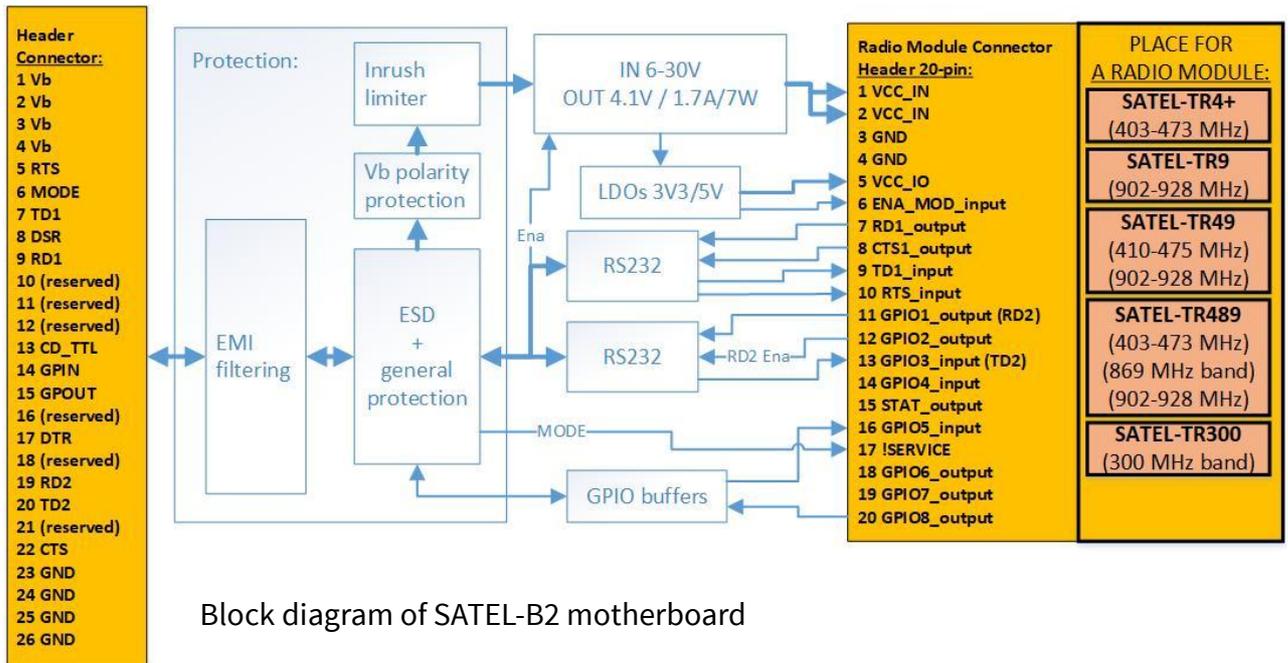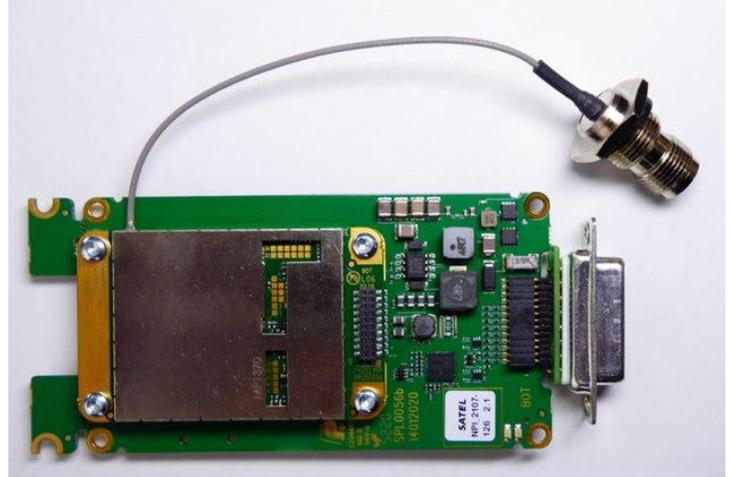SATEL-B2 motherboard is designed to house a SATEL radio module. It regulates the supply voltage for the radio module and provides the electrical connections by which the radio module and the user system communicate:

- Operating voltage +7…+27.5 VDC
- RS232 serial data interface (Port1)
- One general purpose input (controls GPIO5 input of the radio module)
- One general purpose output (controlled by GPIO8 output of the radio module)
- Secondary RS232 serial interface (Port2) for control purposes ("Diagnostics", SL commands)

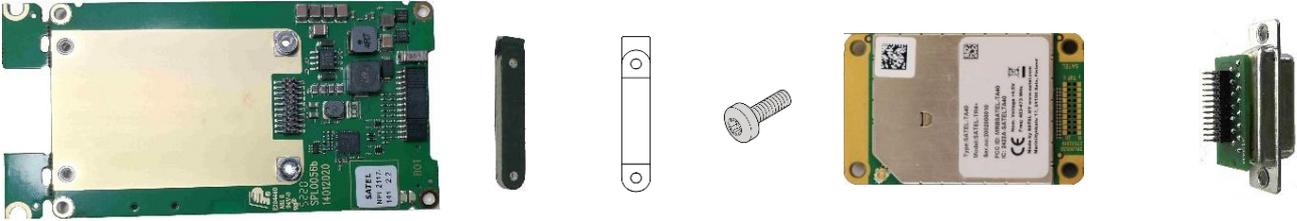Block diagram of SATEL-B2 motherboard

CAUTION!

