

SH-4200M (m:mimo.base) – datasheet



m:mimo.base – the master and sync unit for **m:mimo** sensor networks of ultra-fast real-time ultra-wideband (UWB) sensors. The SH-4200M contains a master synchronisation unit with our innovative m-Sequence pseudo-noise design. It provides the RF master clock, DC power supply, and digital measurement synchronisation for up to 8 SH-42xx distributed sensor nodes (type **m:mimo.hs** or **m:mimo.hsiq**).

Suitable for many applications, such as

- high resolution short range MIMO radar
- detection and tracking of fast moving objects
- High-Speed UWB MIMO Channel Sounding
- MIMO UWB sensor network

The **m:mimo.base** distributes the RF base clock and an UWB reference baseband signal for up to 8 **m:mimo.hs/m:mimo.hsiq** sensor nodes. It allows complete and stable RF synchronisation in a distributed MIMO network. Furthermore, it contains DC power supplies, a digital synchronisation interface, and a LAN switch for up to 8 nodes. The PC for sensor network setup and control only needs to connect to the base unit and receives averaged non-real-time data from each node to let the operator check correct functioning of the setup.

RF properties

UWB RF base clock:

- Extremely stable generation: phase locked RF clock source
- Frequency options:
 - 14.791 GHz
 - 13.312 GHz
 - 9.22 GHz
 - 6.75 GHz
- Output power: +10 dBm @ each port
- RF-port(s):
 - SMA-F
 - Up to 8 outputs

UWB baseband reference transmitter:

- UWB pseudo-noise signal, no high voltage peaks (0.8 V_{pp} max.), low field strength operation (when connected to antennas)
- Extremely stable generation driven by phase locked RF clock of the base unit
- Instantaneous 10 dB bandwidth
 - 0.1 - 6 GHz @ 14.791 GHz RF clock
 - 0.1 - 6 GHz @ 13.312 GHz RF clock
 - 0.1 - 4 GHz @ 9.22 GHz RF clock
 - 0.1 - 3 GHz @ 6.75 GHz RF clock
- Output power: -20 dBm (baseband, at each output)
- 2 stimulus options available: MLBS9 and MLBS12
- RF-port(s):
 - SMA-F
 - Up to 8 outputs sharing the same signal
- output power-down feature

Digital backend

- LAN: 16 port 1Gbit/s Ethernet switch, compatible to 100BaseT and 1000BaseT
- Sensor node synchronisation:
 - LVDS-based digital interface
 - CAT6a RJ45 ports
 - Up to 8 outputs
- USB2.0 interface for reference transmitter control and synchronisation operation

Dimensions and power supply

- Dimensions (WxHxD) : 450 mm x 150 mm x 335 mm (19" table unit)
- Power supply input rating: 230 V AC @ 1.5 A (max.)
- Sensor node power supply:
 - DC +12 .. +14 V, 2 A
 - Up to 8 outputs
- convection/active cooling by integrated fan
- Operating temp. range: +5..+30°C (< 90% rel. humidity, non-condensing)
- Storage temp. range: -10..+60°C (< 90% rel. humidity, non-condensing)

Software:

- MEX-API for MatLab (Windows 7/8.x/10, 32 & 64 bit)
- Device control and non-real-time data transfer
- Real-time data import tool based on MatLab
- Future support: API library for Win 7, Win 8, Win 10 and Linux

Contact:

Ilmsens GmbH
Ehrenbergstr. 11
98693 Ilmenau
www.ilmsens.com
info@ilmsens.com
+49 3677 76130 30