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

NETWORK / MODBUS GATEWAYS
HC-A(8/16/64)MB / HC-A64NET

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NL	Nederlands	Vertaalde versie
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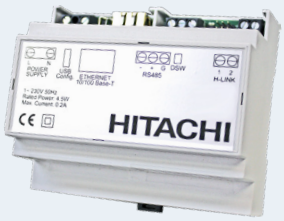
EL	ΕΛΛΗΝΙΚΑ	Μεταφρασμένη έκδοση

1 PRODUCT GUIDE

1.1 CLASSIFICATION OF THE UNITS

Interface Controller Control	Dash separation	H-LINK II Compatible	Maxim Number of Controllable Units (8/16/64)	MB: Modbus gateway NET: Gateway for CSNET Manager
HC	-	A	X	X

1.2 MODELS

DESCRIPTION

HC-A8MB
HC-A16MB
HC-A64MB
HC-A64NET

1.3 ACCESSORY LIST

DESCRIPTION

Net configuration kit

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	0~60 ºC
Humidity	20~85% (Without condensation)

2.3.2 Communication

◆ RS485

Item	Specifications
Type	Modbus RTU for HC-A(8/16/64)MB
	Not available for HC-A64NET
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 for HC-A(8/16/64)MB
	TCP/IP communication for HC-A64NET
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	HC-A(16/64)MB: SET FREE, UTOPIA, CENTRIFUGAL and HEATING systems HC-A8MB and HC-A64NET: SET FREE, UTOPIA and CENTRIFUGAL systems
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 (HC-A(8/16/64)MB) / H-LINK SYSTEM
Maximum number of IU	HC-A64MB → up to 64 * Indoor Units
	HC-A16MB → up to 16 * Indoor Units
	HC-A8MB → up to 8 * Indoor Units
	HC-A64NET → up to 64* Indoor Units

3 INSTALLATION

3.1 SAFETY SUMMARY

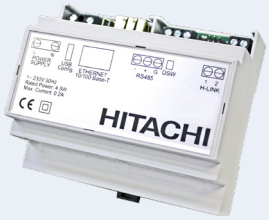
⚠ DANGER

- ***Read carefully this manual before performing the installation work.***
- ***Do not install this device in places accessible to the general public. Install it in electrical enclosures, which are only accessible by the usage of a tool and also provide protection to eventual electromagnetic disturbances.***
- ***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.***

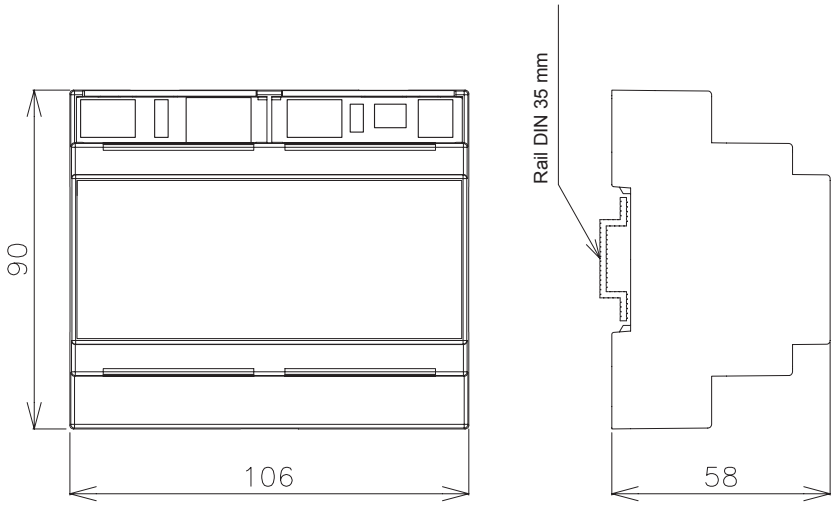
⚠ CAUTION

- *This appliance must be used only by adult and capable people, having received the technical information or instructions to handle properly and safely this appliance.*
- *This is a Class A product. In a domestic environment this product may cause radio interferences in which case the user may be required to take adequate measures.*
- *Children should be supervised to ensure that they do not play with the appliance.*
- *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. If it is necessary, contact with your local authority in regards to standards, rules, regulations, etc.*
- *Do not install Network / Modbus gateways in places:*
  - *where any vapor, oil or other dispersed liquids could affect the device.*
  - *where accumulation, generation or leaks of inflammable gases has been detected.*
  - *near to any heat sources or electromagnetic noise sources.*
  - *that they are near to the sea, in saline, acid or alkaline surroundings.*

