

Model name:

BMS-IFKX0AWR-E

KN Interface

KNX Interface

for Toshiba AIR TO WATER HEAT PUMP

User Manual
Issue Date: 11/01/2018

Contents

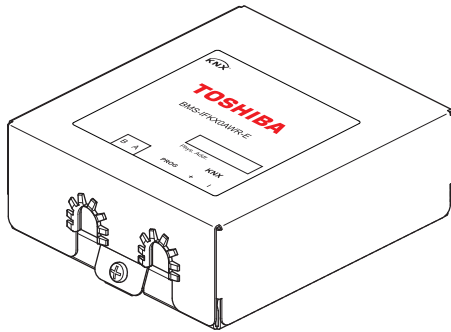
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1. Product Overview



The BMS-IFKX0AWR-E interface allows a complete and natural integration of Toshiba air conditioners into KNX network. The BMS-IFKX0AWR-E is compatible with the Toshiba ESTIA AB Bus(AW-LINK) lines.

- Reduced dimensions, quick installation.
- Multiple objects for control and status (bit, byte, characters...) with KNX standard datapoint types.
- Status objects for every control available.
- The Toshiba ESTIA Hydro Unit can be controlled simultaneously by the wired remote controller of the hydro unit and by KNX.
- FULL Control and Monitoring of the ESTIA Hydro Unit from KNX, including monitoring of ESTIA Hydro Unit's state of internal variables and error indication and error code.

2. Specifications

Item	Specification value
Power supply	KNX line 29 VDC / 8 mA AW line 14 VDC / 20 mA
Operating temperature and humidity ranges	0 °C to 40 °C 10 to 80% RH (non-condensing)
Storage temperature and humidity ranges	-20 °C to 60 °C 10 to 80% RH (non-condensing)
Housing materials	Sheet metal box Galvanized sheet iron (SGCC-CSC) Base 0.8 t Cover 0.6 t No paint finish Mold unit ABS (UL 94 HB) 2.5 mm thick
Size	Sheet metal box 33.4 (H) x 82.5 (W) x 92.1 (D) mm Mold unit 28 (H) x 70 (W) x 70 (W)
Weight	225 g (including sheet metal box) 70 g (mold unit)

Supplied items

No.	Part name	Quantity	Remark
1	KN interface (mold unit)	1	
2	User manual	1	
3	Sheet metal box	1	Cover, base
4	Fixing screws		

Use the following wiring materials to connect the signal lines. (Procure locally)

No.	Cable	Item	Value
1	For KNX TP-1 Bus	Cable type	KNX TP1
		Cable diameter	
		Cable length	1000 m
		Polarity	Yes (+/-)
2	For AB Bus(AW-LINK) lines	Cable type	VCTF
		Cable diameter	0.5 mm ² to 2.0 mm ²
		Cable length	50 m (0.75 ²)
		Polarity	No

Power supply

The following two types of power supplies are required for the power supplies of this product.

No.	Power supply	Remark
1	KNX TP-1 Bus	Supplies power from the KNX power unit (procure locally) using the KNX link cable.
2	AB Bus(AW-LINK) lines	Supplies power from the hydro unit using the AW link cable.

3. Supported ESTIA Unit Types

This product supports ESTIA hydro units of the 4 series and 5 series.

4. Installation Procedure and Wiring

Installation instructions

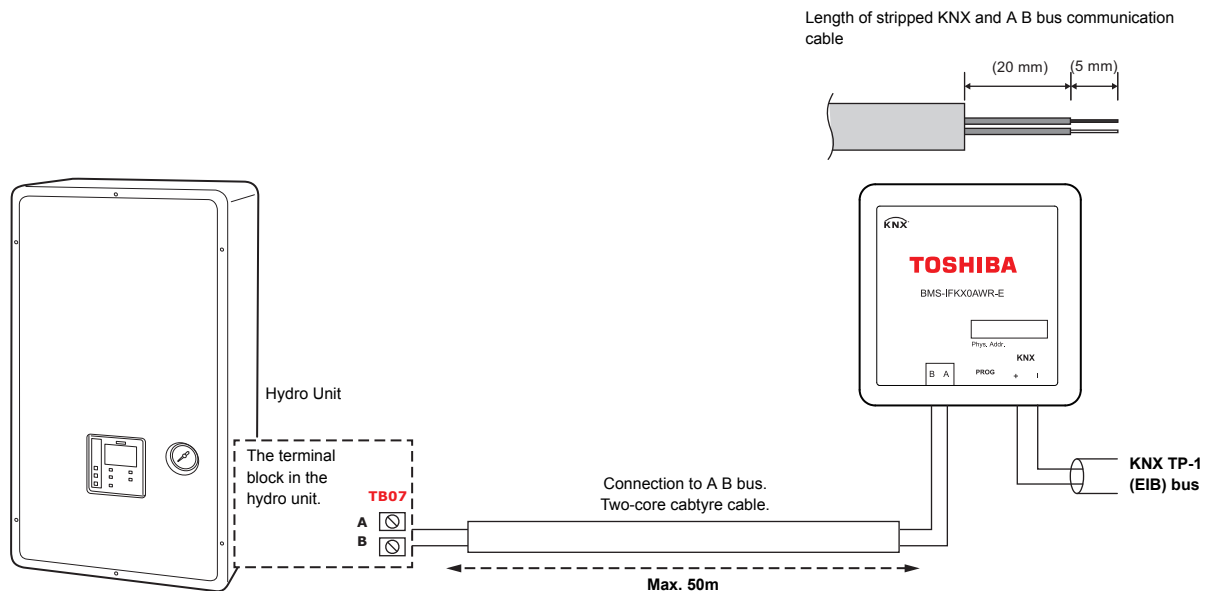
- Disconnect the Hydro unit from Mains Power.
- Disconnect the power supply of the KNX bus.
- Connect the connection cable between the interface and the Hydro unit following the instructions of the diagram below.
- Connect the KNX bus to the connector KNX of the interface. Respect the polarity.
- Close the Hydro unit and reconnect it to Mains Power.
- Reconnect power supply to the KNX bus.
- Follow the instructions on the user's manual for configuring and commissioning the interface. See below how to obtain the user's manual and the ETS database.

