

User Manual

1. Scope

1.1. This component is installed on the main body of Kohler electronic bathroom products and communicates wirelessly with the new generation remote control or intelligent terminal developed by Kohler's Next Generation project.

1.2. This specification sheet is applicable to the following products:

P/N.	Description	Remark
1649103	2.4G&BLE dual-mode PCBA	NEXT GEN Dual-mode module PCBA

2. Standards and certification requirements

2.1. RF standard: Complies with EN300328 standard.

2.2. Comply with certification requirements such as SRRC, FCC/IC, CE-RED, etc.

2.3. Compliant with Bluetooth BQB certification requirements.

2.4. All materials must comply with the Kohler Product Environmental Policy Restricted Materials List PEP-RML-001.

3. Working parameters

3.1. Environmental requirements

3.1.1. Working temperature: -10 °C to 55 °C.

3.1.2. Storage temperature: -40 °C to 75 °C.

3.1.3. Relative humidity: RH98% or below is non condensing.

3.2. Rated operating voltage: 2.7-5.5 Vdc.

3.3. Interface communication parameters

3.3.1. UART serial port.

3.3.2. Baud rate: 38400.

3.3.3. Data format: 8-bit, 1 stop bit, no parity check.

3.4. RF parameters

3.4.1. Operating frequency band: 2.4 GHz ISM frequency band (2400MHz~2483.5MHz).

3.4.2. Modulation method: GFSK.

3.4.3. Transmission power: 0dBm.

3.4.4. Air interface speed: 2.4G 2000Kps, BLE 1000Kbps.

3.4.5. Support frequency hopping.

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4. Communication function and performance requirements

- 4.1. Implement transparent transmission of communication data.
- 4.2. Support pairing (secure authentication) between remote control devices and the main device.
- 4.3. Effective communication distance: greater than 15 meters (in single-mode group state).
- 4.4. Support remote control devices to control and operate the functions of the main body.
- 4.5. Support intelligent terminals to simulate remote control through APP to achieve more complex applications on the main body, including function control and parameter setting.
- 4.6. Support intelligent terminals to achieve fault diagnosis function on the main body through APP.
- 4.7. Support intelligent terminal APP and achieve OTA upgrade of the following firmware:
 - 4.7.1. Firmware for wireless communication components on the main body.
 - 4.7.2. Firmware of the control board on the main body side (provided that the firmware of the control board on the main body side also supports this function).
- 4.8. Bluetooth communication supports transparent transmission and encryption (see the "Communication Protocol between Smartphone APP and Host" document for details).

5. Mechanical, process and installation requirements

- 5.1. Dimensions of components: meet the definition in drawing 1213210.
- 5.2. Electrical interface of components (terminal function definition)

Sign	Describe	Terminal sequence number		Notes
		5PIN version	6PIN version	
GND	Grounds	5	2	
VCC	power supply	4	1	Supply voltage 2.7V~5.5V
TX	Module sending pin	3	5	3.3V level or 5V level
RX	Module receiving pin	2	6	3.3V level or 5V level
STATUS	Status output pin	1	4	3.3V level or 5V level
-	-	-	3	-

Note: Status function definition, high level (BLE disconnected state) (default), low level (BLE connected state).

- 5.3. The PCBA of the component needs to be filled with adhesive, which must meet the Class E requirements of the General Technical Standard for Circuit Board (PCBA) Components (CNING031W1).
- 5.4. Component installation requirements: During the installation of the entire machine, it is necessary to ensure that the PCBA surface of the component is placed perpendicular to the horizontal plane.

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Notice :

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) this device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radioexempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Warning: changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Antenna type:	Frequency:	Brand:	Antenna Gain:
PCB Antenna	2405-2470MHz	Kohler	-1.65dBi
PCB Antenna	2402-2480MHz	Kohler	-1.65dBi

Please notice that if the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. For FCC, this exterior label should follow "Contains FCC ID: N82-KOHLER060". In accordance with FCC KDB guidance 784748 Labeling Guidelines. For IC, this exterior label can use wording "Contains IC: 4554A-KOHLER060".

The device has an integrated trace antenna.so host manufacturer can not change antenna.

RF Exposure compliance statement

This Module complies with FCC radiation exposure limits set forth for an uncontrolled environment. Co-location of this module with other transmitters that operate simultaneously are required to be evaluated using the FCC multi-transmitter procedures.

The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install module.

This modular transmitter is only FCC authorized for the specific rule parts listed on our grant, host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification.

Host manufacturer in any case shall ensure host product which is installed and operating with the module is in compliant with Part 15B requirements.

Please note that For a Class B or Class A digital device or peripheral, the instructions furnished the user manual of the end-user product shall include statement set out in §15.105 *Information to the user* or such similar statement and place it in a prominent location in the text of host product manual. Original texts as following:

For Class B

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to

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try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.*
- Increase the separation between the equipment and receiver.*
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- Consult the dealer or an experienced radio/TV technician for help.*

For Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

- End of Document -