HITACHI

EN INSTALLATION AND OPERATION MANUAL
ES MANUAL DE INSTALACIÓN Y FUNCIONAMIENTO
DE INSTALLATIONS- UND BETRIEBSHANDBUCH
FR MANUEL D'INSTALLATION ET DE FONCTIONNEMENT
IT MANUALE D'INSTALLAZIONE E D'USO
PT MANUAL DE INSTALAÇÃO E DE FUNCIONAMENTO
DA INSTALLATIONS- OG BETJENINGSVEJLEDNING
NL INSTALLATIE- EN BEDIENINGSHANDLEIDING
SV INSTALLATION- OCH DRIFTHANDBOK
EL ΕΓΧΕΙΡΙΔΙΟ ΕΓΚΑΤΑΣΤΑΣΗΣ ΚΑΙ ΛΕΙΤΟΥΡΓΙΑΣ

MODBUS GATEWAY
ATW-MBS-02

1 PRODUCT GUIDE

1.1 CLASSIFICATION OF THE UNITS

Air to water accessory	Dash separation	Modbus gateway	Series
ATW	-	MBS	02

1.2 NEW MODELS

DESCRIPTION	CODE
	
ATW-MBS-02	7E549924

1.3 ACCESSORY CODE LIST

DESCRIPTION	CODE
	
Net configuration kit	7E513206

2 NEW PRODUCT GENERAL DATA

2.3.1 Hardware specifications

Item	Specifications
Power supply	1~ 230 V ±10% 50 Hz
Consumption	4.5W (maximum)
Outer dimensions	Width: 106 mm, Depth: 90 mm, Height: 58 mm
Weight	165 g
Assembling conditions	Indoors (installation inside an enclosure with restricted access by a tool)
Ambient temperature	-10~60 ºC
Humidity	20~85% (Without condensation)

2.3.2 Communication

◆ RS485

Item	Specifications
Type	Modbus RTU
Connector	Serial Port RS485 (3 screw terminals)
Communication line	Shielded twisted pair cable, with third wire (for the common), with polarity.
Communication system	Half-duplex, multipoint serial connection
Communication method	Non parity or odd/even parity selection. Data length: 8 bits – 1 stop bit
Baud rate transmission	19200/9600 Baud
Length	Max. 1200 m according EIA-485

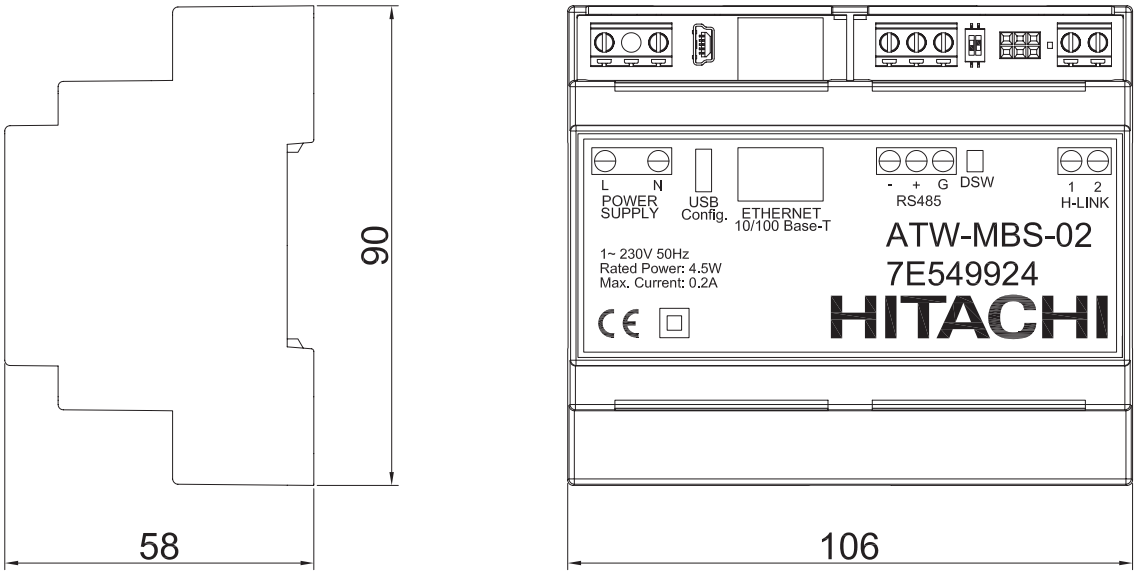
◆ Ethernet

Item	Specifications
Type	Modbus TCP
Connector	Ethernet (RJ45)
Communication line	Two twisted pair cable CAT5 or better (T-568A/T-568B)
Communication system	Full-duplex
Length	Max. 100 m according IEEE 802.3