NOTE

The cable used for connection of BMS-IFKX0AWR-E to A B bus can be any two-core cabtyre cable, the maximum distance for bus A B is 50 meters, consult the manual of the Hydro unit for more details.

IMPORTANT:

- Use only one remote controller. A sub-remote controller cannot be connected when connecting this interface.
- It is not possible to mix and connect Hydro unit 4 series and 5 series.

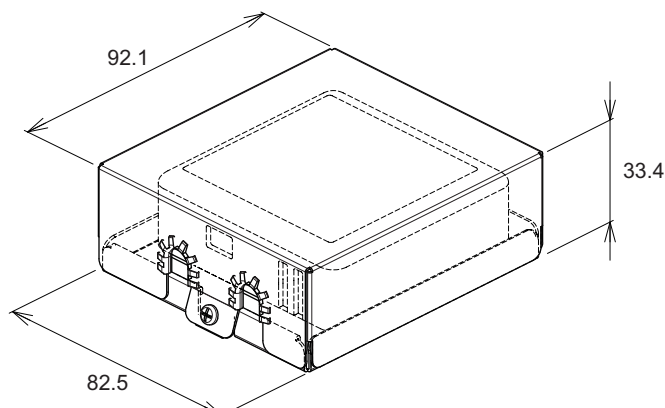


NOTE

In its place there is a pair of cables to connect the Remote Controller. Use these cables to connect the AB bus. Check your Hydro unit user or service manual for more information.

