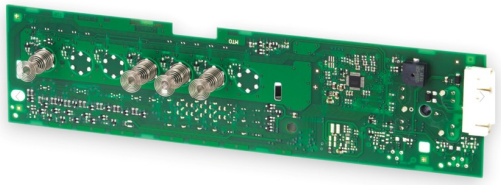


BSH SystemMaster S2 Module Installation Guide

B/S/H/

System Master S2
Installation Guide (S2pro variants)
FCC / ISED

Contents

General

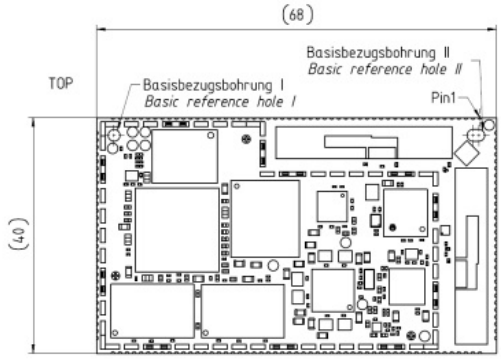
- This is an installation guide for S2 module which helps you to integrate the module in your BSH appliance. For detailed information please refer to the confidential documents “eP_SMM_S2_Module_Datasheet” (TC No. 60100005053441) and „HW Reference Manual“ (TC No. 60100005053429).
- The S2 module is designed for use inside a home appliance. It is a communication module which enables WiFi and Bluetooth communication of appliances. The integration has to be done without any changes of the module. S2 will be soldered on a carrier board inside a home appliance. No accessories exist for this module

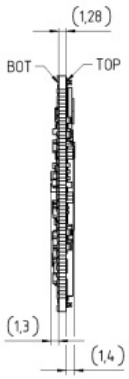
(e.g. no external antenna).

- Document Version
  – 1.0 29.09.2021 Bollinger initial Version, FCC/ISED variant
  – 1.1 13.10.2021 Bollinger removed confidential content
  – 1.2 15.12.2021 Bollinger different changes after TCB feedback
  – 1.3 01.03.2022 Bollinger different changes after TCB feedback
  – 1.4 15.09.2022 Bollinger transmission power, no. 11 deleted
  – 1.5 29.08.2023 Bollinger include S2pro (S2-V11, S2-V12…)