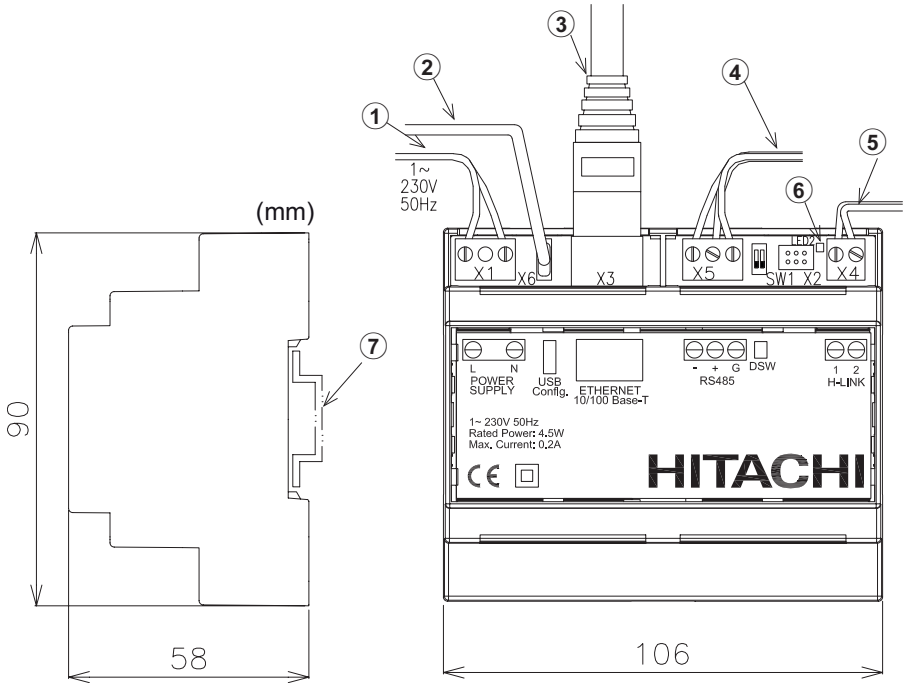
3.2 FACTORY-SUPPLIED COMPONENTS

Gateway device		Instruction manual		USB Pen Drive Memory	
1x		1x		1x	

3.3 DIMENSIONAL DATA



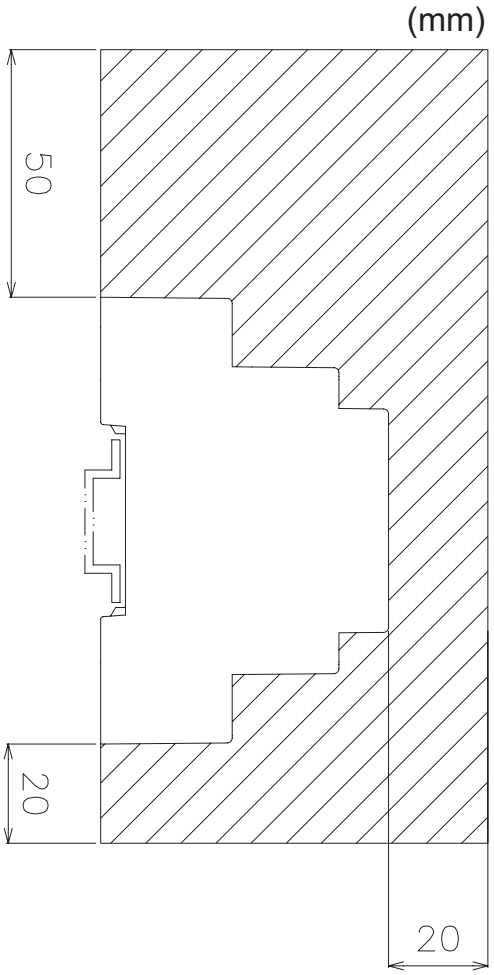
3.4 DESCRIPTION OF THE PARTS



No.	Description
①	External power supply
②	USB cable at configuration time only
③	RJ45 Ethernet HC-A(8/16/64)MB: Modbus TCP HC-A64NET : TCP/IP
④	RS485 Modbus RTU for HC-A(8/16/64)MB Not available for HC-A64NET
⑤	H-LINK Communication bus with Hitachi units
⑥	Operation led indicator
⑦	Rail DIN 35 mm for assembly inside the electrical box

3.5 INSTALLATION SPACE

Keep free the grey area for the correct operation 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 Network / Modbus gateways, will not be recognized and will have to be configured later.*