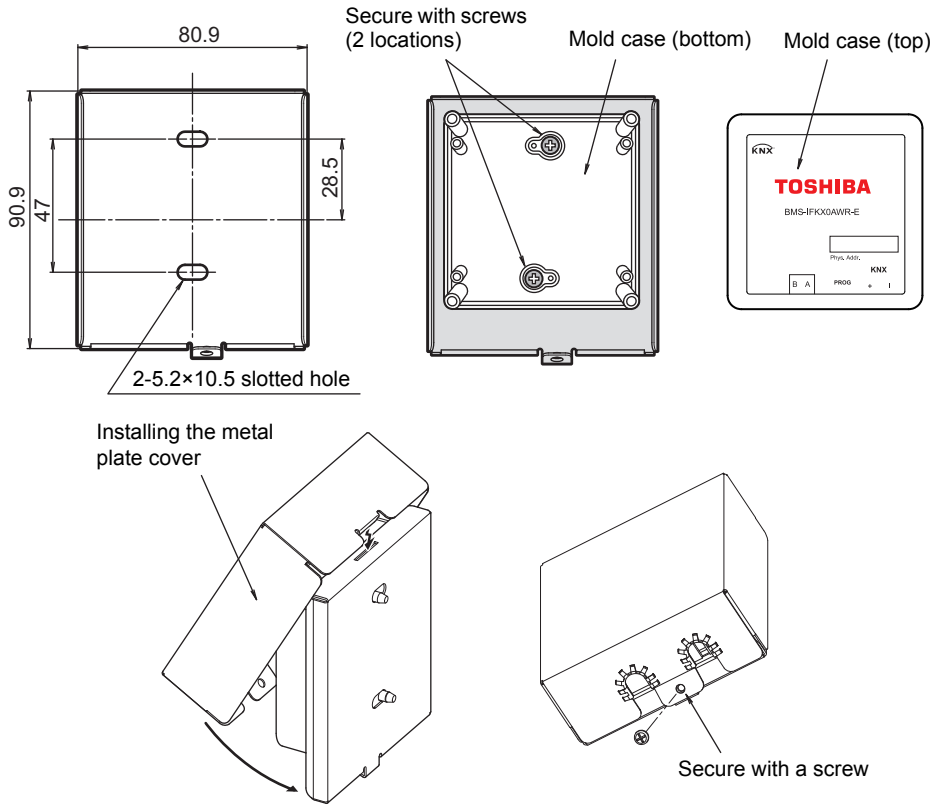
Dimensions

External dimensions



Wall mount

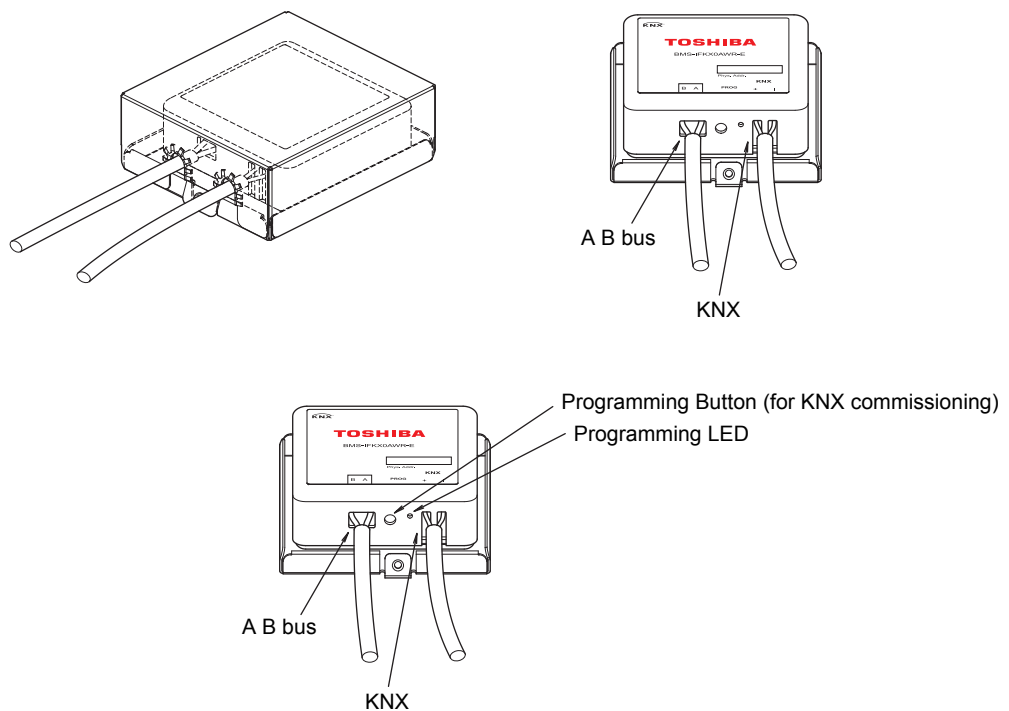
During installation, secure the metal plate and mold case (bottom) together with screws.
 After wiring, attach the mold case (top), install the metal plate cover, and secure with a screw.



NOTE

When installing the interface on the plane surface instead of mounting it on the wall and securing with screws, secure the unit with double-sided adhesive tape or similar stuff.

Connections



5. Object Table

TOPIC	OBJECT NUMBER	Name	Length	Datapoint Type		Flags					Value	
				Data Type Name	DPT_ID	C	R	W	T	U		
Control	On/Off	0	Control_Zones On/Off	1 bit	switch	DPT_1.001	C	-	W	T	U	1-On, 0-Off
		1	Control_HW On/Off	1 bit	switch	DPT_1.001	C	-	W	T	U	1-On, 0-Off
	Mode	2	Control_Mode (*2)	1 byte	HVAC control mode	DPT_20.105	C	-	W	T	U	1-Heat, 3-Cool
		3	Control_Mode Cool/Heat (*2)	1 bit	cooling/heating	DPT_1.100	C	-	W	T	U	0-Cool, 1-Heat
		4	Control_Mode Heat (*2)	1 bit	boolean	DPT_1.002	C	-	W	T	U	1-Set heat mode
	Setpoint	5	Control_Mode Cool (*2)	1 bit	boolean	DPT_1.002	C	-	W	T	U	1-Set heat mode
		6	Control_Zone1 Setting Temperature	2 bytes	temperature (°C)	DPT_9.001	C	-	W	T	U	°C
		7	Control_Zone2 Setting Temperature	2 bytes	temperature (°C)	DPT_9.001	C	-	W	T	U	°C
	Function On/Off	8	Control_HW Setting Temperature	2 bytes	temperature (°C)	DPT_9.001	C	-	W	T	U	°C
		9	Control_Auto temperature On/Off	1 bit	switch	DPT_1.001	C	-	W	T	U	1-On, 0-Off
		10	Control_Night Setback On/Off	1 bit	switch	DPT_1.001	C	-	W	T	U	1-On, 0-Off
		11	Control_HW Boost On/Off	1 bit	switch	DPT_1.001	C	-	W	T	U	1-On, 0-Off
		12	Control_Frost Protection On/Off	1 bit	switch	DPT_1.001	C	-	W	T	U	1-On, 0-Off
Status	On/Off	13	Control_Antibacteria On/Off	1 bit	switch	DPT_1.001	C	-	W	T	U	1-On, 0-Off
		14	Status_Zones On/Off	1 bit	switch	DPT_1.001	C	R	-	T	-	1-On, 0-Off
	Mode	15	Status_HW On/Off	1 bit	switch	DPT_1.001	C	R	-	T	-	1-On, 0-Off
		16	Status_Mode	1 byte	HVAC control mode	DPT_20.105	C	R	-	T	-	1-Heat, 3-Cool
		17	Status_Mode Cool/Heat	1 bit	cooling/heating	DPT_1.100	C	R	-	T	-	0-Cool, 1-Heat
		18	Status_Mode Heat	1 bit	boolean	DPT_1.002	C	R	-	T	-	1-Heat mode active
		19	Status_Mode Cool	1 bit	boolean	DPT_1.002	C	R	-	T	-	1-Cool mode active
	Setpoint	20	Status_Zone1 Setting Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		21	Status_Zone2 Setting Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		22	Status_HW Setting Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C

