

HYPERION MIOTY PROFILE EN



Table of Contents

1. Overview	1
2. Setting Profiles	2
3. Payload structure	5
4. Naming conventions	5
5. Transmission frequencies	5
6. Profiles	6
6.1. Profile 0 – Complete data	6
6.2. Profile 1 – Voltage & Current	6
6.3. Profile 2 – Power & current	6
6.4. Profile 3 – Energy meter	6
6.5. Profile 4 – Historical data	6
7. Data encoding	8
8. Usage Instructions	8
9. Compatibility and Notes	8

1. OVERVIEW

The **Hyperion Energy Meter** (Sentinum) transmits energy data via the **MIOTY protocol**. This document describes the payload structure, profiles, and field definitions (from firmware **v1.3** onwards).

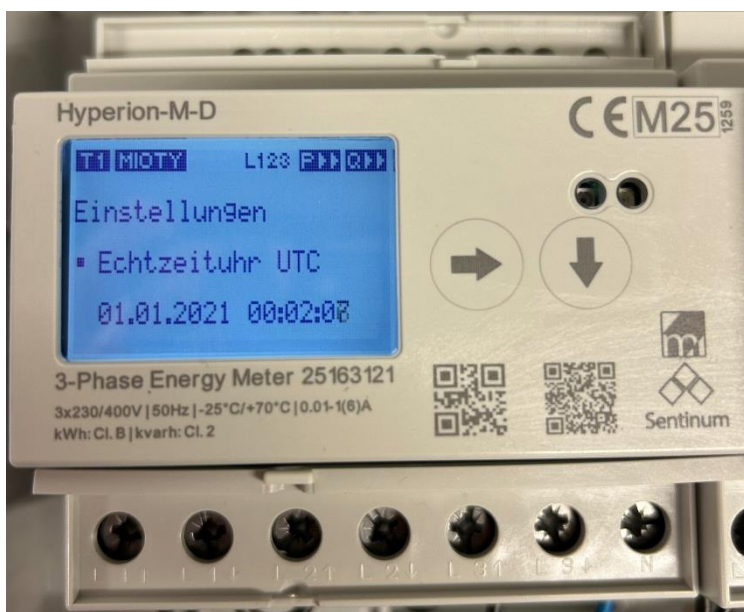
Device info:

- Type EUI: FCA84A0000000006
- Vendor: Sentinum
- Protocol: mioty
- Firmware: v1.3+ (payload only for `fw_minor_ver ≥ 3` and `status = 0`)

2. SETTING PROFILES

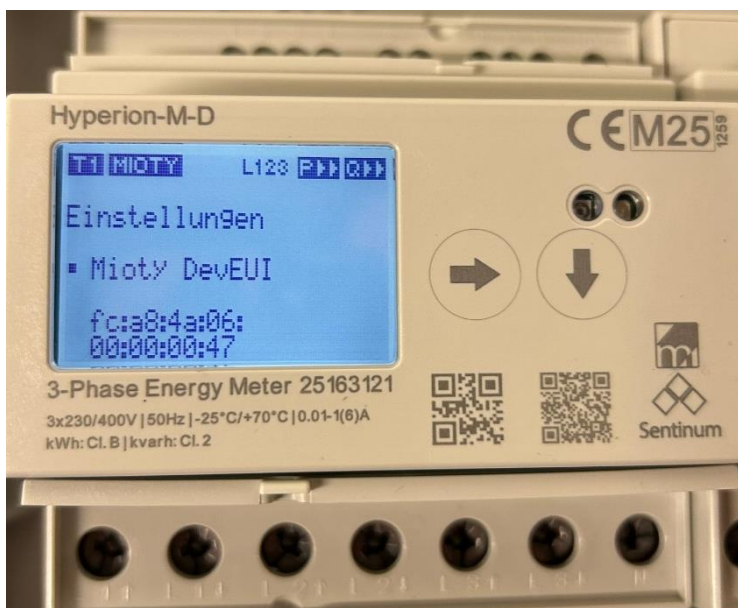
Profile	Setting/Value
0	0
1	001
2	002
3	003
4	004

Familiarize yourself with the display.