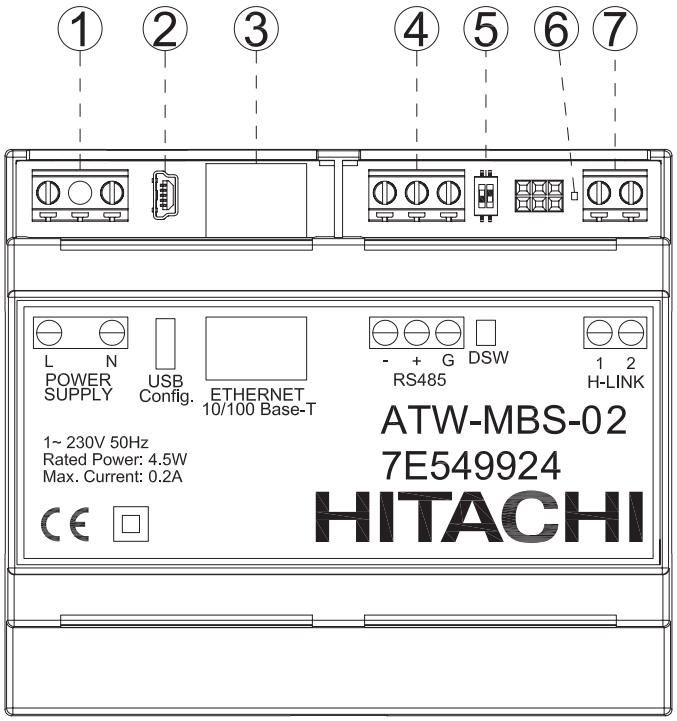
◆ H-LINK

Item	Specifications
Communication with	HITACHI YUTAKI (S / S80 / S COMBI / M) units
Communication line	Twisted pair shielded cable, non-polarity
Communication system	Half-duplex
Communication method	Asynchronous
Speed of transmission	9600 Bauds
Length of wiring	1000 m maximum (total length of H-LINK I/O bus)
Maximum number of gateways	1 Gateway H-LINK SYSTEM
Maximum number of units	ATW-MBS-02 → only 1 YUTAKI

3.3 DIMENSIONAL DATA



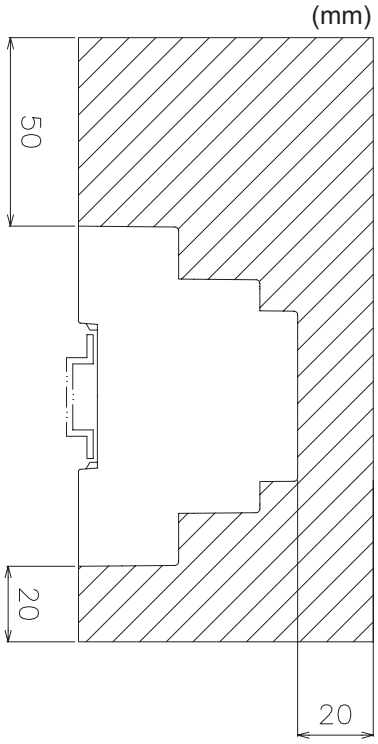
3.4 DESCRIPTION OF THE PARTS



No.	Description
①	External power supply
②	Micro USB cable at configuration time only
③	RJ45 Ethernet for Modbus TCP
④	RS485 for Modbus RTU
⑤	DSW for unit configuration
⑥	Operation led indicator
⑦	H-LINK Communication bus with HITACHI units

3.5 INSTALLATION SPACE

Keep free the shaded area for the good performance of the device.



3.6 INSTALLATION PROCEDURE

DANGER

- ***Do not install this device in places accessible to the general public. Install it in enclosures or other places which are accessible only by the usage of a tool.***
- ***Do not connect power supply before the device installation is correctly done. Always disconnect power supply from the device before any maintenance or servicing action***

CAUTION

- *Check to ensure that the field supplied electrical components (mains power switches, circuit breakers, wires, connectors and wire terminals) have been properly selected according to the electrical data indicated on this document and they comply with national and local codes*
- *Any unit that is not connected or is not under power when turning on Modbus gateway, will not be recognized and will have to be configured later.*
  - *Before power supply and turning on the Modbus gateway, you must ensure that:*
    - *All circuits to be connected are correctly applied.*
    - *All H-Link connections have been set up.*
    - *Modbus connection has been properly done.*
- *The signals' cables should be as short as possible. Keep a distance of more than 150 mm from other power cables. Do not wire them together (although they may intersect). If they must necessarily be installed together, take the following measures to avoid noise disturbances:*
  - *For communications, use shielded wire which is earthed at one side.*

3.7 NETWORK CONFIGURATION

It is supplied a computer software tool, Net configuration Tool, inside the USB stick memory for an easy and friendly configuration.

3.7.1 Computer requirements.

It is required to use a personal computer with Microsoft Windows 7 or higher, a free USB port and Java.

3.7.2 Parameters under configuration:

- Parity: Odd/Even/Disabled
- Communication speed: 9600/19200 Bps
- Modbus address
- Modbus TCP IP

