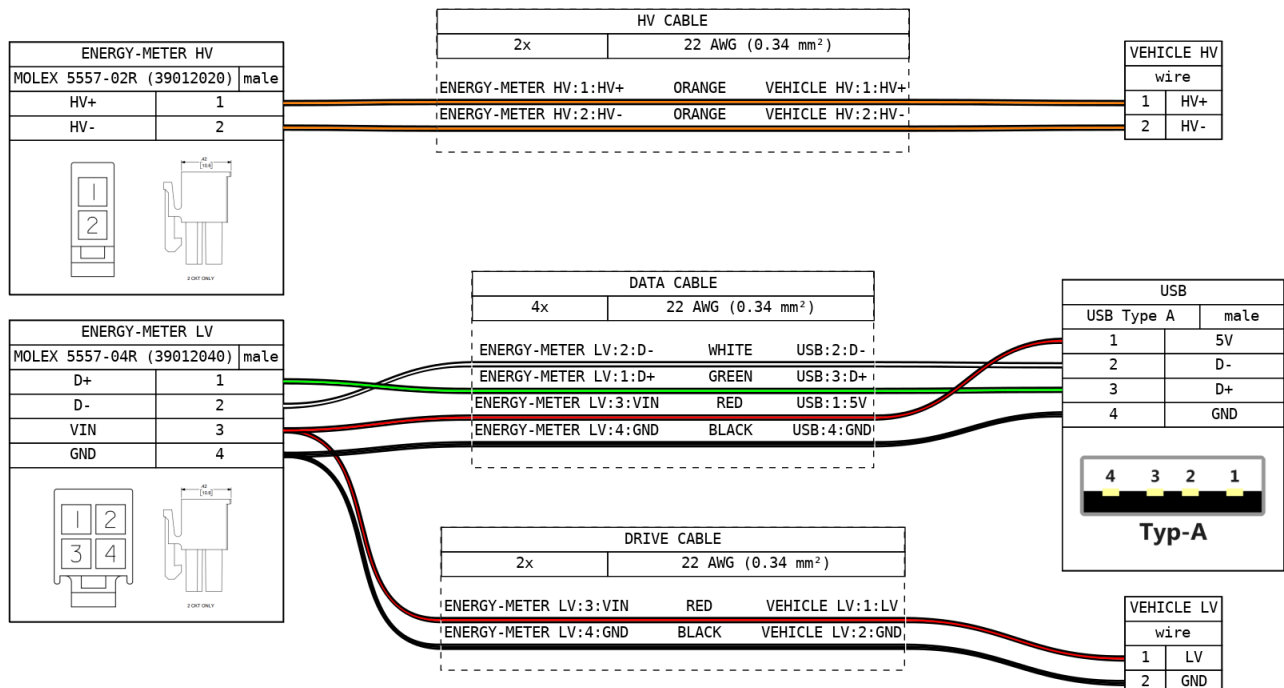
The HV current measurement terminals at the top of the device are standard-pitch M6 brass bolts.

	LV	HV
Model	Molex 5569-04A1 (39291048)	Molex 5569-02A1 (39291028)
Image		
Mate	Molex 5557-04R (39012040)	Molex 5557-02R (39012020)
Pinout	1: D+ 2: D- 3: VIN 4: GND	1: HV+ 2: HV-

Tip

The crimp terminal for the Molex 5557 Series is [Molex 5556T \(39000038\)](#).

Wiring



The *data cable* and the *drive cable* are two distinct cables. When driving the vehicle, connect the *drive cable* to the LV connector of the device. To extract data, disconnect the *drive cable* and connect the *data cable* instead.

Caution

Misconnection of the pins may cause permanent damage to the device.

💡 Tip

The easiest way to make a data cable is to cut a USB cable with Type-A connector on one end.

3. Usage

3-1. Record data

When driving the vehicle, connect both *HV cable* and *drive cable* to the device. The *drive cable* should supply `VIN >= 6V` to start recording.

Once the device is powered up, it performs a zero calibration of the HV voltage and current. After calibration, it continuously measures data every 10 ms.

The measured data is updated to the file every 100 ms. During the file update, next measurement may be delayed by up to 5 ms.

A new log file is created with each power cycle. Each log file corresponds to a single power session.

🚨 Important

For the precise calibration, make sure that the HV voltage and current are at 0V and 0A until the startup is complete (typically 550 ms).

📄 Note

The device has an internal clock that tracks real-world time. Since the clock drifts over time, synchronize it with the FSK-EEM Viewer after a long period of non-use. If the time keeps resetting to `May 12, 2099`, the battery should be replaced.

3-2. Extract data

To extract the recorded data from the device, disconnect *drive cable* and connect *data cable* instead. There is no need to disconnect the *HV cable* during data extraction.

Plug the USB side of the *data cable* to the PC or smartphone (with a Type-A to C adapter). The FSK-EEM USB Mass Storage will appear [shortly](#).

The log files are stored in the drive like a common USB memory. Copy the files to your PC.

📄 Note

The drive is **read-only**; you cannot edit or delete the stored logs with the file explorer.

3-3. View data

Go to the [online viewer](#) and open the log file to view a graph of the recorded data, or export it in a human-readable JSON/CSV format.

💡 Tip

If there is no Internet connection, download html or executable from the [release](#) in advance.

3-4. Configure the device

In the viewer's Device Configuration section, click `Connect` and select the device to connect.

The device's UID and the current time will be displayed on successful connection.

- Sync RTC : Synchronizes the device clock with the host computer.
- Delete : Erases **ALL** files stored in the device.

Unplug and reconnect the device to see the change after deletion.

 **Warning**

The delete action ***cannot be undone***.

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