2.1. STEP 1: MIOTY DEVEUI

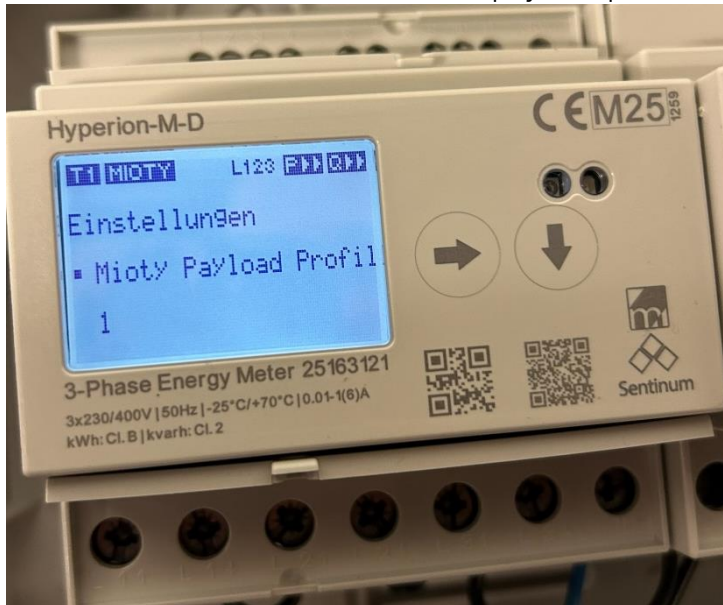
Use the down arrow key to scroll down to the **"Mioty DevEUI Settings"** section as shown on the screen. Here you will see the device number.



2.2. STEP 2: NAVIGATE TO MIOTY PAYLOAD PROFILE

Use the down arrow key to navigate to **"Mioty Payload Profile Settings."**

The number below indicates the set payload profile.



2.3. STEP 3: CHANGE THE PROFILE

Use an insulated screwdriver to press the button on the bottom right, as shown in the image. The number will then be displayed as 3 digits, in this case 001. Use the button on the right to navigate through the decimal places, and the button on the bottom to manipulate (increase) the respective place.

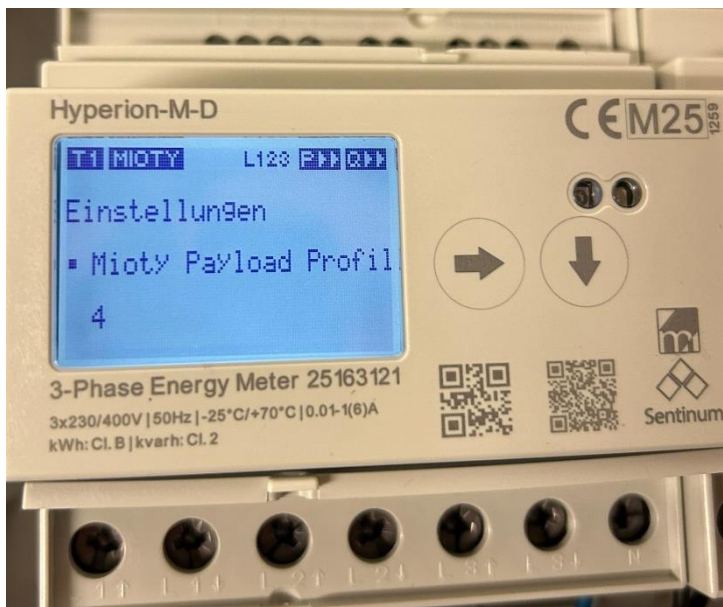
Please note: The profile must always be specified in the following format: 001 or 004, etc. Even if the meter setting for a code of 009 is possible, for example, this is not a valid profile. A 0 can be reached again by counting up to 9, after which the digit jumps back to 0. Please set the profiles 000 to 004.



In the following image, 004 has been set.

2.4. STEP 4: CONFIRM PROFILE

To change the profile, press and hold the button on the rear right with an insulated pen or screwdriver until the display and keypad flash briefly.



3. PAYLOAD STRUCTURE

Field	Size	Type	Description
fw_base_id	4 bits	uint	Firmware base identifier
fw_major_ver	4 bits	uint	Major version
fw_minor_ver	4 bits	uint	Minor version
dev_sub_type	4 bits	uint	Device subtype
msg_counter	8 bits	uint	Uplink counter
status	8 bit	uint	Device status (0 = normal)
serial_num	32 bit	uint	Serial number
app_version	32 bit	uint	Application version
mid_version	32 bit	uint	Middleware version
profile	32 bit	uint	Profile selector (0-4)

4. NAMING CONVENTIONS

- **Voltage:** u_{IX} (phase/line)
- **Current:** i_{IX} (phase/total)
- **Power:** p_{IX_a} (active, phase/total)
- **Energy:** $e_{t\{a|1|2\}_{a|r}_{i|e}}$ (e.g., $e_{ta_a_i}$)
- **Power factor:** pf_{IX}
- **Frequency:** f
- **Transformer ratio:** $\{ct|vt\}_{act|old}_{prim|sec}$

5. TRANSMISSION FREQUENCIES

Profile	Transmission frequency (min)
0	5
1	2
2	2
3	2
4	15

6. PROFILES

6.1. PROFILE 0 – COMPLETE DATA

Comprehensive measured values: power, current, voltage, energy, power quality.

