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SK-RF CO.,Ltd

DATASHEET

SK201E Module Datasheet

Contactless Gigabit Ethernet Connection

Document Type	Product Datasheet
Applicable Product	SK201E
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Document Summary: Describes the functions, interfaces, mounting dimensions, electrical parameters and auto-negotiation requirements of the SK201E contactless Gigabit Ethernet module for product selection and system integration.

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1 Product Overview

The SK201E is a contactless Gigabit Ethernet connection module built around the ST60A2 millimeter-wave transceiver. It integrates an SKA2P1 RF module, a PCB patch antenna and a Gigabit Ethernet physical-layer transceiver (PHY).The module converts Ethernet signals to 60 GHz millimeter-wave signals. Two modules are installed with their antenna faces opposite each other, providing bidirectional full-duplex data transfer over a short-range wireless link. External Ethernet equipment connects through the RJ45 port.

The external interfaces comprise an RJ45 Ethernet port and an XHB-2P DC power connector.

2 Features

- 60 GHz V-band millimeter-wave communication using an SKA2P1 RF module and a PCB patch antenna.
- Short-range contactless Gigabit Ethernet connection; the recommended installation gap is less than 10 mm.
- Maximum transmission distance in air: approximately 50 mm.
- Full-duplex communication with the antenna faces opposite each other and aligned.
- RJ45 Ethernet port with auto-negotiation.
- Two modules operate as a pair; both wired ports must negotiate the same link speed.

3 Applications

- Modular LED displays and video walls.
- Video-surveillance cameras and robotic equipment.
- Contactless Ethernet applications.

4 Block Diagram and Appearance



Figure 1. SK201E paired connection block diagram

The module uses an XHB-2P DC power connector.

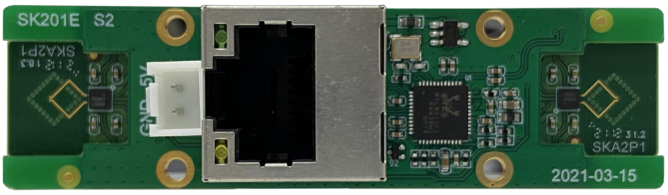

Figure 2. SK201E module top-side photograph

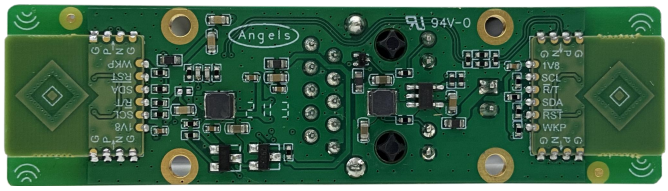

Figure 3. SK201E module bottom-side photograph

5 Interface Definitions

Table 1. Interface definitions

Interface / Pin	Description
RJ45	Wired Ethernet port
XH 2P / 1	5 V power input
XH 2P / 2	Power ground (GND)

XHB 2P in the dimension drawing identifies the two-pin power connector described above. Check polarity against the pin numbers before connecting power.

6 Electrical Characteristics

Table 2 lists recommended supply conditions and typical current consumption and power dissipation are listed below.

Table 2. Power-supply parameters

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{IN}	Input voltage	3.5	5	5.5	V
I_{IN}	Input current	-	0.12	-	A
P	Total power consumption	-	0.6	-	W

Note: Input current and total power dissipation are typical values.

Table 3. RF parameters

Symbol	Parameter	Min.	Typ.	Max.	Unit
F_{OSC}	Carrier frequency	-	60.6	-	GHz

Table 4. Operating ambient temperature

Symbol	Parameter	Min.	Typ.	Max.	Unit
T_A	Operating ambient temperature	0	-	+70	°C

7 Auto-Negotiation

The Ethernet PHY supports 10, 100 and 1000 Mbit/s, with auto-negotiation always enabled. Each module negotiates independently with the equipment connected to its local RJ45 port. When the modules operate as a pair, both wired ports must negotiate the same link speed.

For example, if one end connects to equipment operating only at 100 Mbit/s, configure the equipment at the other end to negotiate 100 Mbit/s as well. Confirm the actual link speed at both ends after connection.

8 Assembly Instructions

The module PCBA mounting dimensions are shown below. Dimensions are in mm. TOP and BOTTOM identify the top and bottom views; Metal and Plastic identify the respective enclosure materials.