TOPIC	OBJECT NUMBER	Name	Length	Datapoint Type		Flags					Value	
				Data Type Name	DPT_ID	C	R	W	T	U		
Status	Function On/Off	23	Status_ Auto Temperature On/Off	1 bit	switch	DPT_1.001	C	R	-	T	-	1-On, 0-Off
		24	Status_ Night Setback On/Off	1 bit	switch	DPT_1.001	C	R	-	T	-	1-On, 0-Off
		25	Status_ HW Boost On/Off	1 bit	switch	DPT_1.001	C	R	-	T	-	1-On, 0-Off
		26	Status_ Frost Protection On/Off	1 bit	switch	DPT_1.001	C	R	-	T	-	1-On, 0-Off
		27	Status_ Antibacteria On/Off	1 bit	switch	DPT_1.001	C	R	-	T	-	1-On, 0-Off
	Alarm	28	Status_ Alarm	1 bit	alarm	DPT_1.005	C	R	-	T	-	1-Alarm, 0-No alarm
		29	Status_ Alarm Code	2 bytes	-	-	C	R	-	T	-	Alarm code '-1=0xFFFF' communication error (*4) '-3=0xFFFD' paused '-4=0xFFFC' initialization (*5) Any other, see manual "Check Code"
		30	Status_ Alarm Text	14 bytes	Character String (ISO 8859-1)	DPT_16.001	C	R	-	T	-	Alarm description see manual "Check Code"
		31	Status_ Alarm Address	1 byte	-	-	C	R	-	T	-	Alarm address '0x00' interface, '0x60' remote controller, '0x7x' hydro unit
	Hydro Unit and Outdoor Unit Status	32	Status_ Zone1 Control Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		33	Status_ Zone2 Control Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		34	Status_ HW Control Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		35	Status_ Control Temperature (*3)	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
36		Status_ Outdoor Liquid Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C	
37		Status_ HW Cylinder Water Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C	
38		Status_ Condensed Refrigerant Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C	
39		Status_ Water Inlet Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C	
40		Status_ Water Outlet Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C	

TOPIC	OBJECT NUMBER	Name	Length	Datapoint Type		Flags					Value	
				Data Type Name	DPT_ID	C	R	W	T	U		
Status	Hydro Unit and Outdoor Unit Status	41	Status_ Water Heater Outlet Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		42	Status_ Zone2 Inlet Temperature (TFI)	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		43	Status_ Motorized Mixing Valve Position	1 byte	0 to 255	DPT_5.010	C	R	-	T	-	0 to 15
		44	Status_ System Low Pressure	4 bytes	pressure (Pa)	DPT_14.058	C	R	-	T	-	Pa
		45	Status_ Outdoor Heat Exchanger Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		46	Status_ Discharge Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		47	Status_ Outdoor Suction Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		48	Status_ Outside Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		49	Status_ Outdoor Compressor Frequency	4 bytes	frequency (Hz)	DPT_14.033	C	R	-	T	-	Hz
		50	Status_ Outdoor Lower Fan Speed	4 bytes	frequency (Hz)	DPT_14.033	C	R	-	T	-	Hz
		51	Status_ Outdoor Upper Fan Speed	4 bytes	frequency (Hz)	DPT_14.033	C	R	-	T	-	Hz
		52	Status_ HW mode compressor Second Counter	4 bytes	time lag (s)	DPT_13.100	C	R	-	T	-	Sec
		53	Status_ HW mode compressor Hour Counter	2 bytes	time (h)	DPT_7.007	C	R	-	T	-	Hours
		54	Status_ Heating mode compressor Second Counter	4 bytes	time lag (s)	DPT_13.100	C	R	-	T	-	Sec
		55	Status_ Heating mode compressor Hour Counter	2 bytes	time (h)	DPT_7.007	C	R	-	T	-	Hours
		56	Status_ Cooling mode compressor Second Counter	4 bytes	time lag (s)	DPT_13.100	C	R	-	T	-	Sec
		57	Status_ Cooling mode compressor Hour Counter	2 bytes	time (h)	DPT_7.007	C	R	-	T	-	Hours
		58	Status_ HU water pump operation Second Counter	4 bytes	time lag (s)	DPT_13.100	C	R	-	T	-	Sec
		59	Status_ HU water pump operation Hour Counter	2 bytes	time (h)	DPT_7.007	C	R	-	T	-	Hours
		60	Status_ HW cylinder heater Second Counter	4 bytes	time lag (s)	DPT_13.100	C	R	-	T	-	Sec

