

SystemMaster S2

Installation Guide

FCC / ISED

Index

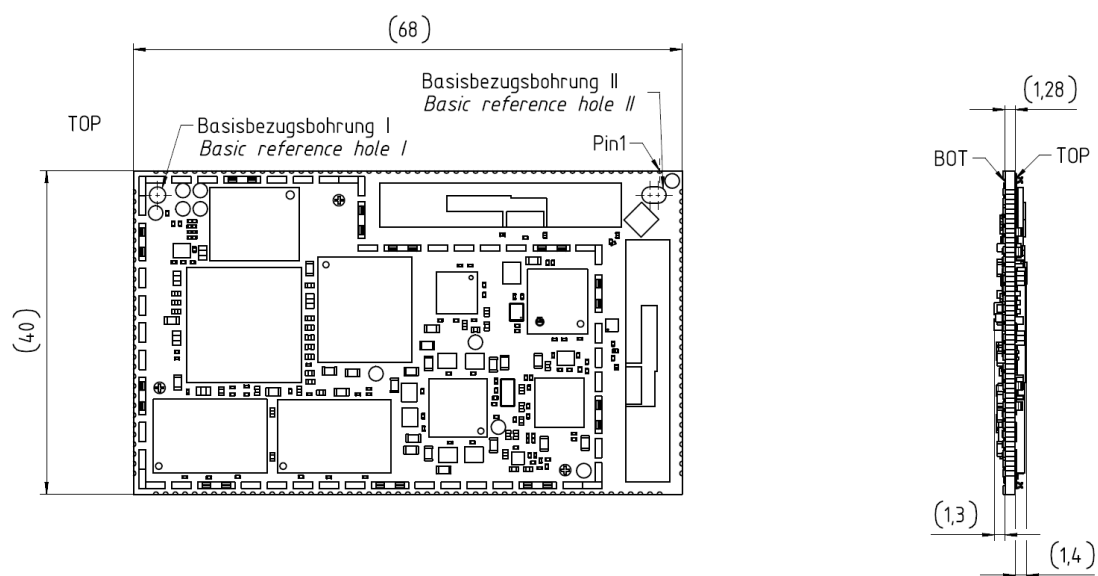
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1 General

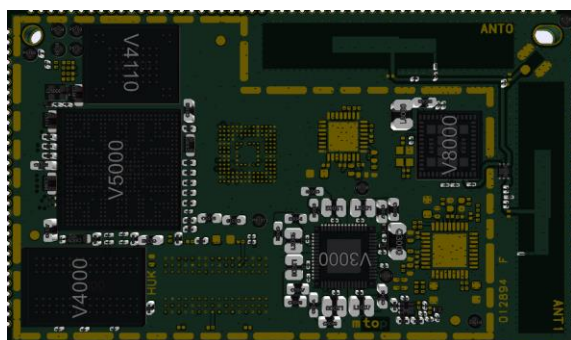
- This is an installation guide for S2 module which helps you to integrate the module in your BSH appliance. For detailed information please refer to the confidential documents “eP_SMM_S2_Module_Datasheet” (TC No. 60100005053441) and „HW Reference Manual“ (TC No. 60100005053429).
- The S2 module is designed 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

2 Mechanical

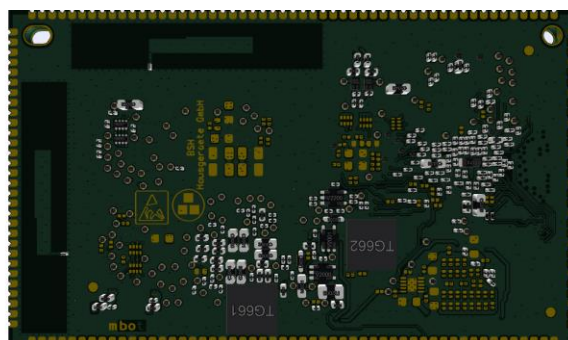
2.1 Board drawing



Top



Bottom



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.