3.7.3 Configuration procedure

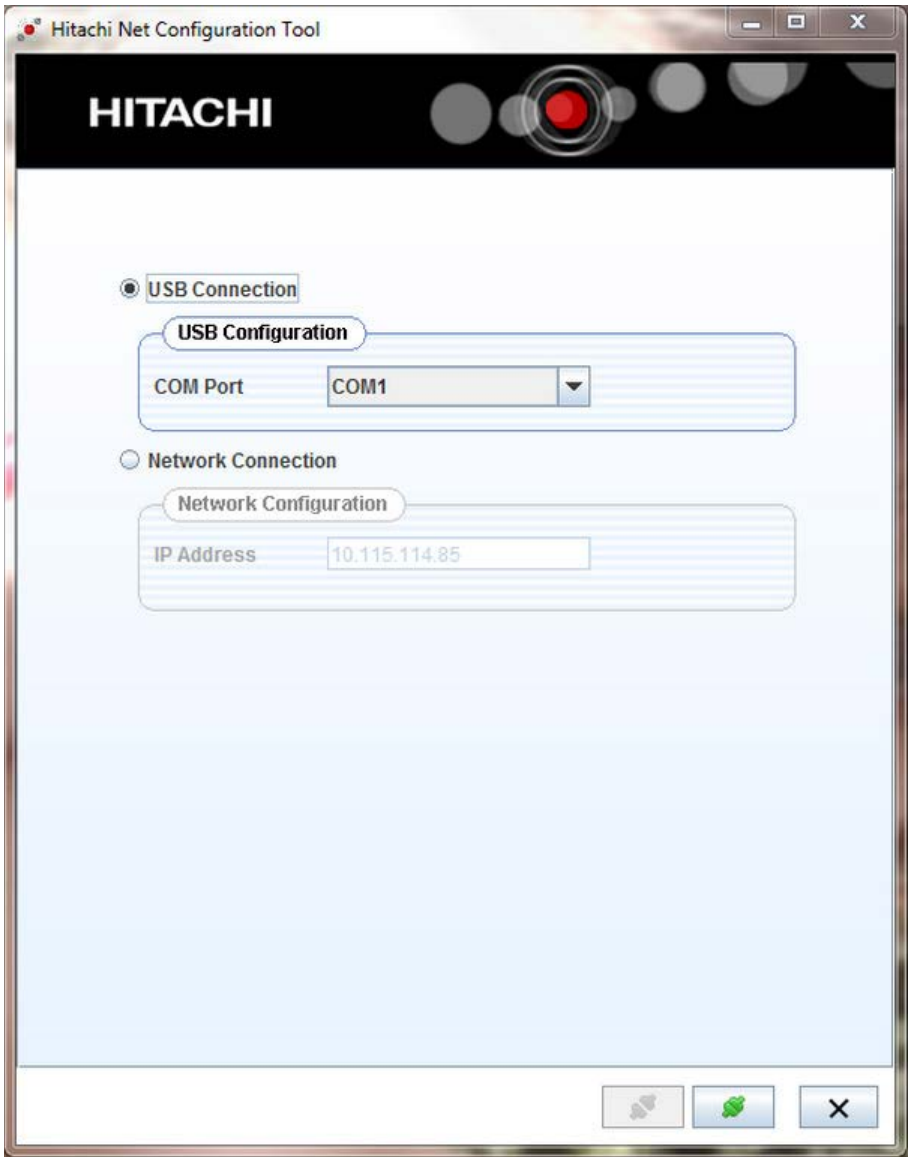
◆ Configuration through USB port

This method is required when the device IP is unknown.

1 Connect the network device to a computer by a USB cable (field supplied or available with the Net Configuration Kit)

2 Select the communication port of the computer.

3 Press the button at screen



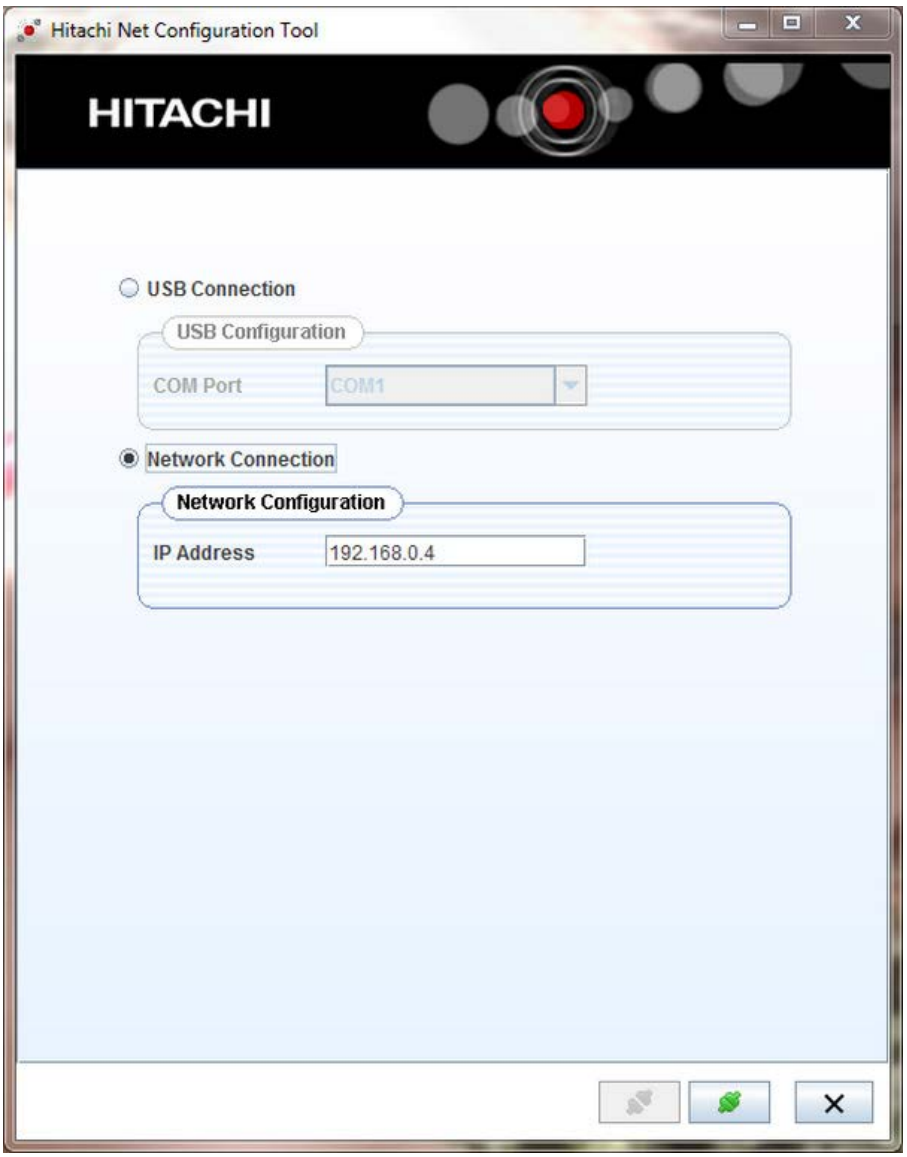
◆ Configuration through Ethernet port

1 Connect the Network device to a computer by a ethernet cable (field supplied or available with the Net Configuration Kit)

2 Input the following parameters:

- IP Address: 192.168.0.4

3 Press the button at screen



◆ Configuration of device and communication

Device information

Check that the network device is correctly displayed at the Device information table. Press refresh button if necessary.