TOPIC	OBJECT NUMBER	Name	Length	Datapoint Type		Flags					Value	
				Data Type Name	DPT_ID	C	R	W	T	U		
Status	Hydro Unit and Outdoor Unit Status	61	Status_ HW cylinder heater Hour Counter	2 bytes	time (h)	DPT_7.007	C	R	-	T	-	Hours
		62	Status_ HU back up Heater Second Counter	4 bytes	time lag (s)	DPT_13.100	C	R	-	T	-	Sec
		63	Status_ HU back up Heater Hour Counter	2 bytes	time (h)	DPT_7.007	C	R	-	T	-	Hours
	Function Code and Hydro Unit Dip-SW setting	64	Status_ Zone1 Device Connected	1 bit	boolean	DPT_1.002	C	R	-	T	-	0-Not connected, 1-Connected
		65	Status_ Zone2 Device Connected	1 bit	boolean	DPT_1.002	C	R	-	T	-	0-Not connected, 1-Connected
		66	Status_ HW Device Connected	1 bit	boolean	DPT_1.002	C	R	-	T	-	0-Not connected, 1-Connected
		67	Status_ Zones Cool Setting Temperature MAX	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		68	Status_ Zones Cool Setting Temperature MIN	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		69	Status_ Zone1 Heat Setting Temperature MAX	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		70	Status_ Zone1 Heat Setting Temperature MIN	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		71	Status_ Zone2 Heat Setting Temperature MAX	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		72	Status_ Zone2 Heat Setting Temperature MIN	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		73	Status_ HW mode water Temp MAX	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		74	Status_ HW mode water Temp MIN	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		75	Status_ Frost protection Setting Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		76	Status_ HW Boost Setting Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		77	Status_ Antibacteria Setting Temperature	2 bytes	temperature (°C)	DPT_9.001	C	R	-	T	-	°C
		78	Status_ Operation Heat Mode Permitted	1 bit	boolean	DPT_1.002	C	R	-	T	-	0-Not permitted, 1-Permitted
		79	Status_ Operation Cool Mode Permitted	1 bit	boolean	DPT_1.002	C	R	-	T	-	0-Not permitted, 1-Permitted
		80	Status_ Auto Temperature Permitted	1 bit	boolean	DPT_1.002	C	R	-	T	-	0-Not permitted, 1-Permitted
		81	Status_ Frost Protection Permitted	1 bit	boolean	DPT_1.002	C	R	-	T	-	0-Not permitted, 1-Permitted

TOPIC		OBJECT NUMBER	Name	Length	Datapoint Type		Flags					Value
					Data Type Name	DPT_ID	C	R	W	T	U	
Status	Function Code and Hydro Unit Dip-SW setting	82	Status_Night Setback Permitted	1 bit	boolean	DPT_1.002	C	R	-	T	-	0-Not permitted, 1-Permitted
		83	Status_HW Boost Permitted	1 bit	boolean	DPT_1.002	C	R	-	T	-	0-Not permitted, 1-Permitted
		84	Status_Antibacteria Permitted	1 bit	boolean	DPT_1.002	C	R	-	T	-	0-Not permitted, 1-Permitted

(*1) Temperature Read data 0x8000 means No Sensor or Sensor Error.

(*2) If Cool mode prohibit, never set Cool mode.

(*3) When the ESTIA 4 series is selected in the parameter settings of the ETS tool, "Status_Control Temperature" cannot be used.

(*4) There is considered to be a communication error if communication between this product and the ESTIA hydro unit and between the remote controller and the ESTIA hydro unit is interrupted for 3 minutes. If the setting operation of FC is performed in "FIELD SETTING MANU" on the remote controller, a communication error may occur.

(*5) If the setting operation of FC is performed in "FIELD SETTING MANU" on the remote controller, this product will also execute the initialization process.

Precaution

When the temperature setting is made for Zones 1/2 from the BMS-IFKX0AWR-E, the actual water temperature may be lower than the set temperature depending on the FC setting of the remote controller.

6. Setting Using ETS Tool

This product is a KNX device that complies with the KNX standard, so configuration and commissioning can be performed with the ETS tool of KNX Association. Use the ETS4 or ETS5 version of the ETS tool.

6.1 How to obtain the ETS database

Download the ETS database from the following website.

http://

Database file for ETS5/4 BMS-IFKX0AWR-E_v1.0r.knxprod

NOTE

"_v1.0" of the database file name is the version number. This number may change.

6.2 ETS parameters

Perform the configuration of this product in the Parameter screen of the ETS tool.

