MEDIOLA OEM SMART HOME 2.0 MODULE

MULTI STACK TECHNOLOGY

Made in Germany

SH 2.0 Module with Multi-Stack

| Core Module | Matter |
| Thread |
| Bluetooth |
| Adapter Board | 433 / 868 MHz |

Adapter Board (example)

Core Module (on Adapter Board)

Motherboard
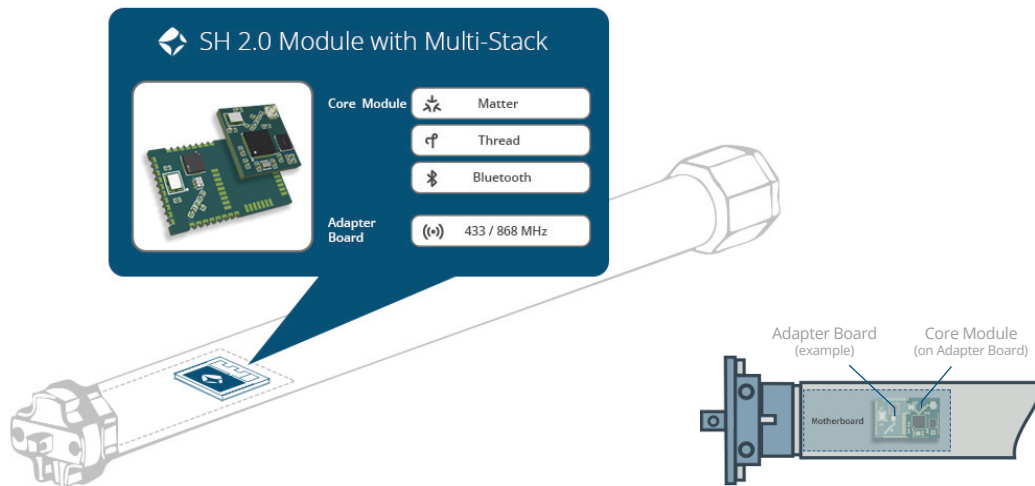
The mediola SH 2.0 module is the ideal OEM solution for integration into building technology products that require control via Matter and Sub-1 GHz wireless communication. The module, consisting of two units (Core & Adapter Board), features a flexible architecture based on our innovative, newly developed Multi-Stack technology, enabling multi-protocol support and variable configurations.

The autonomous and universal Core Module contains the entire logic, including the Matter connectivity. The Adapter Board, serving as a flexible hardware bridge to the Core Module, can be equipped with a 433 / 868 MHz transceiver for Sub-1 GHz wireless control. Its smart and compact design, with a customizable adapter board tailored to the target product, offers a time-to-market advantage while also reducing costs, as no modifications to the product's mainboard are required.

Manufacturers in the industry can easily, quickly, and cost-efficiently adapt their RF-based product lines to meet the new EU cybersecurity regulations and benefit from the significant market opportunities created by the Matter smart home standard.

The SH 2.0 Core Module is based on the Nordic nRF54L15 single-chip controller, providing compact design, high performance, and extensive memory with ultra-low power consumption. This makes it the ultimate choice for battery-powered devices.

Thanks to its integrated Multi-Stack technology and mediola connect protocol, multiple application and communication layers can run simultaneously. This allows products to be controlled via Thread, Bluetooth, and Sub-1 GHz wireless communication at the same time. Thus, devices can be operated via Bluetooth without network infrastructure (e.g. on a construction site), through traditional Sub-1 GHz remote controls, as well as via the mediola connect app or a custom OEM app.
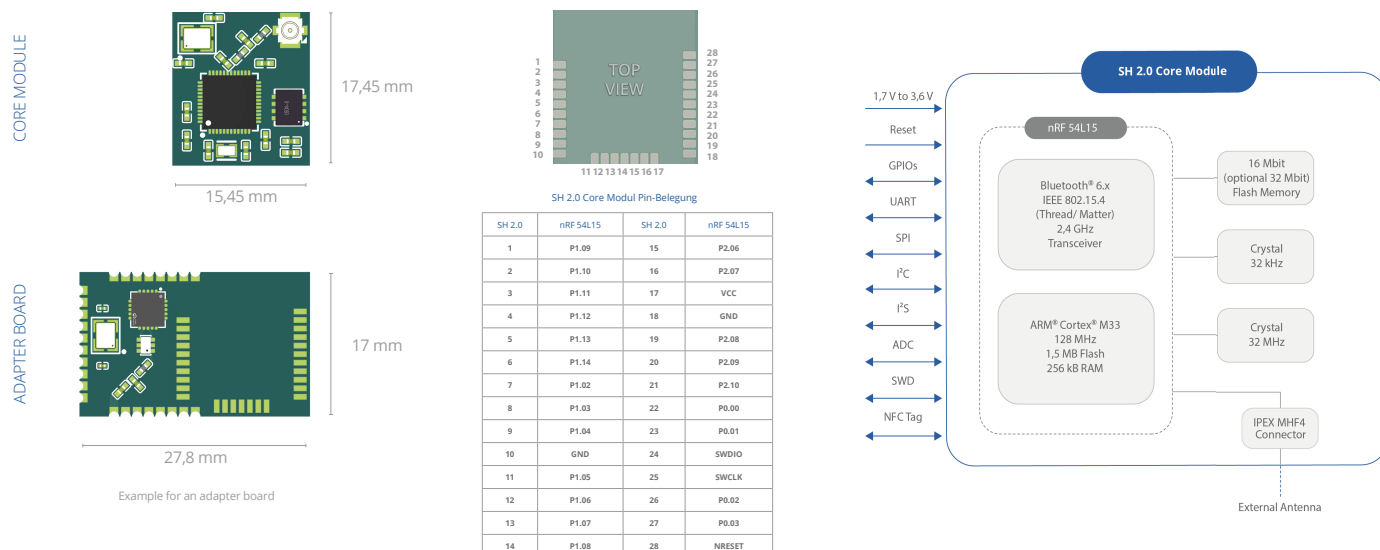
Via Matter, the products can also be integrated into the leading smart home platforms from Apple, Google, Amazon, Samsung and controlled and automated with their voice assistants and apps.