Network information

When the network device is integrated to the LAN / Modbus net by Ethernet, configure the following parameters:

- IP Address: Allow to modify the IP of the Network device port (192.168.0.4 by default).
- Mask: Ask to your IT technician for the proper value (255.255.255.0 by default).
- Gateway: LAN gateway address (192.168.0.1 by default).

Serial Information

When the network device is integrated to the Modbus net by serial port RS485, configure the following parameters:

- RS485: 9600 / 19200 Bps (19200 Bps by default)
- RS485: None / Odd / Even parity (Even by default)
- Modbus Id: 1~128 (1 by default)
- Polarization: Communication polarization (Disabled by default)

4 ELECTRICAL WIRING

Name	Connection	Cable specification
X1	Power supply (*1)	Use 0.75 mm² wires which are not lighter than the polychloroprene sheathed flexible cord (code designation 60245 IEC 57)
X3	Ethernet (*1)	Category 5 or higher LAN cables PC connection: Use a crossed cable (1 cable set available in Net configuration Kit, model code 7E513206) for direct connection. LAN connection: Use a direct cable (field-supplied) for connection to a commercial distributor (Hub).
X4	H-LINK (*1)	Twisted pair shielded cable 0.75 mm². Shield must be grounded in one side only.
X5	RS485 (*1)	3 cores cable harness 0.75 mm² grounded in one side only. Use different colour for each cable.
X6	USB (*1)	USB Mini-B plug cable (1 cable set available in Net configuration Kit, model code 7E513206)

NOTE

*(*1) These cables must be field supplied.*

4.1 DSW CONFIGURATION

Name	Function	Factory setting	Description
SW1	Configuration		SW1-1: Modbus end resistance. SW1-2: Not used (keep always ON)

5 OPERATION

5.1 COMPATIBILITY

The new ATW-MBS-02 is compatible with YUTAKI (S / S80 / COMBI / M).

These devices are not compatible with any of the following Hitachi controllers:

- Centralised remote controls
- Building air conditioning controls
- Other HITACHI BMS Gateways
- Other HITACHI MODBUS Gateways
- Other units of the same model

5.2 DATA AVAILABLE FOR YUTAKI SERIES BEFORE LINE-UP 2016

5.2.1 General parameters

Register	Address	Description	Value	Type
1001	1000	Control Unit Run/Stop	0: Stop 1: Run	R/W
1002	1001	Control Unit Mode	0: Cool (*2) 1: Heat	R/W
1003	1002	Control Circuit 1 Run/Stop	0: Stop 1: Run	R/W
1004	1003	Control Heat. OTC Circuit 1	0: No 1: Points 2: Gradient 3: Fix	R/W
1005	1004	Control Cool. OTC Circuit 1 (*2)	0: No 1: Points 2: Fix	R/W
1006	1005	Control Circuit 1: Thermostat Setting Temperature	50~350 (5,0~35,0 ºC)	R/W
1007	1006	Control Circuit 1: Thermostat Room Temperature (*5)	0~1000 (0,0~100,0 ºC)	R/W
1008	1007	Control Circuit 1: Water heating Fix Setting Temp	0~80 ºC(*3)	R/W
1009	1008	Control Circuit 1: Water cooling Fix Setting Temp (*2)	0~80 ºC(*3)	R/W
1010	1009	Control Circuit 2 Run/Stop	0: Stop 1: Run	R/W
1011	1010	Control Heat. OTC Circuit 2	0: No 1: Points 2: Gradient 3: Fix	R/W
1012	1011	Control Cool. OTC Circuit 2 (*2)	0: No 1: Points 2: Fix	R/W
1013	1012	Control Circuit 2: Thermostat Setting Temperature	50~350 (5,0~35,0 ºC)	R/W
1014	1013	Control Circuit 2: Thermostat Room Temperature (*5)	0~1000 (0,0~100,0 ºC)	R/W
1015	1014	Control Circuit 2: Water heating Fix Setting Temp	0~80 ºC(*3)	R/W
1016	1015	Control Circuit 2: Water cooling Fix Setting Temp (*2)	0~80 ºC(*3)	R/W
1017	1016	Control DHWT Run/Stop	0: Stop 1: Run	R/W
1018	1017	Control DHWT Setting Temperature	0~80 ºC(*3)	R/W
1019	1018	Control Swimming Pool Run/Stop	0: Stop 1: Run	R/W
1020	1019	Control Swimming Pool Setting Temperature	0~80 ºC(*3)	R/W
1021	1020	Control AntiLegionella Run (*6)	0: Stop 1: Run	R/W
1022	1021	Control AntiLegionella Setting Temperature	0~80 ºC(*3)	R/W
1024	1023	Control BMS Alarm (*8)	0: No 1: Alarm	R/W
1023	1022	Control Block menu (*7)	0: No 1: Block	R/W
1025~1027	1024~1026	(Reserved)		
1028	1027	Space mode	0: Comfort 1: ECO	R/W
1029	1028	DHW Mode	0: Standard 1: High demand	R/W
1030	1029	Room Thermostat available (*4)	0: No available 1: Available	R/W
1031	1030	Control Eco offset	1~10	R/W
1032~1050	1031~1049	(Reserved)		
1051	1050	Status Unit Mode	0: Cool (*2) 1: Heat	R