Download latest database entry for this product and its User Manual from:	<input type="text" value="http://www."/>
Send READs for objects on bus recovery (T & U flags must be active)	<input type="radio"/> No <input checked="" type="radio"/> Yes
Delay before sending READs	<input type="text" value="10"/> [s]
Model	<input type="radio"/> ESTIA 4 Series <input checked="" type="radio"/> ESTIA 5 Series
Number of zones available	<input type="radio"/> 1 zone <input checked="" type="radio"/> 2 zones
Cool/Heat mode objects (control and status)	<input type="radio"/> Disabled <input checked="" type="radio"/> Enabled
1 byte mode objects (control and status)	<input type="radio"/> Disabled <input checked="" type="radio"/> Enabled
1 bit mode objects (control and status)	<input type="radio"/> Disabled <input checked="" type="radio"/> Enabled
Enable additional signals of zones	<input type="radio"/> No <input checked="" type="radio"/> Yes
Monitor outdoor unit signals	<input type="radio"/> No <input checked="" type="radio"/> Yes
Monitor hydro unit signals	<input type="radio"/> No <input checked="" type="radio"/> Yes
Hot Water Cylinder	<input type="radio"/> Disabled <input checked="" type="radio"/> Enabled
Enable additional signals of Hot Water Cylinder	<input type="radio"/> No <input checked="" type="radio"/> Yes
Alarm objects	<input type="radio"/> Disabled <input checked="" type="radio"/> Enabled

No.	Parameter	Selection options	Default
1-1	Send READs for objects on bus recovery (T & U flags must be active)	No Yes	Yes
1-2	Delay before sending READs [seconds]	0 to 30	10
2	Model	ESTIA 4 series ESTIA 5 series	ESTIA 5 series
3	Display selections of input object and output object	Refer to Table 1.	Refer to Table 1.

Table 1 Display selection parameters of input object and output object

No.	Selection item	Setting target objects	Selection options	Default
1	Number of zones available	Objects related to zone 1 only or to zone 1 and zone 2	1 zone 2 zone	1 zone
2-1	Cool/Heat mode objects (control and status)	Objects related to cool/heat mode	Disabled Enabled	Enabled
2-2	1 byte mode objects (control and status)	Objects related to cool/heat mode of 1 byte	Disabled Enabled	Enabled
2-3	1 bit mode objects (control and status)	Objects related to cool/heat mode of 1 bit	Disabled Enabled	Enabled
3	Enable additional signals of zones	Optional objects	No Yes	Yes
4	Monitor outdoor unit signals	Objects related to ESTIA outdoor unit	No Yes	Yes
5	Monitor hydro unit signals	Objects related to ESTIA hydro unit	No Yes	Yes
6-1	Hot water Cylinder	Objects related to hot water cylinder	Disabled Enabled	Enabled
6-2	Enable additional signals of water Cylinder	Optional objects of hot water cylinder	No Yes	Yes
7	Alarm objects	Objects related to alarm	Disabled Enabled	Enabled

Table 2 List of objects displayed when a display selection parameter is selected

O: Object Display –: Object not display

OBJECT NUMBER	Name	ALL	1	2-1	2-2	2-3	3	4	5	6-1	6-2	7
0	Control_ Zones On/Off	○	○	○	○	○	○	○	○	○	○	○
1	Control_ HW On/Off	○	○	○	○	○	○	○	○	–	○	○
2	Control_ Mode	○	○	○	–	○	○	○	○	○	○	○
3	Control_ Mode Cool/Heat	○	○	–	○	○	○	○	○	○	○	○
4	Control_ Mode Heat	○	○	○	○	–	○	○	○	○	○	○
5	Control_ Mode Cool	○	○	○	○	–	○	○	○	○	○	○
6	Control_ Zone1 Setting Temperature	○	○	○	○	○	○	○	○	○	○	○
7	Control_ Zone2 Setting Temperature	○	–	○	○	○	○	○	○	○	○	○
8	Control_ HW Setting Temperature	○	○	○	○	○	○	○	○	–	○	○
9	Control_ Auto temperature On/Off	○	○	○	○	○	–	○	○	○	○	○
10	Control_ Night Setback On/Off	○	○	○	○	○	–	○	○	○	○	○
11	Control_ HW Boost On/Off	○	○	○	○	○	○	○	○	–	–	○
12	Control_ Frost Protection On/Off	○	○	○	○	○	–	○	○	○	○	○
13	Control_ Antibacteria On/Off	○	○	○	○	○	○	○	○	–	–	○
14	Status_ Zones On/Off	○	○	○	○	○	○	○	○	○	○	○