  - *Before power supply and turning on the Network / Modbus gateways, you must ensure that:*
    - *1. All circuits to be connected are correctly applied.*
    - *2. All H-Link connections have been set up.*
    - *3. 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 either the Net Configuration Kit or the CSNET MANAGER)

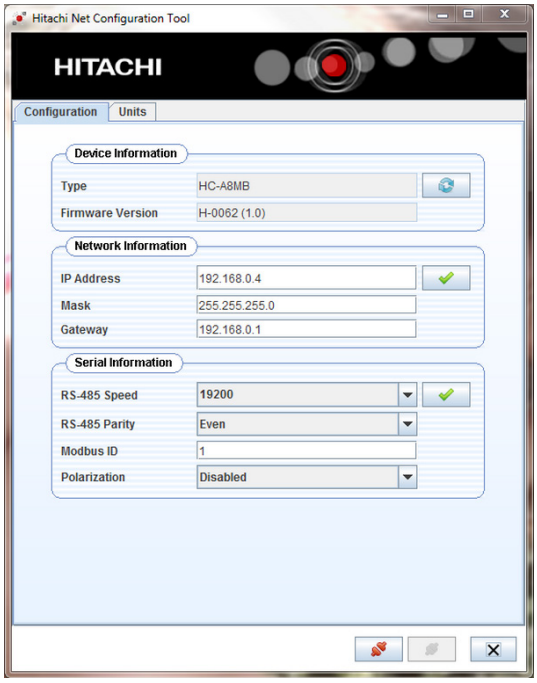
2 Input the following parameters:

- IP Address: 192.168.0.4
- Port: Modbus Gateway/ HC-A64NET

3 Press the button at screen

◆ Configuration of device and communication

HC-A(8/16/64)MB



HC-A64NET

“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:

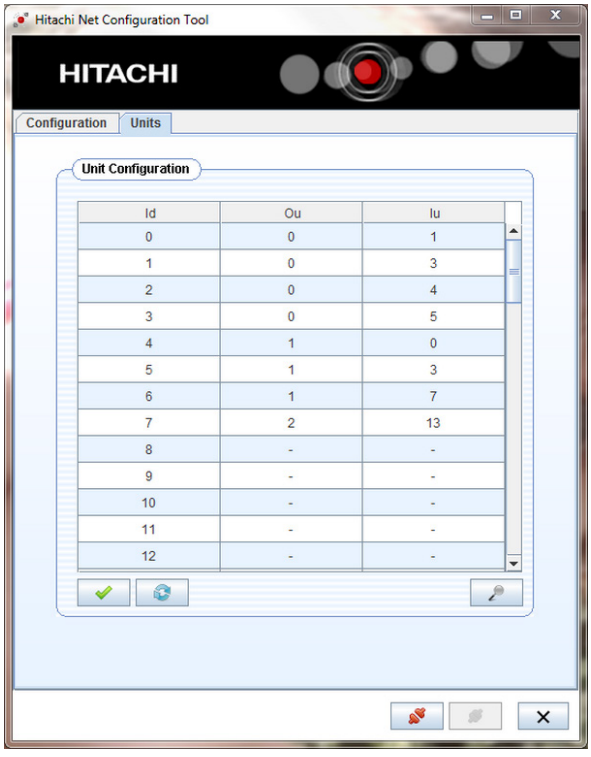
- RS485: 9600 / 19200 Bps (“19200” Bps by default)
- RS485: None / Odd / Even parity (“Even” by default)
- Modbus Id: 1~128 (“1” by default)
- Polarization: Communication polarization (“Disabled” by default)