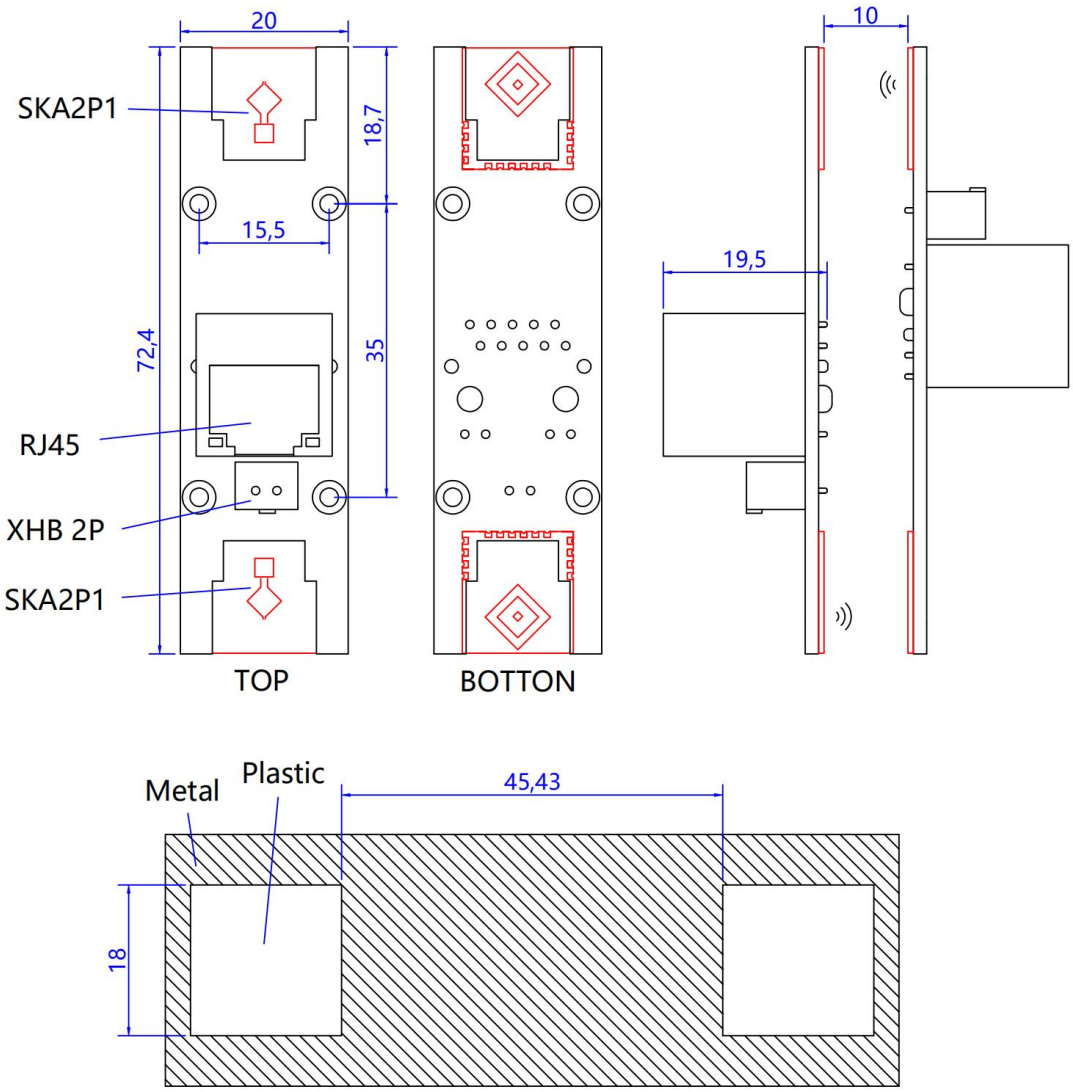

Figure 4. SK201E mounting dimensions and enclosure window (unit: mm)

Assembly requirements:

(1) For a metal enclosure, provide a window for the millimeter-wave signals. The window may be filled with plastic or another material suitable for millimeter-wave transmission. Keep metal out of the wireless propagation path.

(2) Module spacing depends on the data rate and assembly environment; a gap of less than 10 mm is recommended. Install the modules with their antenna faces opposite each other and aligned.

9 Product Model

Table 5. Product Models

Product Models	Description
SK201E	Contactless Gigabit Ethernet connection module using an SKA2P1 RF module and a PCB patch antenna, with an RJ45 port and XHB-2P DC power input.

10 Revision History

Date	Revision	Description of Changes
2019-11-11	V1.3	Initial draft, based on SK20x_SPEC_1.3.
2020-04-03	V1.4	Added temperature-range information.
2021-03-17	V1.5	Updated PCB mounting instructions.
2026-11-03	V1.6	(1) Prepared the English datasheet from the reviewed Chinese edition and organized the product overview and descriptions of the SKA2P1 RF module and PCB patch antenna. (2) Expanded the RJ45 Ethernet interface, independent auto-negotiation and speed-matching requirements, retaining the installation-gap and operating-temperature descriptions. (3) Separated power-supply and carrier parameters; standardized parameter names, symbols and table formatting; organized the contents, assembly drawings and revision descriptions. (4) Equalized the Min., Typ. and Max. columns while retaining all values, conditions, units, font sizes and standard row spacing. (5) Arranged revisions from oldest to newest, retaining the original dates, revision numbers and historical changes. (6) Standardized chapter names and outline order against the reviewed product documents, retaining model-specific functions and detailed instructions; updated the contents, figure/table numbering and internal references. Listed applications individually using the original datasheet. (7) Moved Assembly Instructions immediately before Product Models and updated chapter numbers, figure/table numbering, contents and internal references. (8) Refined the product overview to integrate the chipset platform naturally into the module, antenna and functional descriptions, retaining model-specific capabilities, pairing requirements and parameters. (9) Standardized chapter names, order and content allocation using the common outline, retaining technical descriptions and illustrations; updated the contents, figure/table numbering and internal references. (10) Prepared and checked this English edition against the current Chinese edition, preserving numbered items, parameters, illustrations, commands and operating instructions.