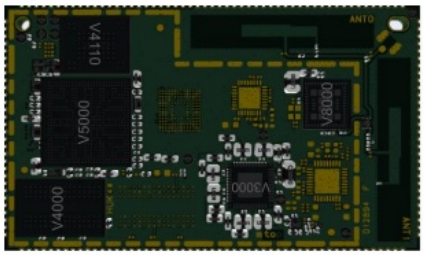
Mechanical

2.1 Board drawing

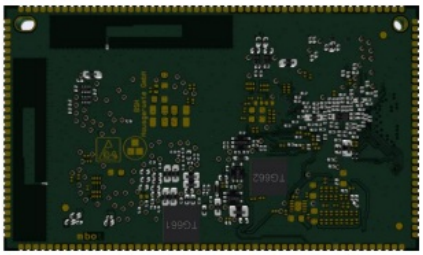




Top

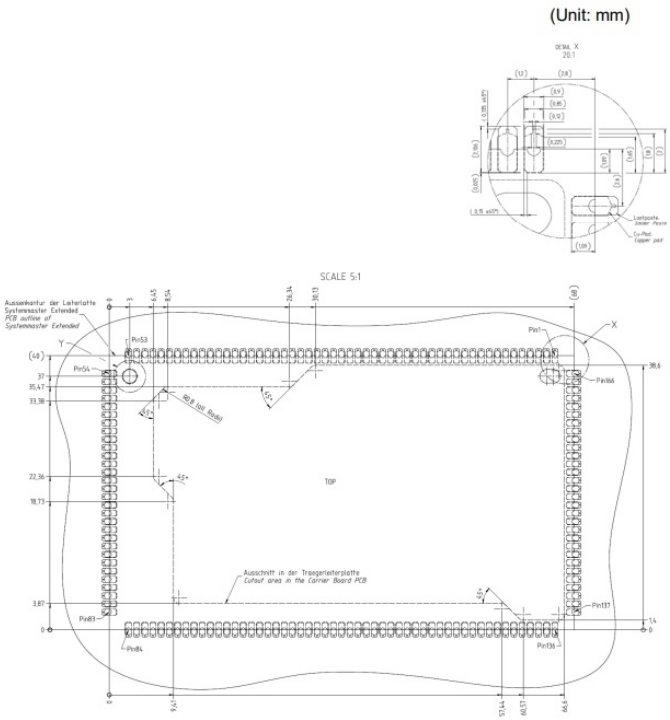


Bottom



2.2 Board footprint

The mounting dimensions of the S2 board are those shown below. The described land pattern and cutout area are parts of the carrier board PCB-layout.



General technical info

Dimensions 68 x 40 mm
Connections 166 castellated pads
Wi-Fi 802.11b/g/n/ac
BT V4.2
RF antenna diversity with 2x onboard dual-band antennas, antenna connector (not mounted in mass production)
Supply 5V
Ambient op.
temperature -20°C … +85°C
Variants:
S2-V12: base variant, without Ethernet PHY, without antenna connector, for mass production
S2-V11: with Ethernet PHY, without antenna connector, for mass production
S2-V99: development variant, with Ethernet PHY, with antenna connector, NO mass production
Further details please refer to BSH confidential documents “eP_SMM_S2_Module_Datasheet” (TC No. 60100005053441) and „HW Reference Manual“ (TC No. 60100005053429).
(Module pictures see confidential files “S2_012894-H_V11_top.jpg” and “S2_012894-H_V11_bot.jpg”)

Block Diagram

See confidential file “S2_block_diaramm_FCC_ISED.jpg”

Details of radio

5.1 WiFi Band (1/4)

- Description of use IEE802.11b/g/n 2,4 GHz
- TX frequency 2412 – 2462 MHz
- Channel band with 20 /40 MHz
- No. of channels 11
- Max output power 21,5 dBm (conducted peak)
- Antenna gain internal antenna 4,16 dBi / 4,82 dBi

- Antenna gain external antenna no external antenna
- Type of modulation CCK, DQPSK, DBPSK for DSSS, 64QAM, 16QAM, QPSK, BPSK for OFDM

The user is not able to change the country code settings or increase the output power on any unit marked with this FCC or ISED ID.

5.2 WiFi Band (2/4)

- Description of use IEE802.11n/ac 5 GHz
- TX frequency 5150 – 5350 MHz
- Channel band with 20/40/80MHz
- No. of channels 8/4/2
- Max output power 10 dBm (conducted)
- Antenna gain internal antennas 5,83 dBi / 6,84 dBi
- Antenna gain external antenna no external antenna
- Type of modulation 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM

The user is not able to change the country code settings or increase the output power on any unit marked with this FCC or ISED ID.

5.3 WiFi Band (3/4)

- Description of use IEE802.11n/ac 5 GHz
- TX frequency 5470 – 5725 MHz
- Channel band with 20/40/80 MHz
- No. of channels 12/6/3
- Max output power 10 dBm (conducted)
- Antenna gain internal antennas 5,83 dBi / 6,84 dBi
- Antenna gain external antenna no external antenna
- Type of modulation 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM

The user is not able to change the country code settings or increase the output power on any unit marked with this FCC or ISED ID.

5.4 WiFi Band (4/4)

- Description of use IEE802.11n/ac 5 GHz
- TX frequency 5725 – 5850 MHz
- Channel band with 20/40/80 MHz
- No. of channels 5/2/1
- Max output power 10,5 dBm (conducted)
- Antenna gain internal antennas 5,83 dBi / 6,84 dBi
- Antenna gain external antenna no external antenna
- Type of modulation 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM

The user is not able to change the country code settings or increase the output power on any unit marked with this FCC or ISED ID.