NOTE

This part is not available for the HC-A64NET

“Units Id Configuration”

- Automatic address can be done by pushing 
- Manual address configuration can be done by the assignation of each Id to a specific H-LINK addresss
  - *Outdoor unit address (Ou) and Indoor unit address (Iu)*



- Confirm the configuration by pressing 
- Refresh button shall be pressed when modifiy the units conneced to the net 

NOTE

This part is not available for the HC-A64NET

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) 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)

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”)

NOTE

(*)No applicable to HC-A64NET.

5 OPERATION

5.1 COMPATIBILITY

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

- *Centralised remote controls*
- *Building air conditioning controls(*)*
- *Other Hitachi BMS Gateways (LONWORKS, BACNET, KNX, FIDELIO)*
- *Other Hitachi MODBUS Gateways*
- *Other units of the same model*

NOTE

(*)HC-A64NET is compatible with CSNET Manager.

5.2 INDOOR UNITS

5.2.1 Available data for HC-A(8/16/64)MB

Offset (1)	Description	Values	Read/Write
0	Exist	0: No exist 1: Exist	Read
1	System address	0~63	Read
2	Unit address		
3	On/Off setting order	0: Stop 1: Run	Read/Write
4	Mode setting order	0: Cool 1: Dry 2: Fan 3: Heat 4: Auto	Read/Write
5	Fan setting order	0: Low 1: Medium 2: High 3: High2 4: Auto	Read/Write
6	Setting temperature	ºC (set according to the unit working range)	Read/Write
7	Louver setting	0 ~ 7 (7 is Auto)	Read/Write
8	Central setting (3)	Bit 0: On/Off (always can be stopped) Bit 1: Mode Bit 2: Setting Temp Bit 3: Fan Bit 4: Louver	Read/Write
9	On/Off status	0: Off 1: On	Read
10	Mode status	0: Cool 1: Dry 2: Fan 3: Heat 4: Auto	Read
11	Fan status	0: Low 1: Medium 2: High 3: High2 4: Auto	Read
12	Setting temperature status	ºC (set according to the unit working range)	Read
13	Louver status	0 ~ 7 (7 is Auto)	Read
14	(Not used)	(Not used)	(Not used)
15	Inlet temperature reading (2)	-63ºC ~ 63ºC	Read
16	Outlet temperature reading (2)	-63ºC ~ 63ºC	Read
17	Gas pipe temperature reading (2)	-63ºC ~ 63ºC	Read
18	Liquid pipe temperature reading (2)	-63ºC ~ 63ºC	Read
19	Alarm code	Alarm unit from 7-segment	Read
20	Compressor stop cause	(Read unit service manual)	Read
21	Indoor unit expansion valve opening	0~100	Read

Offset (1)	Description	Values	Read/Write
22	Unit operation condition	0: OFF 1: Thermo OFF 2: Thermo ON 3: Alarm	Read
23	(Not used)	(Not used)	(Not used)
24	Ambient temperature (2)	-63ºC ~ 63ºC	Read
25	Remote control switch temperature (only when available in the unit) (2)	-63ºC ~ 63ºC	Read
26	Remote control switch configuration	b0: 0 Master/1Slave b1: 0 wih RCS/1 Without RCS	Read/Write
27	Remote control switch group	0: No group 1~255	Read/Write
28~30	(Not used)	(Not used)	(Not used)
31	Remote sensor temperature (2)	-63ºC ~ 63ºC	Read