Register	Address	Description	Value	Type
1052	1051	Status Circuit 1 Run/Stop	0: Stop 1: Run	R
1053	1052	Status Heat. OTC Circuit 1	0: No 1: Points 2: Gradient 3: Fix	R
1054	1053	Status Cool. OTC Circuit 1 (*2)	0: No 1: Points 2: Fix	R
1055	1054	Status Circuit 1: Thermostat Setting Temperature	50~350 (5,0~35,0 ºC)	R
1056	1055	Status Circuit 1: Thermostat Room Temperature	0~1000 (0,0~100,0 ºC)	R
1057	1056	Status Circuit 1: Water heating Fix Setting Temp	0~80 ºC(*3)	R
1058	1057	Status Circuit 1: Water cooling Fix Setting Temp (*2)	0~80 ºC(*3)	R
1059	1058	Status Circuit 2 Run/Stop	0: Stop 1: Run	R
1060	1059	Status Heating OTC Circuit 2	0: No 1: Points 2: Gradient 3: Fix	R
1061	1060	Status Cooling OTC Circuit 2 (*2)	0: No 1: Points 2: Fix	R
1062	1061	Status Circuit 2: Thermostat Setting Temperature	50~350 (5,0~35,0 ºC)	R
1063	1062	Status Circuit 2: Thermostat Room Temperature	0~1000 (0,0~100,0 ºC)	R
1064	1063	Status Circuit 2: Water heating Fix Setting Temp	0~80 ºC(*3)	R
1065	1064	Status Circuit 2: Water cooling Fix Setting Temp (*2)	0~80 ºC(*3)	R
1066	1065	Status DHWT Run/Stop	0: Stop 1: Run	R
1067	1066	Status DHWT Setting Temperature	0~80 ºC(*3)	R
1068	1067	Status Swim.Pool Run/Stop	0: Stop 1: Run	R
1069	1068	Status Swim. Pool Setting Temperature	0~80 ºC(*3)	R
1070	1069	Status AntiLeg. Run	0: Stop 1: Run	R
1071	1070	Status AntiLeg.Setting Temperature	0~80 ºC(*3)	R
1072	1071	Status block menu	0: No 1: Block	R
1073	1072	Status BMS Alarm	0: No 1: Alarm	R
1074	1073	LCD Central Mode	0: Local 1: Air 2:Water 3: Full	R
1075	1074	System Configuration	Bit 0: Circuit 1 Heating Available Bit 1: Circuit 2 Heating Available Bit 2: Circuit 1 Cooling Available (*2) Bit 3: Circuit 2 Cooling Available (*2) Bit 4: DHWT Available Bit 5: SWP Available Bit 6: Room thermostat available Circuit 1 Bit 7: Room thermsotat available Circuit 2	R
1076	1075	DHWT Temperature	-80~100 ºC (*1)(*3)	R
1077	1076	Swim temperature	-80~100 ºC (*1)(*3)	R

Register	Address	Description	Value	Type
1078	1077	Operation State	0: OFF 1: Cool Demand –OFF (*2) 2: Cool Thermo-OFF (*2) 3: Cool Thermo-ON (*2) 4: Heat Demand-OFF 5: Heat Thermo-OFF 6: Heat Thermo-ON 7: DHW-OFF 8: DHW-ON 9: SWP-OFF 10: SWP-ON 11: Alarm	R
1079	1078	Outdoor Ambient Tº (Outdoor ambient temperature)	-80~100 ºC (*1)(*3)	R
1080	1079	Water Inlet Tº (Water Inlet unit temperature)	-80~100 ºC (*1)(*3)	R
1081	1080	Water outlet Tº (Water outlet unit temperature)	-80~100 ºC (*1)(*3)	R
1082	1081	Hardware version		R
1083	1082	Software version		R
1084	1083	H-LINK communication alarm state	0: No alarm 1: There is no communication with RCS or YUTAKI unit during more than 180 seconds 2: Data initialization	R
1085	1084	LCD Software number		R
1086	1085	PCB1 Software number		R
1087	1086	Status Circuit 1: Wireless Setting Temperature (*9)	50~350 (5,0~35,0 ºC)	R
1088	1087	Status Circuit 2: Wireless Setting Temperature (*9)	50~350 (5,0~35,0 ºC)	R
1089	1088	Status Circuit 1: Wireless Room Temperature (*9)	0~1000 (0,0~100,0 ºC)	R
1090	1089	Status Circuit 2: Wireless Room Temperature(*9)	0~1000 (0,0~100,0 ºC)	R
1091	1090	Status Eco offset	1~10	R

NOTE

- *(*1) These numbers are expressed as a signed 16-bit value using 2-complement format for negative values.*
- *(*2) Only for Heating and Cooling units.*
- *(*3) This value is limited by the machine according to their rank.*
- *(*4) Enable this parameter when using Modbus thermostat*
- *(*5) This parameter can only be used if no have installed HITACHI thermostat, only when using Modbus thermostat. Unless the central bit is enabled, so the HITACHI thermostat is used only for setting temperature.*
- *(*6) This parameter can only be used if the function is enabled on the LCD.*
- *(*7) Access to menu in unit control is blocked.*
- *(*8) This parameter informs that the Modbus net is in alarm.*
- *(*9) These parameter show thermostat setting and room temperature, which may be different than those in the unit when using central control (Thermostat and Room sensors via Modbus).*