OBJECT NUMBER	Name	ALL	1	2-1	2-2	2-3	3	4	5	6-1	6-2	7
15	Status_ HW On/Off	○	○	○	○	○	○	○	○	–	○	○
16	Status_ Mode	○	○	○	–	○	○	○	○	○	○	○
17	Status_ Mode Cool/Heat	○	○	–	○	○	○	○	○	○	○	○
18	Status_ Mode Heat	○	○	○	○	–	○	○	○	○	○	○
19	Status_ Mode Cool	○	○	○	○	–	○	○	○	○	○	○
20	Status_ Zone1 Setting Temperature	○	○	○	○	○	○	○	○	○	○	○
21	Status_ Zone2 Setting Temperature	○	–	○	○	○	○	○	○	○	○	○
22	Status_ HW Setting Temperature	○	○	○	○	○	○	○	○	–	○	○
23	Status_ Auto Temperature On/Off	○	○	○	○	○	–	○	○	○	○	○
24	Status_ Night Setback On/Off	○	○	○	○	○	–	○	○	○	○	○
25	Status_ HW Boost On/Off	○	○	○	○	○	○	○	○	–	–	○
26	Status_ Frost Protection On/Off	○	○	○	○	○	–	○	○	○	○	○
27	Status_ Antibacteria On/Off	○	○	○	○	○	○	○	○	–	–	○
28	Status_ Alarm	○	○	○	○	○	○	○	○	○	○	–
29	Status_ Alarm Code	○	○	○	○	○	○	○	○	○	○	–
30	Status_ Alarm Text	○	○	○	○	○	○	○	○	○	○	–
31	Status_ Alarm Address	○	○	○	○	○	○	○	○	○	○	–
32	Status_ Zone1 Control Temperature	○	○	○	○	○	○	○	○	○	○	○
33	Status_ Zone2 Control Temperature	○	–	○	○	○	○	○	○	○	○	○
34	Status_ HW Control Temperature	○	○	○	○	○	○	○	○	–	○	○
35	Status_ Control Temperature	○	○	○	○	○	○	○	○	○	○	○
36	Status_ Outdoor Liquid Temperature	○	○	○	○	○	○	–	○	○	○	○
37	Status_ HW Cylinder Water Temperature(TTW)	○	○	○	○	○	○	○	○	–	–	○
38	Status_ Condensed Refrigerant Temperature	○	○	○	○	○	○	–	○	○	○	○
39	Status_ Water Inlet Temperature(TWI)	○	○	○	○	○	○	○	○	–	–	○
40	Status_ Water Outlet Temperature(TWO)	○	○	○	○	○	○	○	○	–	–	○
41	Status_ Water Heater Outlet Temperature(THO)	○	○	○	○	○	○	○	○	–	–	○
42	Status_ Zone2 Inlet Temperature(TFI)	○	–	○	○	○	○	○	○	○	○	○
43	Status_ Motorized Mixing Valve Position	○	–	○	○	○	○	○	○	○	○	○
44	Status_ System Low Pressure	○	○	○	○	○	○	○	–	○	○	○
45	Status_ Outdoor Heat Exchanger Temperature	○	○	○	○	○	○	–	○	○	○	○
46	Status_ Discharge Temperature	○	○	○	○	○	○	–	○	○	○	○
47	Status_ Outdoor Suction Temperature	○	○	○	○	○	○	–	○	○	○	○
48	Status_ Outside Temperature	○	○	○	○	○	○	–	○	○	○	○
49	Status_ Outdoor Compressor Frequency	○	○	○	○	○	○	–	○	○	○	○
50	Status_ Outdoor Lower Fan Speed	○	○	○	○	○	○	–	○	○	○	○
51	Status_ Outdoor Upper Fan Speed	○	○	○	○	○	○	–	○	○	○	○
52	Status_ HW mode compressor Second Counter	○	○	○	○	○	○	–	○	–	–	○

OBJECT NUMBER	Name	ALL	1	2-1	2-2	2-3	3	4	5	6-1	6-2	7
53	Status_ HW mode compressor Hour Counter	○	○	○	○	○	○	-	○	-	-	○
54	Status_ Heating mode compressor Second Counter	○	○	○	○	○	○	-	○	○	○	○
55	Status_ Heating mode compressor Hour Counter	○	○	○	○	○	○	-	○	○	○	○
56	Status_ Cooling mode compressor Second Counter	○	○	○	○	○	○	-	○	○	○	○
57	Status_ Cooling mode compressor Hour Counter	○	○	○	○	○	○	-	○	○	○	○
58	Status_ HU water pump operation Second Counter	○	○	○	○	○	○	○	-	○	○	○
59	Status_ HU water pump operation Hour Counter	○	○	○	○	○	○	○	-	○	○	○
60	Status_ HW cylinder heater Second Counter	○	○	○	○	○	○	○	-	-	-	○
61	Status_ HW cylinder heater Hour Counter	○	○	○	○	○	○	○	-	-	-	○
62	Status_ HU back up Heater Second Counter	○	○	○	○	○	○	○	-	○	○	○
63	Status_ HU back up Heater Hour Counter	○	○	○	○	○	○	○	-	○	○	○
64	Status_ Zone1 Device Connected	○	○	○	○	○	○	○	○	○	○	○
65	Status_ Zone2 Device Connected	○	-	○	○	○	○	○	○	○	○	○
66	Status_ HW Device Connected	○	○	○	○	○	○	○	○	-	-	○
67	Status_ Zones Cool Setting Temperature MAX	○	○	○	○	○	○	○	○	○	○	○
68	Status_ Zones Cool Setting Temperature MIN	○	○	○	○	○	○	○	○	○	○	○
69	Status_ Zone1 Heat Setting Temperature MAX	○	○	○	○	○	○	○	○	○	○	○
70	Status_ Zone1 Heat Setting Temperature MIN	○	○	○	○	○	○	○	○	○	○	○
71	Status_ Zone2 Heat Setting Temperature MAX	○	-	○	○	○	○	○	○	○	○	○
72	Status_ Zone2 Heat Setting Temperature MIN	○	-	○	○	○	○	○	○	○	○	○
73	Status_ HW mode water Temp MAX	○	○	○	○	○	○	○	○	-	-	○
74	Status_ HW mode water Temp MIN	○	○	○	○	○	○	○	○	-	-	○
75	Status_ Frost protection Setting Temperature	○	○	○	○	○	-	○	○	○	○	○
76	Status_ HW Boost Setting Temperature	○	○	○	○	○	-	○	○	-	-	○
77	Status_ Antibacteria Setting Temperature	○	○	○	○	○	-	○	○	-	-	○
78	Status_ Operation Heat Mode Permitted	○	○	○	○	○	○	○	○	○	○	○
79	Status_ Operation Cool Mode Permitted	○	○	○	○	○	○	○	○	○	○	○
80	Status_ Auto Temperature Permitted	○	○	○	○	○	-	○	○	○	○	○
81	Status_ Frost Protection Permitted	○	○	○	○	○	-	○	○	○	○	○