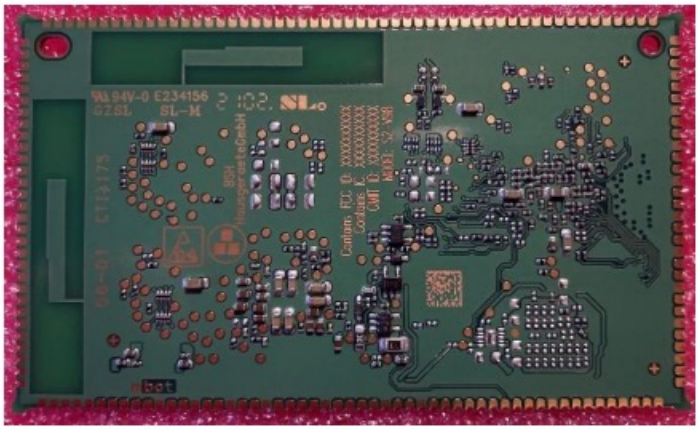
5.5 BLE

- Description of use BT version 4.2 (LE)
- TX frequency 2400 – 2483,5 MHz
- Channel band with 2 MHz
- No. of channels 40
- Typical output power 5,5 dBm
- Antenna gain internal antenna 4,16 dBi / 4,82 dBi

Software

The software of the module is designed to be updated over the air. For information according the current software version it is necessary to have the module integrated in an appliance and to use the Home Connect App.

Printing



Printing
BSH Hausgeraete GmbH
MODEL: S2
CMIIT ID: 2020TBD
CONTAINS FCC ID: 2AHES-SMB
CONTAINS IC: 21152-SMB
CE mark
The host module (HMN: Systemmaster S2“) will be marked with PMN (Model:) „S2-V11“ resp. „S2-V12“ and „Contains FCC ID: 2AHES-SMB“ und „Contains IC: 21152-SMB“
Systemmaster producer
Bosch
Robert Bosch Electronique SAS
15 Rue Charles Coulomb
14120 Mandeville
France
Jabil
Jabil Poland Sp. z o.o.
ul. Milosna 32
82-500 Kwidzyn
Poland
Labelling of the appliance
On label of the appliance following content shall be visible:
Contains FCC ID: 2AHES-SMB
Contains IC: 21152-SMB

Mounting

Mounting position limitations and carrier board recommendations Please refer to BSH confidential documents “eP_SMM_S2_Module_Datasheet” (TC No. 60100005053441) and „HW Reference Manual“ (TC No. 60100005053429).
The module is designed to be used in a mobile device which will be used in such a way that a separation distance of at least 20cm is.
Appliances only for indoor use.
Module will be integrated only by BSH and companies commissioned by BSH into appliances.
Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada’s licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference
2. This device must accept any interference, including interference that may cause undesired operation of the device..

When integrating the module into an appliance the integrator has to ensure that the appliance will comply with FCC/ISED requirements!

Safety

Safety testing of the module according to:
DIN EN 60730-1
DIN EN 60335-1
As the module is designed for use in a home appliance, it is not tested according to DIN EN 62368-1

Packing

The S2 is delivered to the factory with stacked 3×4 JEDEC tray (reusable!). Quantity will be 144 pieces per bag. (12 + 1 tray lid).
2 dry ESD bags = 288 products by carton box with a antistatic bubble wrap; carton box with separate cover (shoe box)

Packing sticker

On the box following sticker will be glued

SystemMaster S2 (Installation Guide) _ FCC_ISED V1.5

Documents / Resources

	BSH SystemMaster S2 Module [pdf] Installation Guide SystemMaster S2, SystemMaster S2 Module, Module

References

- User Manual