5.2.2 Servicing parameters

Register	Address	Description	Value	Type
1200	1199	Water outlet hp T° (Water outlet hp outlet unit temperature)	0~100 ºC Only for YUTAKI S & S COMBI	R
1201	1200	Ta2: Outdoor Unit Ambient Average Temp.	-80~100 ºC (*1)(*3)	R
1202	1201	Ta. Second Ambient Temperature	-80~100 ºC (*1)(*3)	R
1203	1202	Ta3: Second ambient average temp.	-80~100 ºC (*1)(*3) Only for YUTAKI S COMBI	R
1204	1203	O2: Water outlet Temp. 2 (Two2)	-80~100 ºC (*1)(*3)	R
1205	1204	O3: Water outlet Temp. 3 (Two3)	-80~100 ºC (*1)(*3)	R
1206	1205	Tg: Gas Temperature (THMg)	-80~100 ºC (*1)(*3)	R
1207	1206	TI: Liquid Temperature (THMl)	-80~100 ºC (*1)(*3)	R
1208	1207	Td: Discharge Gas temp	-80~100 ºC (*1)(*3)	R
1209	1208	Te: Evaporation temp	-80~100 ºC (*1)(*3)	R
1210	1209	EVI: Indoor Expansion valve opening	0~100 %	R
1211	1210	EVO: Outdoor Expansion valve	0~100 %	R
1212	1211	H4: Inverter Operation frequency	0~115 Hz (*3)	R
1213	1212	DI: Cause of stoppage		R
1214	1213	P1: Compressor running current (A)	0~30 A (*3)	R
1215	1214	CD: Capacity data		R
1216	1215	MVP: Mixing valve position (%)	Only Circuit 2	R
1217	1216	Defrosting		R
1218	1217	Unit model	0: YUTAKI S 1: YUTAKI S COMBI	R
1219	1218	Th: Water Temp. Setting (Ttwo)	-80~100 ºC (*1)(*3)	R
1221	1220	Water flow level (0,1 m3/h)	Only for YUTAKI S COMBI	R
1222	1221	Water pump speed (%)	Only for YUTAKI S COMBI	R
1223	1222	System status 2	Bit 0: Defrost Bit 1: Solar Bit 2: Water Pump 1 Bit 3: Water Pump 2 Bit 4: Water Pump 3 Bit 5: Compressor ON Bit 6: Boiler ON Bit 7: DHW Heater Bit 8: Space Heater Bit 9: Tarrif input enable	R
1224	1223	Alarm number	0: Alarm XXX: Alarm number	R
1225	1224	R134a Discharge Temperature	Only for YUTAKI S80	R
1226	1225	R134a Suction temperature	Only for YUTAKI S80	R
1227	1226	R134a Liquid temperature	Only for YUTAKI S80	R
1228	1227	R134a Evaporating temperature	Only for YUTAKI S80	R
1229	1228	R134a Discharge Pressure	Only for YUTAKI S80	R
1230	1229	R134a Suction pressure	Only for YUTAKI S80	R
1231	1230	R134a Compressor frequency	Only for YUTAKI S80	R
1232	1231	R134a Indoor Expansion valve opening	Only for YUTAKI S80	R
1233	1232	R134a Compressor current value	Only for YUTAKI S80	R
1234	1233	R134a Softwre number	Only for YUTAKI S80	R
1235	1234	R134a Retry Code	Only for YUTAKI S80	R

NOTE

- *(*1) These numbers are expressed as a signed 16-bit value using 2-complement format for negative values.*
- *(*2) Only for Heating and Cooling units.*
- *(*3) This value is limited by the machine according to their rank.*

5.3 DATA AVAILABLE FOR LINE-UP YUTAKI 2016 SERIES

5.3.1 General parameters

Register	Address	Description	Range	Type
1001	1000	Control Unit Run/Stop	0: Stop 1: Run	R/W
1002	1001	Control Unit Mode	0: Cool (*2) 1: Heat 2: Auto	R/W
1003	1002	Control Circuit 1 Run/Stop	0: Stop 1: Run	R/W
1004	1003	Control Heat. OTC Circuit 1	0: No 1: Points 2: Gradient 3: Fix	R/W
1005	1004	Control Cool. OTC Circuit 1 (*2)	0: No 1: Points 2: Fix	R/W
1006	1005	Control Circuit 1: Water heating Fix Setting Temp	0~80 ºC(*3)	R/W
1007	1006	Control Circuit 1: Water cooling Fix Setting Temp (*2)	0~80 ºC(*3)	R/W
1008	1007	Control Circuit 1: Eco mode	0: ECO 1: Comfort	R/W
1009	1008	Control Circuit 1: Heat ECO Offset Temperature	1~10	R/W
1010	1009	Control Circuit 1: Cool ECO Offset Temperature (*2)	1~10	R/W
1011	1010	Control Circuit 1: Thermostat Available (*7)	0: Not Available 1: Available	R/W
1012	1011	Control Circuit 1: Thermostat Setting Temperature	50~350 (5,0~35,0 ºC)	R/W
1013	1012	Control Circuit 1: Thermostat Room Temperature (*8)	0~1000 (0,0~100,0 ºC)	R/W
1014	1013	Control Circuit 2 Run/Stop	0: Stop 1: Run	R/W
1015	1014	Control Heat. OTC Circuit 2	0: No 1: Points 2: Gradient 3: Fix	R/W
1016	1015	Control Cool. OTC Circuit 2 (*2)	0: No 1: Points 2: Fix	R/W
1017	1016	Control Circuit 2: Water heating Fix Setting Temp	0~80 ºC(*3)	R/W
1018	1017	Control Circuit 2: Water cooling Fix Setting Temp (*2)	0~80 ºC(*3)	R/W
1019	1018	Control Circuit 2: Eco mode	0: ECO 1: Comfort	R/W
1020	1019	Control Circuit 2: Heat ECO Offset Temperature	1~10	R/W
1021	1020	Control Circuit 2: Cool ECO Offset Temperature (*2)	1~10	R/W
1022	1021	Control Circuit 2: Thermostat Available (*7)	0: Not Available 1: Available	R/W
1023	1022	Control Circuit 2: Thermostat Setting Temperature	50~350 (5,0~35,0 ºC)	R/W
1024	1023	Control Circuit 2: Thermostat Room Temperature (*8)	0~1000 (0,0~100,0 ºC)	
1025	1024	Control DHWT Run/Stop	0: Stop 1: Run	R/W
1026	1025	Control DHWT Setting Temperature	0~80 ºC(*3)	R/W
1027	1026	Control DHW Boost	0: No request 1: Request	R/W
1028	1027	Control DHW Demand Mode	0: Standard 1: High demand	R/W
1029	1028	Control Swimming Pool Run/Stop	0: Stop 1: Run	R/W
1030	1029	Control Swimming Pool Setting Temperature	0~80 ºC(*3)	R/W
1031	1030	Control Anti Legionella Run (*9)	0: Stop 1: Run	R/W
1032	1031	Control Anti Legionella Setting Temperature	0~80 ºC(*3)	R/W
1033	1032	Control Block menu (*6)	0: No 1: Block	R/W
1034	1033	Control BMS Alarm (*4)	0: No Alarm 1: Alarm	R/W
1051	1050	Status Unit Run/Stop	0: Stop 1: Run	R