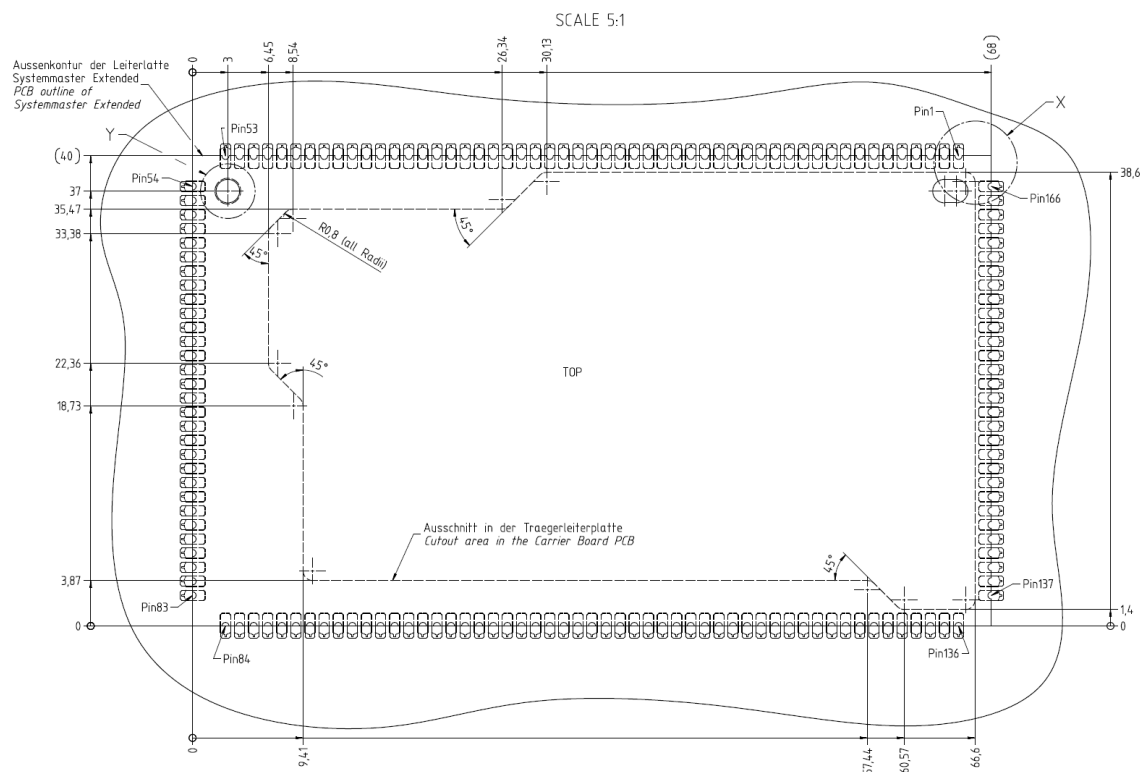
DETAIL X
20:1

Dimensions and Tolerances:

- (12)
- (2.8)
- (0.9)
- (0.85)
- (0.12)
- (0.225)
- (0.05)
- (0.15 $\pm 0.5^\circ$)
- (2.06)
- (0.05)
- (1.09)
- (2.6)
- (1.85)
- (1.8)
- (2)
- (1.09)

Labels:

- Loetpaste.
- Solder Pb/Sn
- Cu-Pad
- Copper pad



3 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-V02: base variant, without Ethernet PHY, without antenna connector, for mass production

S2-V01: with Ethernet PHY, without antenna connector, for mass production

S2-V98: 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-F_V98_top.jpg" and "S2_012894-F_V98_bot.jpg")

4 Block Diagram

See confidential file “S2_block_diagramm_FCC_ISED.jpg”

5 Details of radio

5.1 WiFi Band (1/4)

■ Description of use	IEEE802.11b/g/n 2,4 GHz
■ TX frequency	2412 – 2462 MHz
■ Channel bandwidth	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	IEEE802.11n/ac 5 GHz
■ TX frequency	5150 – 5350 MHz
■ Channel bandwidth	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	IEEE802.11n/ac 5 GHz
■ TX frequency	5470 – 5725 MHz
■ Channel bandwidth	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	IEEE802.11n/ac 5 GHz
■ TX frequency	5725 – 5850 MHz
■ Channel bandwidth	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 bandwidth	2 MHz
■ No. of channels	40
■ Typical output power	5,5 dBm
■ Antenna gain internal antenna	4,16 dBi / 4,82 dBi

6 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.

7 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-V01“ resp. „S2-V02“ and „Contains FCC ID: 2AHES-SMB“ und „Contains IC: 21152-SMB“

Systemmaster producer

Bosch

Robert Bosch Electronique SAS
15 Rue Charles Coulomb
14120 Mondeville
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

8 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..*

Cet appareil contient des émetteurs / récepteurs exemptés de licence conformes aux RSS (RSS) d'Innovation, Sciences et Développement économique Canada. Le fonctionnement est soumis aux deux conditions suivantes:(1) Cet appareil ne doit pas causer d'interférences(2) Cet appareil doit accepter toutes les interférences, y compris celles susceptibles de provoquer un fonctionnement indésirable de l'appareil.

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

9 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

10 Packing

The S2 is delivered to the factory with stacked 3x4 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

N° Produit (P) 8001155353		 BOSCH																																	
Quantité (Q) 288		Produit SMM EXT ST V02																																	
Fournisseur / Usine (V) 0000440335		Référence fournisseur (30S) 1038308620600																																	
N° d'étiquette (S) 368205039		Date (yy.mm.dd) 09:18 P 19.05.28																																	
Robert Bosch (France) SAS BP41 14125 Mondeville Cedex		Etat de modification, construction *																																	
N° Lot (H)		<table border="1"> <tr> <td>BE</td><td>BG</td><td>CZ</td><td>DK</td><td>DE</td><td>EE</td><td>IE</td><td>EL</td> </tr> <tr> <td>ES</td><td>FR</td><td>HR</td><td>IT</td><td>CY</td><td>LV</td><td>LT</td><td>LU</td> </tr> <tr> <td>HU</td><td>MT</td><td>NL</td><td>AT</td><td>PL</td><td>PT</td><td>RO</td><td>SI</td> </tr> <tr> <td>SK</td><td>FI</td><td>SE</td><td>UK</td><td>NO</td><td>CH</td><td>TR</td><td></td> </tr> </table>		BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK	NO	CH	TR	
BE	BG	CZ	DK	DE	EE	IE	EL																												
ES	FR	HR	IT	CY	LV	LT	LU																												
HU	MT	NL	AT	PL	PT	RO	SI																												
SK	FI	SE	UK	NO	CH	TR																													
Transport Label Odette Ver. 1 Rev. 5		Made In France																																	