Key-Features

- ◆ Support for Matter via Thread
- ◆ Direct control via Bluetooth (without network)
- ◆ Simple and cost-efficient integration thanks to a compact, flexible design with a Core Module and Adapter Board
- ◆ Ideal for battery-powered devices due to ultra-low power consumption
- ◆ Optional expansion with a 433 or 868 MHz radio transceiver on the Adapter Board
- ◆ Encrypted MRF3 radio protocol and OTA update capability to ensure compliance with the EU cybersecurity regulations (RED, CRA) coming into effect in 2025
- ◆ Optional integration of the existing OEM radio protocol to enable continued use of legacy remote controls with new devices
- ◆ Matter-independent OEM control app, including an option for custom control features beyond the standardized Matter functionality

MEDIOLA SH 2.0 MODULE WITH MULTI STACK
for building equipment

CORE MODULE

17,45 mm

15,45 mm

ADAPTER BOARD

17 mm

27,8 mm

Example for an adapter board

TOP VIEW

SH 2.0 Core Modul Pin-Belegung

SH 2.0	nRF 54L15	SH 2.0	nRF 54L15
1	P1.09	15	P2.06
2	P1.10	16	P2.07
3	P1.11	17	VCC
4	P1.12	18	GND
5	P1.13	19	P2.08
6	P1.14	20	P2.09
7	P1.02	21	P2.10
8	P1.03	22	P0.00
9	P1.04	23	P0.01
10	GND	24	SWDIO
11	P1.05	25	SWCLK
12	P1.06	26	P0.02
13	P1.07	27	P0.03
14	P1.08	28	NRESET

1,7 V to 3,6 V
Reset
GPIOs
UART
SPI
I²C
I²S
ADC
SWD
NFC Tag

SH 2.0 Core Module

nRF 54L15

Bluetooth® 6.x
IEEE 802.15.4
(Thread/ Matter)
2,4 GHz
Transceiver

ARM® Cortex® M33
128 MHz
1,5 MB Flash
256 kB RAM

16 Mbit
(optional 32 Mbit)
Flash Memory

Crystal
32 kHz

Crystal
32 MHz

IPEX MHF4
Connector

External Antenna

SH 2.0 Thread Core Module

Matter-ready over Thread	P/N: MSH-2M, MSH-4M
Chipset	CPU	Nordic nRF 54L15	128 MHz Arm Cortex-M33
Multi-Protocol RF	Bluetooth LE, IEEE 802.15.4 (Thread), NFC, 2,4 GHz
Matter	Matter Support
Internal Memory	1,5 MB non-volatile memory, 256 KB RAM
External Memory	16 Mbit Flash-Speicher (P/N: MSH-2M) optional 32 Mbit (P/N: MSH-4M)
Voltage Range	Temperature Range	1,7 V - 3,5 V	-40 to 85 °C
Ultra-small Footprint (W x H x L)	15,45 x 1,8 x 17,45 mm
Antenna Connector	IPEX MHF4 Connector for external antenna
Integrated Clock Crystal	1x 32 MHz and 1x 32,768 kHz (required for sleepy end devices)
Various	Comprehensive set of peripherals, Secure boot, secure firmware update, secure storage, Cryptographic accelerator with side-channel leakage protection, tamper detectors
Extension (optional)	MRF3-radio protocol with encrypted communication & update capability via Bluetooth

SH 2.0 Adapter Board

for flexible integration into various hardware designs	
Interface Options	UART, SPI, I²C, ...
Programming Connector	I/O connector pins for serialization, firmware flashing, and DACs (Matter Device Attestation)
Extension (optional)	Radio transceiver with 433 MHz (P/N: MSH-AB-4) or 868 MHz (P/N: MSH-AB-8), including matching network and antenna interface

APP		
Setup, configuration, usage commissioning/ Bluetooth control	mediola connect App for iOS and Android (included, free)	mediola OEM-App for iOS and Android (optional according to style guide)

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