Register	Address	Description	Range	Type
1052	1051	Status Unit Mode	0: Cool (*2) 1: Heat	R
1053	1052	Status Circuit 1 Run/Stop	0: Stop 1: Run	R
1054	1053	Status Heat. OTC Circuit 1	0: No 1: Points 2: Gradient 3: Fix	R
1055	1054	Status Cool. OTC Circuit 1 (*2)	0: No 1: Points 2: Fix	R
1056	1055	Control Circuit 1: Water heating Fix Setting Temp	0~80 ºC(*3)	R
1057	1056	Control Circuit 1: Water cooling Fix Setting Temp (*2)	0~80 ºC(*3)	R
1058	1057	Status Circuit 1: Eco mode	0: ECO 1: Comfort	R
1059	1058	Status Circuit 1: Heat ECO Offset Temperature	1~10	R
1060	1059	Status Circuit 1: Cool ECO Offset Temperature (*2)	1~10	R
1061	1060	Status Circuit 1: Thermostat Setting Temperature	50~350 (5,0~35,0 ºC)	R
1062	1061	Status Circuit 1: Thermostat Room Temperature	0~1000 (0,0~100,0 ºC)	R
1063	1062	Status Circuit 1: Wireless Setting Temperature (*5)	50~350 (5,0~35,0 ºC)	R
1064	1063	Status Circuit 1: Wireless Room Temperature (*5)	0~1000 (0,0~100,0 ºC)	R
1065	1064	Status Circuit 2 Run/Stop	0: Stop 1: Run	R
1066	1065	Status Heat. OTC Circuit 2	0: No 1: Points 2: Gradient 3: Fix	R
1067	1066	Status Cool. OTC Circuit 2 (*2)	0: No 1: Points 2: Fix	R
1068	1067	Status Circuit 2: Water heating Fix Setting Temp	0~80 ºC(*3)	R
1069	1068	Status Circuit 2: Water cooling Fix Setting Temp (*2)	0~80 ºC(*3)	R
1070	1069	Status Circuit 2: Eco mode	0: ECO 1: Comfort	R
1071	1070	Status Circuit 2: Heat ECO Offset Temperature	1~10	R
1072	1071	Status Circuit 2: Cool ECO Offset Temperature (*2)	1~10	R
1073	1072	Status Circuit 2: Thermostat Setting Temperature	50~350 (5,0~35,0 ºC)	R
1074	1073	Status Circuit 2: Thermostat Room Temperature	0~1000 (0,0~100,0 ºC)	R
1075	1074	Status Circuit 2: Wireless Setting Temperature (*5)	50~350 (5,0~35,0 ºC)	R
1076	1075	Status Circuit 2: Wireless Room Temperature (*5)	0~1000 (0,0~100,0 ºC)	R
1077	1076	Status DHWT Run/Stop	0: Stop 1: Run	R
1078	1077	Status DHWT Setting Temperature	0~80 ºC(*3)	R
1079	1078	Control DHW Boost	0: Disable 1: Enable	R
1080	1079	Status DHW Demand Mode	0: Standard 1: High demand	R
1081	1080	Status DHW Temperature	-80~100 ºC (*1)	R
1082	1081	Status Swimming Pool Run/Stop	0: Stop 1: Run	R
1083	1082	Status Swimming Pool Setting Temperature	0~80 ºC(*3)	R
1084	1083	Status Swimming Pool Temperature	-80~100 ºC (*1)	
1085	1084	Status Anti Legionella Run	0: Stop 1: Run	R
1086	1085	Status Anti Legionella Setting Temperature	0~80 ºC(*3)	R
1087	1086	Status Block menu (*6)	0: No 1: Block	R
1088	1087	Status BMS Alarm	0: No 1: Alarm	R
1089	1088	Central Mode	0: Local 1: Air 2:Water 3: Full	R