Integrated circuits can be damaged by electrostatic discharge (ESD). Precautions and proper handling procedures must be followed when handling or installing electrostatic-sensitive parts such as radio modules and motherboards.

Use proper anti-static protection:

- Avoid excessive handling of the parts or touching the circuits
- Use antistatic clothing, workwear and materials for storage and handling
- Ground personnel and workbench by using ground straps and conductive materials
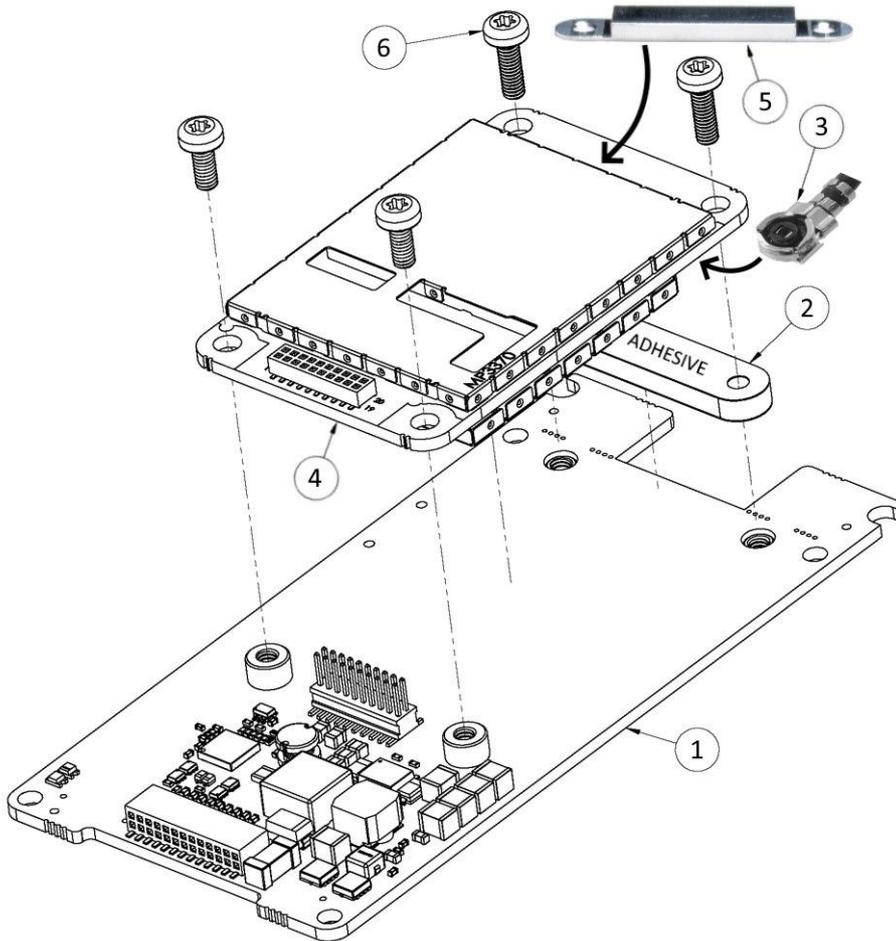
CONTENT OF SATEL-B2 MP1/MP2/MP3 PACKAGE

MP1, MP2 assemblies: B2A motherboard (26-pin horizontal female connector) **MP3 assembly:** B2B motherboard (26-pin vertical male connector)	Heat transfer block ME0909	Heat transfer block ME0910	Mounting screws (4 pcs) NC1030	Radio module Defined by the order code	D15 adapter (only in MP2 assembly) KL0024

HOW TO ASSEMBLE RADIO MODULE ON SATEL-B2 MOTHERBOARD

Applies to board level assemblies (SATEL-B2 MP1/MP2/MP3)

The selected radio module is assembled on the motherboard as shown below.

ASSEMBLY STEPS *(steps a and b are skipped if ME0909 is readily glued on the motherboard)*
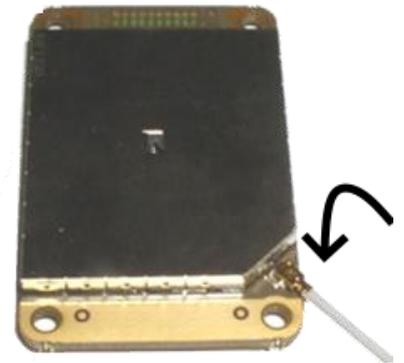
a) Peel off one of the two plastic strips that protect the adhesive surfaces of the heat transfer block ME0909

b) Align ME0909 (item 2 in the picture on the previous page) carefully with the mounting holes of the motherboard (item 1), the peeled surface towards the motherboard, and press the items together so that the adhesive sticks

c) Peel off the remaining plastic strip of ME0909 (item 2)

d) Snap the antenna cable connector (item 3) to the u.FL connector of the radio module

e) Attach the radio module (item 4) carefully as shown in the picture above so that all the four mounting holes and the 20-pin header connector are aligned with the motherboard; then press gently so that the adhesive keeps the radio module aligned. Avoid pinching the antenna cable between the boards.