OBJECT NUMBER	Name	ALL	1	2-1	2-2	2-3	3	4	5	6-1	6-2	7
82	Status_ Night Setback Permitted	○	○	○	○	○	–	○	○	○	○	○
83	Status_ HW Boost Permitted	○	○	○	○	○	–	○	○	–	–	○
84	Status_ Antibacteria Permitted	○	○	○	○	○	–	○	○	–	–	○

7. Check Code

Check code		Alarm Unit	Alarm Description
Hexadecimal Number	Remote Controller Display		
00	N/A	I/F	
01	A01	Hydro Unit	Pump or flowing quantity error
02	A02	Hydro Unit	Temperature increase error (Heating)
03	A03	Hydro Unit	Temperature increase error (Hot Water Supply)
04	A04	Hydro Unit	Antifreeze operation (1)
05	A05	Hydro Unit	Piping antifreeze operation
07	A07	Hydro Unit	Pressure switch operation
08	A08	Hydro Unit	Low pressure sensor operation error
09	A09	Hydro Unit	Overheat protection operation
0A	A10	Hydro Unit	Antifreeze operation (2)
0B	A11	Hydro Unit	Operation of the release protection
0C	A12	Hydro Unit	Heating, hot water heater
0D	A13	Hydro Unit	Pump error
41	E01	Remote Controller	No communication between hydro unit and remote controller
42	E02	Remote Controller	Defect in the signal transmission to the hydro unit.
43	E03	Hydro Unit	Regular communication error between hydro unit and remote controller
44	E04	Hydro Unit	Regular communication error between hydro unit and outdoor unit
48	E08	Hydro Unit	Duplicate address of Hydro unit, or Duplicate master Hydro unit during Group control
49	E09	Remote Controller	Several remote controller base units
52	E18	Hydro Unit	Regular communication error between master Hydro unit and slave Hydro unit during Group control
63	F03	Hydro Unit	TC sensor error
64	F04	Outdoor Unit	TD sensor error
66	F06	Outdoor Unit	TE sensor error
67	F07	Outdoor Unit	TL sensor error
68	F08	Outdoor Unit	TO sensor error
6A	F10	Hydro Unit	TWI sensor error
6B	F11	Hydro Unit	TWO sensor error
6C	F12	Outdoor Unit	TS sensor error
6D	F13	Outdoor Unit	TH sensor error
6E	F14	Hydro Unit	TTW sensor error
6F	F15	Outdoor Unit	TE, TS sensors error
71	F17	Hydro Unit	TFI sensor error
72	F18	Hydro Unit	THO sensor error
73	F19	Hydro Unit	Detection of THO disconnection error
74	F20	Hydro Unit	TFI sensor error
77	F23	Hydro Unit	Low pressure sensor error
7D	F29	Hydro Unit	EEROM error

Check code		Alarm Unit	Alarm Description
Hexadecimal Number	Remote Controller Display		
7E	F30	Hydro Unit	Extended IC error
7F	F31	Outdoor Unit	EEPROM error
81	H01	Outdoor Unit	Compressor
82	H02	Outdoor Unit	Compressor lock
83	H03	Outdoor Unit	Defect in the current detection circuit
84	H04	Outdoor Unit	Operation of case thermostat
C2	L02	Hydro Unit	Combination
C7	L07	Hydro Unit	Communication error
C9	L09	Hydro Unit	Communication error
CA	L10	Outdoor Unit	Unset service PC board jumper
CF	L15	Outdoor Unit	Combination error
D0	L16	Hydro Unit	Setting error
DD	L29	Outdoor Unit	The communication between the outdoor PC board MUCs error
E3	P03	Outdoor Unit	The outlet temperature error
E4	P04	Outdoor Unit	The high pressure switch error
E5	P05	Outdoor Unit	The power supply voltage error
E7	P07	Outdoor Unit	Overheating of heat-sink error
EF	P15	Outdoor Unit	Detection of gas leak
F3	P19	Outdoor Unit	The 4-way valve inversion error
F4	P20	Outdoor Unit	High pressure protection operation
F6	P22	Outdoor Unit	Outdoor fan system
FA	P26	Outdoor Unit	Short circuit of the compressor driver element error
FD	P29	Outdoor Unit	Compressor rotor position error
FF	P31	Hydro Unit	Slave Hydro unit error which occurs when error occurs in master Hydro unit
FFFF(-1)	-	I/F	Error in the communication of BMS-IFKX0AWR-E device with the Hydro unit

In case you detect an error code not listed, contact your nearest Toshiba technical support service.

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