Register	Address	Description	Range	Type
1090	1089	System Configuration	Bit 0: Circuit 1 Heating Bit 1: Circuit 2 Heating Bit 2: Circuit 1 Cooling (*2) Bit 3: Circuit 2 Cooling (*2) Bit 4: DHWT Bit 5: SWP Bit 6: Room thermostat Circuit 1 Bit 7: Room thermostat Circuit 2 Bit 8: Wireless setting Circuit 1 Bit 9: Wireless setting Circuit 2 Bit 10: Wireless room temperature Circuit 1 Bit 11: Wireless room temperature Circuit 2	R
1091	1090	Operation State	0: OFF 1: Cool Demand –OFF (*2) 2: Cool Thermo-OFF (*2) 3: Cool Thermo-ON (*2) 4: Heat Demand-OFF 5: Heat Thermo-OFF 6: Heat Thermo-ON 7: DHW-OFF 8: DHW-ON 9: SWP-OFF 10: SWP-ON 11: Alarm	R
1092	1091	Outdoor ambient temperature	-80~100 ºC (*1)	R
1093	1092	Water Inlet unit temperature	-80~100 ºC (*1)	R
1094	1093	Water outlet unit temperature	-80~100 ºC (*1)	R
1095	1094	H-LINK communication state	0: No alarm 1: There is no communication with RCS or YUTAKI unit during more than 180 seconds 2: Data initialization	R
1096	1095	Software PCB		R
1097	1096	Software LCD		R
1098	1097	Unit Capacity	0~255 kWh	R
1099	1098	Unit Power consumption	0~255 kWh	R

NOTE

- *(*1) These numbers are expressed as a signed 16-bit value using 2-complement format for negative values.*
- *(*2) Only for Heating and Cooling units.*
- *(*3) This value is limited by the machine according to their rank.*
- *(*4) This parameter informs that the modbus net is in alarm*
- *(*5) These parameters show thermostat setting and room temperature, which may be different than those in the unit when using central control (Thermostat and Room sensor via Modbus)*
- *(*6) Access to menu in unit control is blocked*
- *(*7) Enable this parameter when using Modbus thermostat*
- *(*8) This parameter can only be used if no have installed HITACHI thermostat, only when using Modbus thermostat. Unless the central bit is enabled, so the HITACHI thermostat is used only for setting temperature.*
- *(*9) This parameter can only be used if the function is enabled on the LCD.*

5.3.2 Servicing parameters

Register	Address	Description	Range	Type
1201	1200	Water outlet hp Tº (Water outlet hp outlet unit temperature)	0~100 ºC	R
1202	1201	Ta2: Outdoor Unit Ambient Average Temp.	-80~100 ºC (*1)	R
1203	1202	Ta. Second Ambient Temperature	-80~100 ºC (*1)	R
1204	1203	Ta3: Second ambient average temp.	-80~100 ºC (*1)	R
1205	1204	O2: Water outlet Temp. 2 (Two2)	-80~100 ºC (*1)	R
1206	1205	O3: Water outlet Temp. 3 (Two3)	-80~100 ºC (*1)	R
1207	1206	Tg: Gas Temperature (THMg)	-80~100 ºC (*1)	R
1208	1207	TI: Liquid Temperature (THMl)	-80~100 ºC (*1)	R
1209	1208	Td: Discharge Gas temp	-80~100 ºC (*1)	R
1210	1209	Te: Evaporation temp	-80~100 ºC (*1)	R
1211	1210	EVI: Indoor Expansion valve opening	0~100 %	R
1212	1211	EVO: Outdoor Expansion valve	0~100 %	R
1213	1212	H4: Inverter Operation frequency	0~115 Hz (*3)	R
1214	1213	DI: Cause of stoppage		R
1215	1214	P1: Compressor running current	0~30 A (*3)	R
1216	1215	CD: Capacity data		R
1217	1216	MVP: Mixing valve position	Only Circuit 2	R
1218	1217	Defrosting		R
1219	1218	Unit model	0: YUTAKI S 1: YUTAKI S COMBI 2: S80 3: M	R
1220	1219	Th: Water Temp. Setting (Ttwo)	-80~100 ºC (*1)	R
1221	1220	Water flow level	0~30 (0,0~3,0 m^3/h)	R
1222	1221	Water pump speed	0~100 %	R
1223	1222	System status 2	Bit 0: Defrost Bit 1: Solar Bit 2: Water Pump 1 Bit 3: Water Pump 2 Bit 4: Water Pump 3 Bit 5: Compressor ON Bit 6: Boiler ON Bit 7: DHW Heater Bit 8: Space Heater Bit 9: Smart function input enable	R
1224	1223	Alarm number	0: No Alarm XXX: Alarm number	R
1225	1224	R134a Discharge Temperature	-80~100 ºC (*1)	R
1226	1225	R134a Suction temperature	-80~100 ºC (*1)	R
1227	1226	R134a Discharge Pressure	-0~510 (0'00~5'10 MPa)	R
1228	1227	R134a Suction pressure	-0~255 (0'00~2'55 MPa)	R
1229	1228	R134a Compressor frequency	-0~115 Hz (*3)	R
1230	1229	R134a Indoor Expansion valve 2 opening	-0~100 %	R
1231	1230	R134a Compressor current value	-0~300 (0'00~30'0 A)	R
1232	1231	R134a Retry Code		R

NOTE

- *(*1) These numbers are expressed as a signed 16-bit value using 2-complement format for negative values.*
- *(*2) Only for Heating and Cooling units.*
- *(*3) This value is limited by the machine according to their rank.*

5.4 TROUBLESHOOTING

ALARM CODE	DESCRIPTION	COUNTERMEASURE
LED2 is flickering	Abnormal operation	Shut down the device power supply and restore it after 5 s. If LED2 is still flickering contact to the Hitachi customer service

6 NET CONFIGURATION KIT

This accessory provides all the necessary cables for Hitachi installers when commissioning a Modbus installation.

Components List:

USB cable		Ethernet crossed cable		USB Pen drive Memory	
1x		1x		1x	

The USB Pen Drive Memory includes a software tool for Modbus communication check when commissioning.

The USB cable in only required when configuring the device (network parameters)

The Ethernet cable is provided for a quick connection with a laptop for the Modbus communication check.