f) OPTIONAL steps for the heat transfer block ME0910 (item 5):
    • Peel off the plastic strip that protects the adhesive surface
    • Attach as shown in the picture by aligning with the mounting holes and then pressing gently so that the adhesive sticks
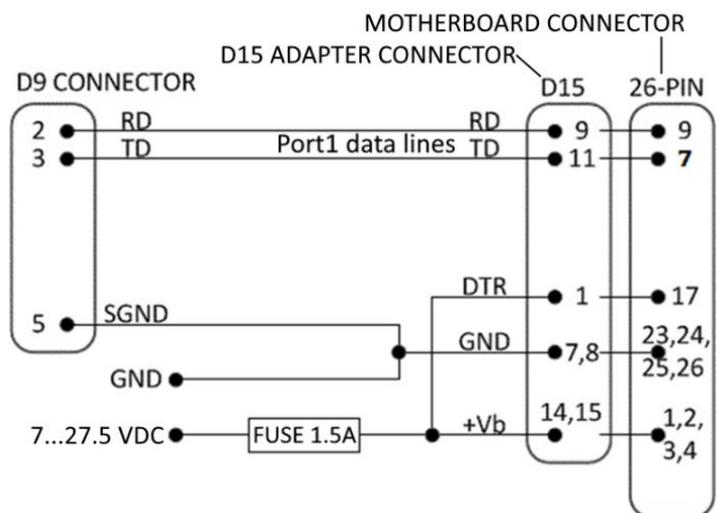   ME0910 can be used for conducting the heat to an external cooling structure.

g) Insert the four mounting screws (items 6) and tighten (1.5 Nm momentum)

WIRING

Typical wiring scheme for serial data interfaces with D9 type connector:

SATEL-B2 motherboard assembly must be connected to a power supply (+7…+27.5 VDC) that has an adequate current output.

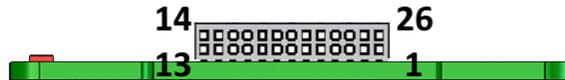The power supply must provide current limiting against short circuits (fuse 1.5 A)!

NOTE: When installing cables, the power of all devices must be OFF.

CONNECTORS

Depending on the assembly, terminal equipment is connected to one of the connectors presented below. The pinouts of the connectors are listed in SATEL-B2 user guides.

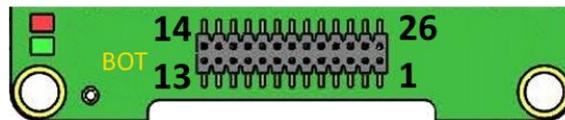### SATEL-B2 MP1 (includes SATEL-B2A motherboard)
- Antenna cable is connected directly to the female u-Fl connector of the radio module
- External devices and power are connected to:

26-PIN HORIZONTAL FEMALE HEADER CONNECTOR (side view)
on the bottom side at the end of the motherboard
Part type: Weitronic 613-26-20-10-2-10 (2 x 13 pin, pitch 1.27 mm)

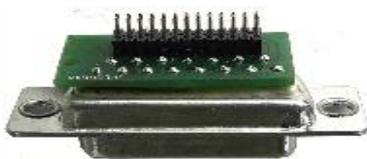### SATEL-B2 MP3 (includes SATEL-B2B motherboard)
- Antenna cable is connected directly to the female u-Fl connector of the radio module
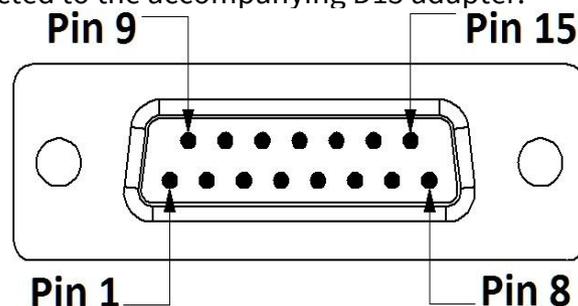- External devices and power are connected to:

26-PIN VERTICAL MALE HEADER CONNECTOR (top view)
on the bottom side at the end of the motherboard
Part type: Samtec FTSH-113-04-L-DV-A-P-TR (2 x 13 pin, pitch 1.27 mm)

SATEL-B2 MP2 (ASSEMBLY WITH D15 ADAPTER)
- Antenna cable) is connected directly to the female u-Fl connector of the radio module.
- External devices and power are connected to the accompanying D15 adapter.

D15 ADAPTER

FEMALE D15 CONNECTOR
pin numbering (front view)

NOTE:
D15 adapter (KL0024, board name SPL0064b) must be installed carefully in the correct position!
The slot in the board (encircled on the image) must be aligned with the edge of the motherboard.