

Open CPU: your code on our hardware

Every Smart Meter Adapter can be ordered as an Open-CPU device. It runs an ESP32-S2 that you program freely — no NDA, no licence agreement, no surcharge.



A finished device

Enclosure, power supply, WiFi antenna, meter interface, CE marking and DIN-rail mounting are done. All that is left is your firmware.



Three extensions

M-Bus, Wireless M-Bus and P1/IR are available as interface boards and are detected automatically at runtime.



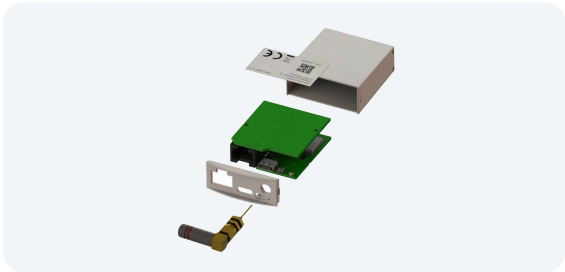
No strings attached

No NDA, no licence fee, no registration. You buy hardware and do what you like with it.

Pinout

The extension connector signals appear on the following ESP32-S2 pins.

SIGNAL	ESP32-S2	FUNCTION
BTN / IO0	IO0	Button, also the boot strapping pin
LED1	IO1	Status LED, channel 1
PWR	IO2	Supply for the extension board
LED2	IO3	Status LED, channel 2
U1RTS	IO4	UART1 RTS; used as CC1101 CS on WMBUS
U1CTS	IO5	UART1 CTS; switches the supply on IR and the enable signal on DSMR
GPIO0	IO6	Freely usable
GPIO1	IO7	Hold at 0 on DSMR (4.33 V supply); CC1101 GDO1 on WMBUS
GPIO2	IO8	Enables the voltage output on DSMR (Iskra meters only); CC1101 SI on WMBUS
GPIO3	IO9	CC1101 SCLK on WMBUS
DETECT	IO10	ADC input identifying the extension board
LED3	IO11	Status LED, channel 3
U1TXD	IO21	UART1 TXD towards the meter; CC1101 GDO2 on WMBUS
U1RXD	IO22	UART1 RXD from the meter



The main board with the ESP32-S2 and the plug-on interface board.

Extension board detection

The DETECT signal is measured to identify the connected extension. Each board carries its own pulldown resistor for this.

ADC VALUE	VOLTAGE	PULLDOWN	EXTENSION
2258	0.30 V	10 kΩ	MBUS
3526	0.43 V	15 kΩ	WMBUS
6718	0.82 V	33 kΩ	PI / IR

Signal use per extension

MBUS	UIRXD and UITXD carry the communication.
WMBUS	A CC1101 transceiver is driven over SPI: GPIO3 as SCLK, GPIO2 as SI, UIRTS as CS, GPIO1 as GDO1, UICTS as GDO0 and UITXD as GDO2.
IR	UIRXD and UITXD carry the communication; UICTS switches on the supply voltage for the reading head.
DSMR	UIRXD and UITXD carry the communication; UICTS drives the enable signal. GPIO2 switches on the voltage output, which is only needed for Iskra meters. GPIO1 must be held at 0 so that the supply is 4.33 V.

We flash your firmware

On request we ship the devices with your firmware and your configuration already installed.

plus VAT