- **Power (W):** p_l1_a, p_l2_a, p_l3_a, p_l123_a
- **Current (mA):** i_l1, i_l2, i_l3, i_l123
- **Voltage (V ÷ 10):** u_l1, u_l2, u_l3, u_l12, u_l23, u_l31
- **Energy (Wh):** e_ta_a_i, e_ta_a_e, e_ta_r_i, e_ta_r_e
- **Power Quality:** pf_l1-3 (÷100), f (Hz ÷ 10)
- **Status:** pwr_fail

6.2. PROFILE 1 – VOLTAGE & CURRENT

Focus on voltage and current values with power quality.

- **Voltage (V ÷ 10):** u_l1, u_l2, u_l3, u_l12, u_l23, u_l31
- **Current (mA):** i_l1, i_l2, i_l3, i_l123
- **Power Quality:** pf_l1-3 (÷100), f (Hz ÷ 10)

6.3. PROFILE 2 – POWER & CURRENT

Focus on active power, currents, and power quality.

- **Power (W):** p_l1_a, p_l2_a, p_l3_a, p_l123_a
- **Current (mA):** i_l1, i_l2, i_l3, i_l123
- **Power quality:** pf_l1-3 (÷100), f (Hz ÷ 10)

6.4. PROFILE 3 – ENERGY METER

Minimum payload for billing & monitoring.

- **Energy (Wh):**
 - e_ta_a_i, e_ta_a_e
 - e_ta_r_i, e_ta_r_e

6.5. PROFILE 4 – HISTORICAL DATA

Extended profile, including timestamp, tariffs, and CT/VT configuration (little-endian).

- **Time/index:** index, epoch, epoch_old
- **Energy by tariff (Wh):**
 - T1: e_t1_a_i/e, e_t1_r_i/e
 - T2: e_t2_a_i/e, e_t2_r_i/e
- **Currents (mA):** i_l1-4, i_l123
- **Power (W):** p_l1_a, p_l2_a, p_l3_a, p_l123_a, p_l123_a_avg
- **Voltage (V ÷ 10):** u_l1, u_l2, u_l3

- **Power quality:** f (Hz $\div$ 10), pf_l1-3 ($\div$ 10)
- **CT/VT configuration:** ct_act_prim/sec, ct_old_prim/sec, vt_act_prim/sec, vt_old_prim/sec

7. DATA ENCODING

Component	Size	Type	Scaling	Unit
Voltage	32b int	$\div 10$	V	Phase/line voltages
Current	32b int	1:1	mA	Phase/total current
Power	32b int	1:1	W	Active power
Energy	64b uint	1:1	Wh	Meter readings
Power Factor	8b int	$\div 100$ ($\div 10$ for LE)	-	-1.0 ... +1.0
Frequency	16b int	$\div 10$	Hz	Mains frequency
Timestamp	64b uint	1:1	s	Unix epoch
CT/VT ratio	16b uint	1:1	-	Transmission ratios

8. USAGE INSTRUCTIONS

Profile selection:

- Profile 0 = Full monitoring
- Profile 1 = Voltage quality
- Profile 2 = Power analysis
- Profile 3 = Billing
- Profile 4 = Historical data

Example .js:

```
const voltage = raw_u_l1 / 10; // 2350 → 235.0 V
const pf = raw_pf_l1 / 100; // -85 → -0.85
const net_energy = e_ta_a_i - e_ta_a_e;
const ct_ratio = ct_act_prim / ct_act_sec;
```

9. COMPATIBILITY AND NOTES

- Firmware ≥ 1.3 required
- Payload only with `fw_minor_ver` ≥ 3 and `status` = 0
- All fields are visible, no hidden fields
- Observe endianness correctly
- Optimize profiles Payload size depending on use case
- Profile 4 enables time series analyses with epoch timestamps

Notes: