BOSCH

Troubleshooting Guide

Inverter Ducted Split System Heat Pump

Bosch IDS Gateway

IDS Condensing Units

BTC 762002302 A / 08.2024

AHRI CERTIFIED
www.ahridirectory.org
Unitary Small HP
AHRI Standard 210/240
Certification applies only when the complete system is listed with AHRI.

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Intertek

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1 Key to Symbols and Safety Instructions

1.1 Key to Symbols

Warnings

In warnings, signal words at the beginning of a warning are used to indicate the type and seriousness of the ensuing risk if measures for minimizing danger are not taken.

The following keywords are defined and can be used in this document:

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor to moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

Important information

The info symbol indicates important information where there is no risk to people or property.

1.2 Safety

Please read before proceeding

NOTICE

FCC compliance!

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 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.

WARNING

Personal injury, product damage!

This information is intended for use by individuals possessing adequate backgrounds of electrical and mechanical experience. Any attempt to repair a central air conditioning product may result in personal injury and/or property damage.

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.

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

NOTICE

ISED compliance!

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.

WARNING

RF exposure!

This equipment complies with FCC/ISED RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 8 inches (20 centimeters) between the antenna and your body.

WARNING

Contains lead!

This product can expose you to chemicals including Lead and Lead components, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www. P65Warnings.ca.gov.

NOTICE

ICES statement!

CAN ICES-3 (B)/NMB-3 (B).

This Class B digital apparatus complies with Canadian ICES-003.

2 General Information

Refer to the troubleshooting charts and associated figures on the following pages for assistance in determining the source of unit operational problems. Different error codes will be displayed via the LEDs on the gateway, which correspond to different errors. Refer to troubleshooting sections for proper steps.

2.1 Gateway Firmware Update

When there is an updated firmware available the gateways will automatically update at midnight. When the unit is first powered ON, the gateway will automatically initiate a firmware update if available. Also, anytime the gateway is Factory Reset a firmware update will be performed if available. During a firmware update the gateway will be locked out and the following LED behavior can be observed.

Please do not disconnect power to the unit during an update. The update process will typically take 6 minutes but can take up to an hour.

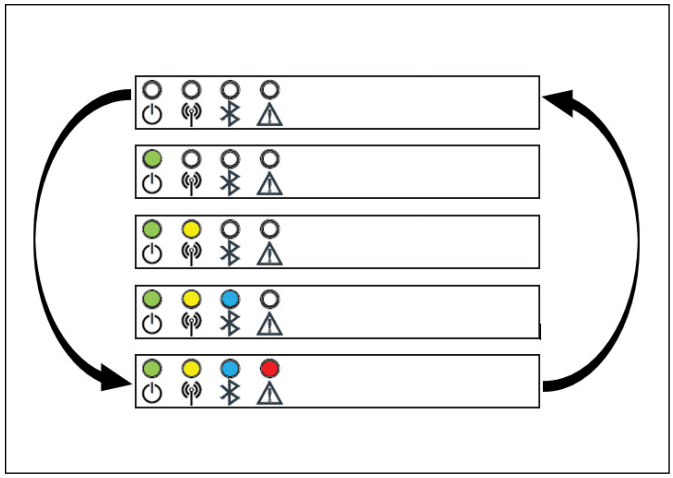


Figure 1

2.2 Gateway Normal Booting Sequence

The gateway will undergo the following behavior when it's powered ON or is being reset.

This behavior will typically persist for a minute but could take up to 25 minutes.

Icon	Icon Description	LED Behavior	Description
	Power (Green LED)	Flashing twice/second	Gateway is booting
	Cellular (Amber LED)	OFF	Cellular not connected
	Bluetooth (Blue LED)	OFF	Bluetooth is off
	Gateway Fault (Red LED)	OFF	Gateway has no errors

Table 1

2.3 Gateway Normal Operation

The following LED behavior is normal and indicates the gateway is fully functional.

Icon	Icon Description	LED Behavior	Description
	Power (Green LED)	ON	Gateway is powered on
	Cellular (Amber LED)	ON	Good signal strength detected
	Bluetooth (Blue LED)	OFF FLASHING ON	Bluetooth is off Bluetooth is in pairing mode Bluetooth is on
	Gateway Fault (Red LED)	OFF	Gateway has no errors

Table 2

2.4 Gateway Abnormal Operation (No Action Required)

If the gateway is not demonstrating the behavior described in “Gateway Normal Operation”, the gateway could be experiencing certain non-critical issues.

The gateway and control board will continue to function normally when experiencing the following non-critical issues.

2.4.1 Abnormal Voltage

Icon	Icon Description	LED Behavior	Description	Possible Causes	Corrective Measures
	Power (Green LED)	Flashing once/second	Abnormal Voltage detected with the gateway	1. Issue with heat pump control board 2. Voltage supplied from control board is out of recommended range	1. Verify voltage to the IDS outdoor unit. 2. If the issue persists then replace the IDS outdoor unit control board.

Table 3

2.4.2 Poor Signal Strength

Icon	Icon Description	LED Behavior	Description	Possible Causes	Corrective Measures
	Cellular (Amber LED)	Flashing once/2 seconds	Poor signal strength detected	Cellular signal may be momentarily weak	No corrective measures required. The gateway will operate normally

Table 4

2.5 Connecting via Bluetooth

Please see the Bosch EasyAir app for instructions on connecting your phone to the Gateway. On the Bosch EasyAir app, navigate to the “Unit Dashboard” and follow the instructions on the “System Data” tab.
You will be required to press and hold the “Connect” button on the gateway for at least 4 seconds to put the gateway in Pairing Mode. Once in pairing mode press the “Connect” button on the Bosch EasyAir app to view on-site unit data.

2.5.1 Bluetooth Modes

Icon	Icon Description	LED Behavior	Mode	Description
	Bluetooth (Blue LED)	OFF	Standby Mode	Bluetooth is off. Gateway is not discoverable.
		Flashing once/second	Pairing Mode	Gateway is discoverable and ready to connect to a phone
		ON	Connected Mode	Gateway is connected to a phone via Bluetooth
		Flashing twice/second	Advertising Mode	Phone has been disconnected via Bluetooth but can be reconnected automatically via the Bosch EasyAir app.

Table 5

3 Gateway Fault Codes (Action Required)

A flashing red LED represents a fault with the gateway. The LED flash cycle includes a 2 second pause after the flash(es). The following codes correspond to possible issues the device may be experiencing.

Icon	Icon Description	LED Behavior	Description	Possible Causes	Corrective Measures	Note
	Gateway Fault (Red LED)	1 blink/ cycle	No Modbus Response from IDS control board	1. Loose or damaged wiring between gateway and heat pump control board. 2. Loose connector on heat pump control board. 3. Unsupported/corrupted firmware on heat pump control board. 4. WiFi/SW1 button on heat pump control board toggled.	1. Ensure all gateway connections are tight and secure. Check CN11 port. (See Wiring Diagram in Appendix) 2. Try resetting the gateway, starting with Soft Reset. 3. Press and hold the WiFi/SW1 button for 5 seconds, then restart the gateway. (See Wiring Diagram in Appendix)	1. If the issue persists, replace the gateway assembly. (Refer to Gateway Replacement Instructions) 2. If the issue persists after replacing the gateway assembly, a control board replacement may be required.
		2 blink/ cycle	Unacceptable Signal Strength detected	1. Loose cable connections at the control board 2. Loose cable connections between antenna and the gateway 3. Antenna may be mounted incorrectly 4. The device may be located in a poor 4G coverage area	1. Ensure all gateway and antenna connections are tight and secure. Check CN11 port and SMA port (See Wiring Diagram in Appendix) 2. Reposition antenna furthest away from the building/wall. (Refer to Antenna mounting Instruction) 3. Try resetting the gateway, starting with Soft Reset	1. If the issue persists, call Bosch customer support. 2. If the issue persists, gateway assembly replacement may be required. (Refer to Gateway Replacement Instructions)
		3 blink/ cycle	Device was unable to send data packets to the cloud the previous night	1. Service may be momentarily down	1. Try Resetting the gateway, starting with Soft Reset 2. If the issue persists after resetting, wait 24hr and recheck.	1. If the issue persists after 24hrs, contact Bosch customer service. 2. If the issue persists, gateway assembly replacement may be required. (Refer to Gateway Replacement Instructions)
		4 blink/ cycle	Error with the gateway hardware	Gateway may have a manufacturing defect	Try Resetting the gateway, starting with Soft Reset	If the issue persists, replace the gateway assembly. (Refer to Gateway Replacement Instructions)
		5 blink/ cycle	Error with the cellular com-munication	Gateway may have a manufacturing defect	Try Resetting the gateway, starting with Soft Reset	If the issue persists, replace the gateway assembly. (Refer to Gateway Replacement Instructions)

Table 6

When experiencing a gateway fault, the fi rst step is always to perform a Soft Reset on the gateway. If the issue is not resolved perform a Hard Reset followed by a Factory Reset as needed. (See “Resetting the Gateway”).

3.1 Resetting the Gateway

The following LED behavior is normal and indicates the gateway is fully functional.

Reset Type	Procedure
Soft Reset	1. Power unit **ON** 2. Press and hold the "**Reset**" button on the gateway for 3 seconds.
Hard Reset	1. Power unit **OFF** 2. Unplug the gateway from **CN11** port. (See Wiring Diagram in Appendix) 3. Wait for **15 seconds**. 4. Reconnect gateway at **CN11** port. 5. Power unit **ON**
Factory Reset	1. Power unit **ON** 2. Hold the "**Factory**" button on the gateway for at least **10 seconds**.

Table 7

Appendix

Gateway Functionality

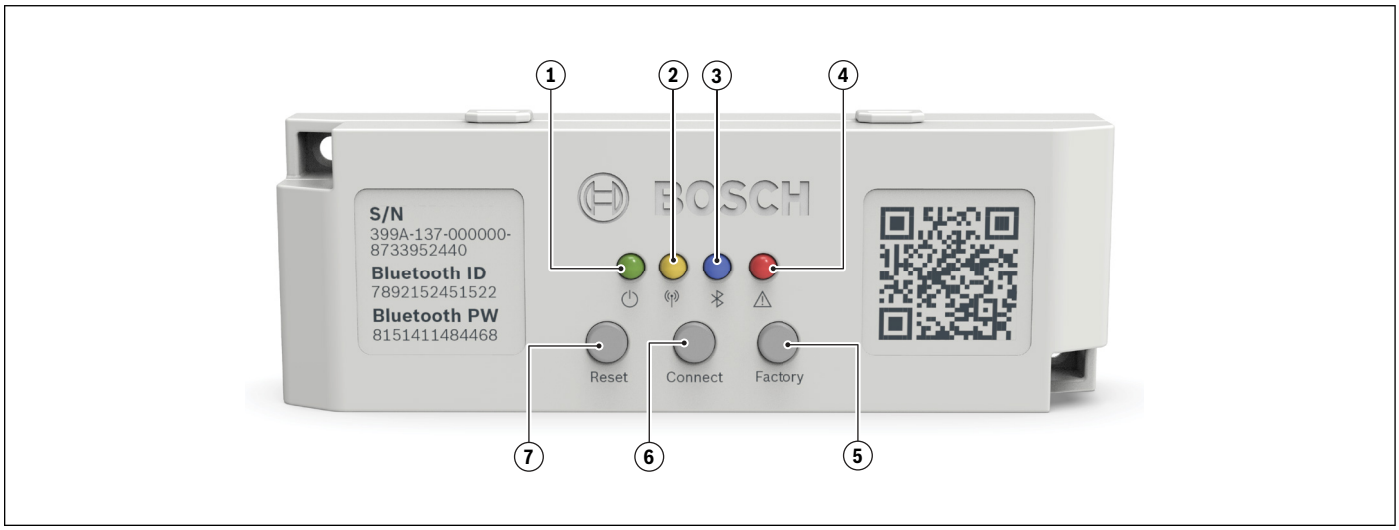
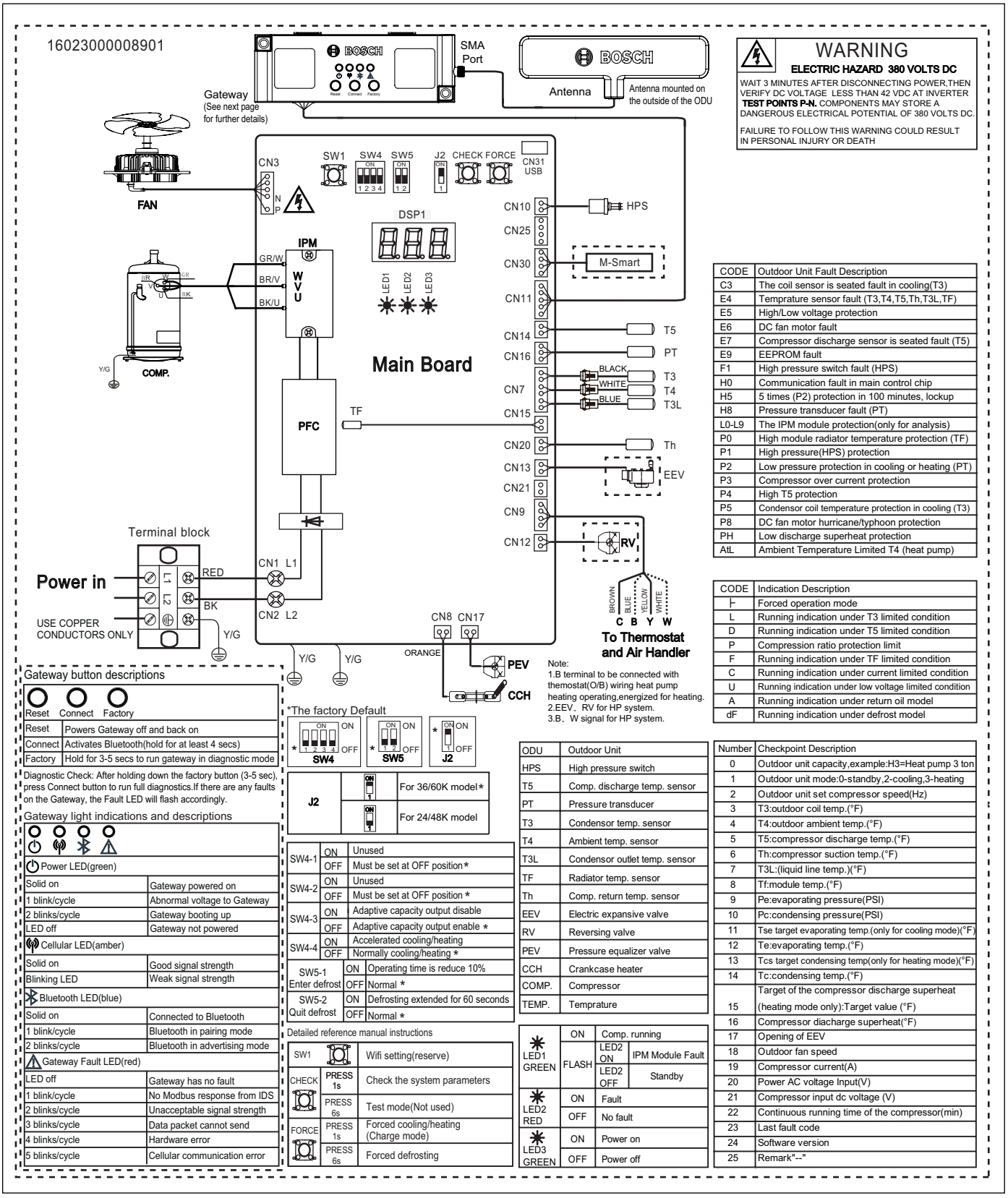


Figure 2

1. Power LED
2. Cellular LED
3. Bluetooth LED
4. Fault LED
5. Factory (Diagnostic) Button
6. Connect (Bluetooth) Button
7. Reset Button

The Gateway Assembly includes the Gateway and Antenna, along with associated wiring harness and clips.

Wiring Diagram for IDS Premium Connected - R410A



Note:
1.B terminal to be connected with themostat(O/B) wiring heat pump heating operating,energized for heating.
2.EEV、RV for HP system.
3.B、W signal for HP system.

CODE	Outdoor Unit Fault Description
C3	The coil sensor is seated fault in cooling(T3)
E4	Temprature sensor fault (T3,T4,T5,Th,T3L,TF)
E5	High/Low voltage protection
E6	DC fan motor fault
E7	Compressor discharge sensor is seated fault (T5)
E9	EEPROM fault
F1	High pressure switch fault (HPS)
H0	Communication fault in main control chip
H5	5 times (P2) protection in 100 minutes, lockup
H8	Pressure transducer fault (PT)
L0-L9	The IPM module protection(only for analysis)
P0	High module radiator temperature protection (TF)
P1	High pressure(HPS) protection
P2	Low pressure protection in cooling or heating (PT)
P3	Compressor over current protection
P4	High T5 protection
P5	Condensor coil temperature protection in cooling (T3)
P8	DC fan motor hurricane/typhoon protection
PH	Low discharge superheat protection
AtL	Ambient Temperature Limited T4 (heat pump)

CODE	Indication Description
⊢	Forced operation mode
L	Running indication under T3 limited condition
D	Running indication under T5 limited condition
P	Compression ratio protection limit
F	Running indication under TF limited condition
C	Running indication under current limited condition
U	Running indication under low voltage limited condition
A	Running indication under return oil model
dF	Running indication under defrost model

Gateway button descriptions

Reset	Connect	Factory
Reset	Powers Gateway off and back on	
Connect	Activates Bluetooth(hold for at least 4 secs)	
Factory	Hold for 3-5 secs to run gateway in diagnostic mode	

Diagnostic Check: After holding down the factory button (3-5 sec), press Connect button to run full diagnostics.If there are any faults on the Gateway, the Fault LED will flash accordingly.

Gateway light indications and descriptions

Power LED(green)	
Solid on	Gateway powered on
1 blink/cycle	Abnormal voltage to Gateway
2 blinks/cycle	Gateway booting up
LED off	Gateway not powered
Cellular LED(amber)	
Solid on	Good signal strength
Blinking LED	Weak signal strength
Bluetooth LED(blue)	
Solid on	Connected to Bluetooth
1 blink/cycle	Bluetooth in pairing mode
2 blinks/cycle	Bluetooth in advertising mode
Gateway Fault LED(red)	
LED off	Gateway has no fault
1 blink/cycle	No Modbus response from IDS
2 blinks/cycle	Unacceptable signal strength
3 blinks/cycle	Data packet cannot send
4 blinks/cycle	Hardware error
5 blinks/cycle	Cellular communication error

*The factory Default

SW4 SW5 J2

J2		
	ON 1	For 36/60K model*
	ON 1	For 24/48K model

SW4-1	ON	Unused
	OFF	Must be set at OFF position*
SW4-2	ON	Unused
	OFF	Must be set at OFF position *
SW4-3	ON	Adaptive capacity output disable
	OFF	Adaptive capacity output enable *
SW4-4	ON	Accelerated cooling/heating
	OFF	Normally cooling/heating *
SW5-1 Enter defrost	ON	Operating time is reduce 10%
	OFF	Normal *
SW5-2 Quit defrost	ON	Defrosting extended for 60 seconds
	OFF	Normal *

Detailed reference manual instructions

SW1		Wifi setting(reserve)
CHECK	PRESS 1s	Check the system parameters
	PRESS 6s	Test mode(Not used)
FORCE	PRESS 1s	Forced cooling/heating (Charge mode)
	PRESS 6s	Forced defrosting

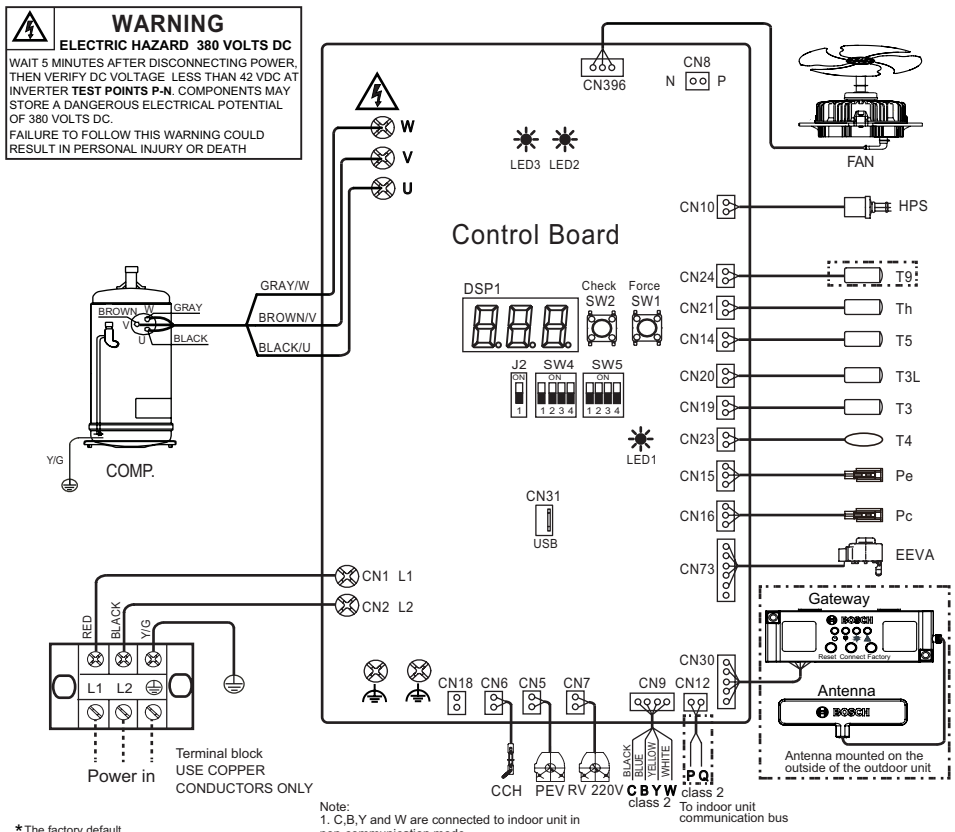
ODU	Outdoor Unit
HPS	High pressure switch
T5	Comp. discharge temp. sensor
PT	Pressure transducer
T3	Condensor temp. sensor
T4	Ambient temp. sensor
T3L	Condensor outlet temp. sensor
TF	Radiator temp. sensor
Th	Comp. return temp. sensor
EEV	Electric expansive valve
RV	Reversing valve
PEV	Pressure equalizer valve
CCH	Crankcase heater
COMP.	Compressor
TEMP.	Temprature

LED1 GREEN	ON	Comp. running	
	FLASH	LED2 ON	IPM Module Fault
		LED2 OFF	Standby
LED2 RED	ON	Fault	
	OFF	No fault	
LED3 GREEN	ON	Power on	
	OFF	Power off	

Number	Checkpoint Description
0	Outdoor unit capacity,example:H3=Heat pump 3 ton
1	Outdoor unit mode:0-standby,2-cooling,3-heating
2	Outdoor unit set compressor speed(Hz)
3	T3:outdoor coil temp.(°F)
4	T4:outdoor ambient temp.(°F)
5	T5:compressor discharge temp.(°F)
6	Th:compressor suction temp.(°F)
7	T3L:(liquid line temp.)(°F)
8	Tf:module temp.(°F)
9	Pe:evaporating pressure(PSI)
10	Pc:condensing pressure(PSI)
11	Tse target evaporating temp.(only for cooling mode)(°F)
12	Te:evaporating temp.(°F)
13	Tcs target condensing temp(only for heating mode)(°F)
14	Tc:condensing temp.(°F)
15	Target of the compressor discharge superheat (heating mode only):Target value (°F)
16	Compressor diacharge superheat(°F)
17	Opening of EEV
18	Outdoor fan speed
19	Compressor current(A)
20	Power AC voltage Input(V)
21	Compressor input dc voltage (V)
22	Continuous running time of the compressor(min)
23	Last fault code
24	Software version
25	Remark"--"

Figure 3

Wiring Diagram for IDS Premium Connected - R454B



LED1 GREEN	Solid ON	Main board powered on
	OFF	Power off
LED2 RED	Solid ON	Compressor running
	2s ON 2s OFF	Standby
	0.2s ON 0.2s OFF	Communication fault with main control chip
	Blink	Driver fault
	OFF	Power off
LED3 RED	Solid ON	Fan running
	2s ON 2s OFF	Standby
	0.2s ON 0.2s OFF	Communication fault with main control chip
	Blink	Driver fault
	OFF	Power off

HPS	High pressure switch
Pc	High pressure sensor
Pe	Low pressure sensor
T4	Ambient temp. sensor
T3	Outdoor coil temp. sensor
T3L	Outdoor coil outlet temp. sensor
EEVA	A electronic expansion valve
T5	Comp. discharge temp. sensor
Th	Comp. suction temp. sensor
RV	Reversing valve
CCH	Compressor crankcase heating
PEV	Pressure equalizer valve
COMP.	Compressor
Temp.	Temperature
T9	Reserved

CODE	Fault description
AtL	Ambient Temperature Limited(T4)
b2	Temperature sensor fault in indoor unit (T2)
b3	R454B refrigerant sensor fault in indoor unit
b4	R454B refrigerant sensor communication fault in indoor unit
b5	Communication fault between indoor unit and outdoor unit
b7	R454B refrigerant leakage protection in indoor unit
b8	R454B refrigerant sensor over service life in indoor unit
C3	The coil sensor is seated fault in cooling (T3)
E41	Temperature sensor fault（T3）
E42	Temperature sensor fault（T3L）
E43	Temperature sensor fault（T4）
E44	Temperature sensor fault（T5）
E45	Temperature sensor fault（Th）
E51	Outdoor unit high/low input voltage protection
E52	Outdoor unit high/low DC bus voltage protection
E7	Compressor discharge sensor is seated fault (T5)
E81	EEVA coil fault
EA	Control program does not match drive program in outdoor unit
F1	High pressure switch protection (HPS)
F2	5 times (P21) protection in 100 minutes, system lockout
F41	High pressure sensor fault
F42	Low pressure sensor fault
H01	Drive chip Communication fault in outdoor unit
J00-JCF	Compressor drive fault
n00-nCF	Fan drive fault
P0	Compressor IPM temperature protection(TF)
P1	High pressure switch protection (HPS)
P11	High pressure protection in cooling/heating (Pc)
P21	Low pressure protection in cooling/heating (Pe)
P31	Outdoor unit input over current protection
P32	Compressor over current protection
P4	High compressor discharge temperature protection (T5)
P5	Condensor coil temperature protection in cooling (T3)
PH	Low discharge superheat protection

CODE	Description
⊢	Forced operation mode
‾(top)	Running indication under high pressure
_(bottom)	Running indication under low pressure
A	Running indication under return oil mode
C	Running indication under current limited condition
d	Running indication under T5 limited condition
F	Running indication under COMP. IPM Temp. limited condition
r	Running indication under compressor ratio limited condition
U	Running indication under low voltage limited condition
dF	Running indication under defrost mode

*The factory default

SW4 SW5 J2

J2 Set capacity	ON 1 OFF	For 36/60K model *
	ON 1 OFF	For 24/48K model

SW4-1	ON	Unused
	OFF	Reserved *
SW4-2	ON	Accelerated cooling/heating
	OFF	Normal *
SW4-3	ON	Accelerated cooling/heating 2
	OFF	Normal *
SW4-4	ON	Adaptive capacity output disable
	OFF	Normal *
SW5-1	ON	Heating time reduced 10%
	OFF	Normal *
SW5-2	ON	Defrosting extended for 120 seconds
	OFF	Normal *
SW5-3	ON	Reserved
	OFF	Normal *
SW5-4	ON	Communication mode
	OFF	Non-communication mode *

Detailed reference manual instructions

FORCE SW1	PRESS 1s	Forced cooling/heating (Charge mode)
	PRESS 6s	Forced defrosting
CHECK SW2	PRESS 1s	Check the system parameters
	PRESS 6s	Test mode (Not used)

Note:
1. C,B,Y and W are connected to indoor unit in non-communication mode.
2. B terminal is connected in heat pump heating operation,energized for heating.
3. B and W signals are for heat pump system.
4. Dash-dotted line means optional.
5. Dotted line means field installed.
6. P and Q are connected to indoor unit in communication mode.

Gateway button descriptions

Reset	Connect	Factory
Reset	Powers gateway off and back on	
Connect	Activates bluetooth(hold for at least 4 secs)	
Factory	Hold for 3-5 secs to run gateway in diagnostic mode	

Diagnostic Check: After holding down the factory button (3-5 secs), press connect button to run full diagnostics. If there are any faults on the gateway, the Fault LED will flash accordingly.

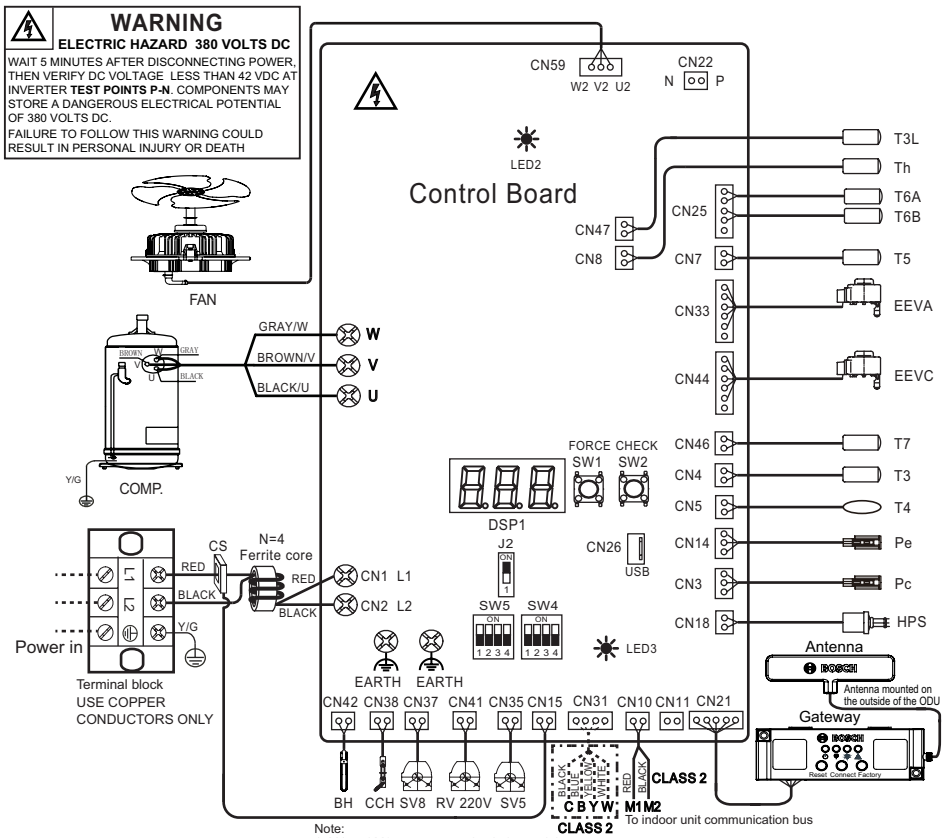
Gateway light indications and descriptions

Power LED(green)	
Solid ON	Gateway powered on
1 blink/cycle	Abnormal voltage to gateway
2 blinks/cycle	Gateway booting up
LED OFF	Gateway not powered
Cellular LED(amber)	
Solid ON	Good signal strength
Blinking LED	Weak signal strength
Bluetooth LED(blue)	
Solid ON	Connected to bluetooth
1 blink/cycle	Bluetooth in pairing mode
2 blinks/cycle	Bluetooth in advertising mode
Gateway Fault LED(red)	
LED OFF	Gateway has no fault
1 blink/cycle	No modbus response from IDS
2 blinks/cycle	Unacceptable signal strength
3 blinks/cycle	Data packet cannot send
4 blinks/cycle	Hardware error
5 blinks/cycle	Cellular communication error

Number	Point check content
0	Outdoor unit capacity: H5=Heat pump 5 ton
1	Outdoor unit mode:0-standby,2-cooling,3-heating
2	Outdoor unit set compressor speed
3	System last fault code
4	Liquid valve subcooling(°F)
5	Gas valve superheat(°F)
6	T3:outdoor coil temp.(°F)
7	T3L: outdoor coil outlet temp.(°F)
8	T4:outdoor ambient temp.(°F)
9	T5:compressor discharge temp. (°F)
10	Th:compressor suction temp.(°F)
11	Compressor IPM temp.(°F)
12	Pe:evaporating pressure(psig)
13	Pc:condensing pressure(psig)
14	Tes:target evaporating temp.(°F) (only for cooling mode)
15	Te:evaporating temp. (°F)
16	Tcs:target condensing temp.(°F) (only for heating mode)
17	Tc:condensing temp.(°F)
18	Target value of the compressor discharge superheat(°F) (only for heating mode)
19	Compressor discharge superheat(°F)
20	Compressor suction superheat(°F)
21	Openings of EEVA(P)
22	Fan speed stage
23	Outdoor unit fan current(A)
24	Compressor current(A)
25	Outdoor unit input current(A)
26	Outdoor unit input voltage(V)
27	Outdoor unit DC bus voltage(V)
28	Outdoor unit power(0.1kW)
29	Continuous running time of the compressor(min)
30	Outdoor unit main control software version
31	Indoor unit Heat Kit Staging
32	T2: indoor unit coil temp.(°F)(only for communication mode)
33	Indoor unit software version(only for communication mode)
34	Reserved
35	Remark"--"

Figure 4

Wiring Diagram for IDS Ultra



Note:
1. M1 and M2 are connected to indoor unit in communication mode.
2. C, B, Y and W are connected to indoor unit in conventional 24VAC non-communicating control mode.
3. B terminal is connected in heat pump heating operation, energized for heating in conventional 24VAC non-communicating control mode.
4. B and W signals are for heat pump system in conventional 24VAC non-communicating control mode.
5. Dash-dotted line means optional.
6. Dotted line means field installed.

LED2 RED	Solid ON	Compressor running
	2s ON 2s OFF	Standby
	0.2s ON 0.2s OFF	Communication fault with control chip
	Blink	Driver fault
	OFF	Power off
LED3 RED	Solid ON	M1 and M2 short circuit
	OFF	Normal

*The factory default

SW4 SW5 J2

J2 Set capacity		
	ON 1 OFF	For 48K model
	ON 1 OFF	For 60K model *

SW4-1	ON	Unused
	OFF	Reserved *
SW4-2	ON	Accelerated cooling/heating
	OFF	Normal *
SW4-3	ON	Accelerated cooling/heating 2
	OFF	Normal *
SW4-4	ON	Adaptive capacity output disable
	OFF	Normal *
SW5-1	ON	Heating time reduced 10%
	OFF	Normal *
SW5-2	ON	Defrosting extended for 60 seconds
	OFF	Normal *
SW5-3	ON	Reserved
	OFF	Normal *
SW5-4	ON	Non-communicating mode
	OFF	Communication mode *

Detailed reference manual instructions

FORCE SW1	PRESS 1s	Forced cooling/heating (Charge mode)
	PRESS 6s	Forced defrosting
CHECK SW2	PRESS 1s	Check the system parameters

Gateway button descriptions

Reset	Connect	Factory
Reset	Powers gateway off and back on	
Connect	Activates bluetooth(hold for at least 4 secs)	
Factory	Hold for 3-5 secs to run gateway in diagnostic mode	

Diagnostic Check: After holding down the factory button (3-5 secs), press connect button to run full diagnostics. If there are any faults on the gateway, the Fault LED will flash accordingly.

Gateway light indications and descriptions

Power LED(green)	
Solid ON	Gateway powered on
1 blink/cycle	Abnormal voltage to gateway
2 blinks/cycle	Gateway booting up
LED OFF	Gateway not powered
Cellular LED(amber)	
Solid ON	Good signal strength
Blinking LED	Weak signal strength
Bluetooth LED(blue)	
Solid ON	Connected to bluetooth
1 blink/cycle	Bluetooth in pairing mode
2 blinks/cycle	Bluetooth in advertising mode
Gateway Fault LED(red)	
LED OFF	Gateway has no fault
1 blink/cycle	No modbus response from IDS
2 blinks/cycle	Unacceptable signal strength
3 blinks/cycle	Data packet cannot send
4 blinks/cycle	Hardware error
5 blinks/cycle	Cellular communication error

Factory code	Date	Revision
16023000014172	Feb. 27th, 2024	E

Number	Point check content
0	Outdoor unit capacity: H5=Heat pump 5 ton
1	Outdoor unit mode: 0-standby, 2-cooling, 3-heating
2	Outdoor unit set compressor speed (Hz)
3	System last fault code
4	Liquid valve subcooling (°F)
5	Gas valve superheat (°F)
6	T3: outdoor coil temp. (°F)
7	T3L: outdoor coil outlet temp. (°F)
8	T4: outdoor ambient temp. (°F)
9	T5: compressor discharge temp. (°F)
10	Th: compressor suction temp. (°F)
11	T7: outdoor outlet temp. (°F)
12	T6A: injection inlet of the plate heat exchanger temp. (°F)
13	T6B: injection outlet of the plate heat exchanger temp. (°F)
14	Compressor IPM temp. (°F)
15	Pe: evaporating pressure (psig)
16	Pc: condensing pressure (psig)
17	Tes: target evaporating temp. (°F) (only for cooling mode)
18	Te: evaporating temp. (°F)
19	Tcs: target condensing temp. (°F) (only for heating mode)
20	Tc: condensing temp. (°F)
21	Target value of the compressor discharge superheat (°F) (only for heating mode)
22	Compressor discharge superheat (°F)
23	Compressor suction superheat (°F)
24	Openings of EEVA (P)
25	Openings of EEVC (P)
26	Fan speed stage
27	ODU fan current (A)
28	Compressor current (A)
29	ODU input current (A)
30	ODU input voltage (V)
31	ODU DC bus voltage (V)
32	ODU power (*0.1kW)
33	Continuous running time of the compressor (min)
34	ODU main control software version
35	IDU motor power (W) (only for communication mode)
36	IDU heat kit staging (only for communication mode)
37	T1: IDU ambient temp. (°F) (only for communication mode)
38	T2: IDU coil temp. (°F) (only for communication mode)
39	IDU software version (only for communication mode)
40	DR function setting
41	Reserved
42	Remark"--"

HPS	High pressure switch
Pc	High pressure sensor
Pe	Low pressure sensor
T4	Ambient temp. sensor
T3	Outdoor coil temp. sensor
T3L	Outdoor coil outlet temp. sensor
EEVC	C electronic expansion valve
EEVA	A electronic expansion valve
T5	Comp. discharge temp. sensor
T6A	Injection inlet of the plate heat exchanger temp. sensor
T6B	Injection outlet of the plate heat exchanger temp. sensor
Th	Comp. suction temp. sensor
T7	Outdoor outlet temp. sensor
SV5	Solenoid valve 5
RV	Reversing valve
SV8	Solenoid valve 8
CCH	Compressor crankcase heating
BH	Baseplate heating
CS	Current sensor
COMP.	Compressor
Temp.	Temperature
ODU	Outdoor unit
IDU	Indoor unit

CODE	Fault description
AtL	Ambient temperature limited (T4)
b1	Temperature sensor fault in IDU (T1)
b2	Temperature sensor fault in IDU (T2)
b3	R454B refrigerant sensor fault in IDU
b4	R454B refrigerant sensor communication fault in IDU
b5	Communication fault between IDU and ODU
b6	Power consumption sensor fault in IDU
b7	R454B refrigerant leakage protection in IDU
b8	R454B refrigerant sensor over service life in IDU
C3	The coil sensor is seated fault in cooling (T3)
E41	Temperature sensor fault (T3)
E42	Temperature sensor fault (T3L)
E43	Temperature sensor fault (T4)
E44	Temperature sensor fault (T5)
E45	Temperature sensor fault (Th)
E46	Temperature sensor fault (T6A)
E47	Temperature sensor fault (T6B)
E48	Temperature sensor fault (T7)
E49	Baseplate heating fault
E51	ODU high/low input voltage protection
E52	ODU high/low DC bus voltage protection
E7	Compressor discharge sensor is seated fault (T5)
E81	EEVA coil fault
E82	EEVC coil fault
EA	Control program does not match drive program in ODU
F1	High pressure switch protection (HPS)
F2	5 times (P21) protection in 100 minutes, system lockout
F41	High pressure sensor fault
F42	Low pressure sensor fault
H01	Drive chip communication fault in ODU
H04	Chip of power consumption sensor communication fault in ODU
H14	Power consumption sensor fault in ODU
J00-JCF	Compressor drive protection
n00-nCF	Fan drive protection
P0	Compressor IPM temperature protection
P1	High pressure switch protection
P11	High pressure protection in cooling/heating (Pc)
P21	Low pressure protection in cooling/heating (Pe)
P31	ODU input over current protection
P32	Compressor over current protection
P4	High compressor discharge temperature protection (T5)
P5	Condensor coil temperature protection in cooling (T3)
Pb1	Hyper-Link(M1M2) over current protection
PH	Low discharge superheat protection

CODE	Description
⊢	Forced operation mode
¯ (top)	Running indication under high pressure limited condition
_ (bottom)	Running indication under low pressure limited conditon
A	Running indication under return oil mode
C	Running indication under current limited condition
d	Running indication under T5 limited condition
F	Running indication under COMP. IPM temp. limited condition
r	Running indication under compressor ratio limited condition
U	Running indication under low voltage limited condition
dF	Running indication under defrost mode
o31	Refrigerant amount judgment: no result
o32	Refrigerant amount judgment: significantly overcharge(reserved)
o33	Refrigerant amount judgment: slightly overcharge
o34	Refrigerant amount judgment: normal
o35	Refrigerant amount judgment: slightly insufficient
o36	Refrigerant amount judgment: significantly insufficient

Note: o31-o36 are only valid in force cooling mode.

Figure 5

Gateway LED Functionality Summary

LED Description	Primary Function	Operation	Additional Information
Power LED (GREEN)	Used to indicate: • Gateway power status • Gateway functionality	1. Solid on – Unit main/normal mode 2. 1 flash (2 second pause) – Abnormal unit voltage 3. 2 flashes (2 second pause) – Unit rebooting	An Abnormal unit voltage mode occurs when the gateway input voltage is either too low (3V to 4.5V) or too high (above 5.5V).
Cellular LED (AMBER)	Used to indicate gateway cellular signal strength	1. Solid on – Good cellular signal strength 2. Flashing (once every 2 seconds) – Weak cellular signal strength	Cellular LED will stay on and hold steady as long as unit is powered and required cellular signal strength is acquired. If a weak signal is acquired the cellular LED (amber) flashes.
Bluetooth LED (BLUE)	Used to indicate gateway Bluetooth connection status	1. Solid on – Connected to Bluetooth 2. 1 flash (2 second pause) – Bluetooth Pairing Mode 3. 2 flashes (2 second pause) – Advertising (re-Pairing) Mode	Gateway Advertising mode occurs once there has been a successful, prior pairing to a mobile device, and the same device has to re-establish Bluetooth connection for another session without additional authentication.
Fault LED (RED)	Used to indicate gateway faults	• 1 flash (2 second pause) – Modbus communication error • 2 flashes (2 second pause) - Bad cellular signal strength • 3 flashes (2 second pause) - Data transmission error • 4 flashes (2 second pause) - Hardware fault (Memory) • 5 flashes (2 second pause) – Hardware fault (cellular communication)	Most faults can be cleared by pressing the Reset button (soft reset) on the gateway, or unplugging and plugging back the gateway serial cable on the IDS ODU control board (hard reset).
Combo LED (GREEN, AMBER, BLUE, RED)	Used to indicate firmware updates in progress	**LED Sequence** • All LEDs off • Green LED turns on and stays on • Amber LED turns on and stays on (1/2 second after Green LED) • Blue LED turns on and stays on (1/2 second after Amber LED) • Red LED turns on and stays on (1/2 second after Blue LED) • All LEDs turn off (1/2 second after Red LED) • LED Sequence repeats until update completes	Firmware Over-the-Air (FOTA) updates occur the first time a gateway is powered on, at midnight, or after a Factory Reset, if an update job is scheduled on the cloud. All button functionality is disabled during the gateway firmware update process.

Table 8

Gateway Buttons Functionality Summary

Button Description	Primary Function	Operation	Additional Information
Factory button	Used to Factory Reset the gateway	• Press this button for 10 seconds or more to reset the gateway configurations to factory defaults.	Factory reset also initiates a FOTA update if a new firmware is available.
Connect button	1. Used to activate Bluetooth on gateway 2. Used to skip cellular network search	• Press this button for 4 or more seconds to enter Bluetooth pairing mode. • Press and hold this button while applying power to the gateway to skip the cellular network search function and enter main mode faster.	In Pairing mode the gateway becomes discoverable and may be paired to a mobile device. Max time in Pairing mode is 2 minutes. Skipping the cellular network search may be used for devices without SIMs or activated SIMs, to provide faster access to the gateway local (Bluetooth) functionalities.
Reset button	Used to Reset the gateway	• Press this button for 3 seconds to reset the gateway back to initial state.	Resetting the gateway will serve the same function as recycling the gateway power off and back on.

Table 9

Spare Part Information

Model	Part Number	Description
BOVB-36HDN1-M20G BOVB-60HDN1-M20G BOVD-36HDN1-M20G	8733956308 8733964783	Gateway Assembly (Gateway, 2 screws, antenna, clips, strainer, cord, replacement instructions)
	8733955692 8733964554	IDS Antenna (Antenna, clips, strainer, cord, replacement instructions)
BOVA-36RTB-M20S BOVA-60RTB-M20S	8733964783	Gateway Assembly (Gateway, 2 screws, antenna, clips, strainer, cord, replacement instructions)
	8733964554	IDS Antenna (Antenna, clips, strainer, cord, replacement instructions)
BOVA-60MTB-M19E	8733964784	Gateway Assembly (Gateway, 2 screws, antenna, clips, strainer, cord, replacement instructions)
	8733964554	IDS Antenna (Antenna, clips, strainer, cord, replacement instructions)

Table 10

Online Help Resources

Alternatively, please visit our Service & Support webpage to find FAQs, videos, service bulletins, and more; www.boschheatingcooling.com/service or use your cellphone to scan the code below.

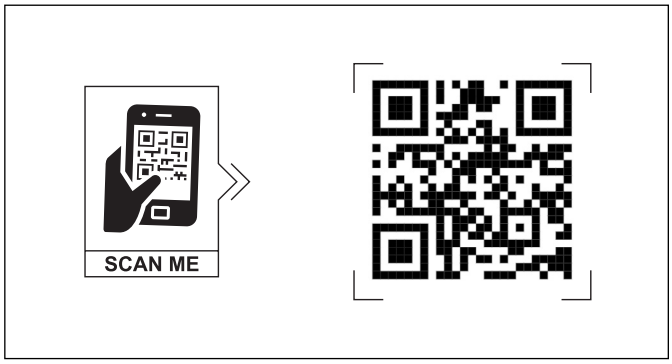


Figure 6

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