NOTE

- *(1) Register address is calculated as: "N + (Address * 32) + Offset" where:*
- *N: Data table position is 2000, position 20000 is also available to maintain compatibility with old Modbus gateway.*
- *Address: Indoor unit address as configured by configuration software.*
- *(2) These numbers refer to signed 16-bit value using 2-complement format for negative values*
- *(3) Bit 0 (ON/OFF) and Bit 4 (Louver) selectable only when all centrals are actived.*
- *In order to full lock setting from RCS (Central shown in RCS) set this register to 31.*

5.2.2 Available Data for HC-A(16/64)MB

Offset	Description	Values	Read/Write	Availability		
				VRF	RAC	ATW
0	Exist	0: No exist	Read	O	O	
		1: Exist				
1	System address	H-LINK 1: 0~15	Read	O	O	
2	Unit address	H-LINK 2: 0~63		O	O	
3	Type	0: Indoor Unit	Read	O	O	
4	On/Off setting order	0: Stop	Read/Write	O	O	
		1: Run				
5	Mode setting order	0: Cool	Read/Write	O	O	
		1: Dry				
		2: Fan				
		3: Heat				
		4: Auto				
6	Fan setting order	0: Low	Read/Write	O	O	
		1: Medium				
		2: High				
		3: High2				
		4: Auto				
7	Setting temperature	ºC (set according to the unit working range)	Read/Write	O	O	
8	Temperature setting with 0.5°C intervals	ºC x 10 (19.5ºC read as 195)	Read/Write	O		
9	Heating temperature setting for AUTO Cool/Heat	ºC	Read/Write	O		
10	Heating Temperature setting for AUTO Cool/heat with 0.5°C intervals	ºC x 10 (19.5ºC read as 195)	Read/Write	O		
11	Cooling Temperature setting for AUTO Cool/heat	ºC	Read/Write	O		
12	Cooling Temperature setting for AUTO Cool/heat with 0.5°C intervals	ºC x 10 (19.5ºC read as 195)	Read/Write	O		
13	Louver setting	0 ~ 7 (7 is Auto)	Read/Write	O		
14	Central setting (2)	Bit 0: On/Off (always can be stopped)	Read/Write	O	O	
		Bit 1: Mode				
		Bit 2: Setting Temp				
		Bit 3: Fan				
		Bit4: Louver				
15	On/Off status	0: Off	Read	O	O	
		1: On				
16	Mode status	0: Cool	Read	O	O	
		1: Dry				
		2: Fan				
		3: Heat				
		4: Auto				
17	Fan status	0: Low	Read	O	O	
		1: Medium				
		2: High				
		3: High2				
		4: Auto				
18	Setting temperature status	ºC (set according to the unit working range)	Read	O	O	

Offset	Description	Values	Read/Write	Availability		
				VRF	RAC	ATW
19	Temperature setting with 0.5°C intervals status	ºC x10 (19.5ºC read as 195)	Read	O		
20	Heating temperature setting for AUTO Cool/Heat status	ºC	Read	O		
21	Heating Temperature setting for AUTO Cool/heat with 0.5°C intervals status	ºC x 10 (19.5ºC read as 195)	Read	O		
22	Cooling Temperature setting for AUTO Cool/heat status	ºC	Read	O		
23	Cooling Temperature setting for AUTO Cool/heat with 0.5°C intervals status	ºC x 10 (19.5ºC read as 195)	Read	O		
24	Louver status	0 ~ 7 (7 is Auto)	Read	O		
25	Air inlet temperature reading	-63ºC ~ 63ºC	Read	O		
26	Air outlet temperature reading	-63ºC ~ 63ºC	Read	O		
27	Gas pipe temperature reading	-63ºC ~ 63ºC	Read	O		
28	Liquid pipe temperature reading	-63ºC ~ 63ºC	Read	O		
29	Alarm code	Alarm unit from 7-segment	Read	O	O(1)	
30	Compressor stop cause	(Read unit service manual)	Read	O		
31	Indoor unit expansion valve opening	0~100	Read	O		
32	Unit operation condition	0: OFF 1: Thermo OFF 2: Thermo ON 3: Alarm	Read	O	O	
33	Remote temperature sensor (THM4) value	-63ºC ~ 63ºC	Read	O		
34	Remote control switch temperature (only when available in the unit)	-63ºC ~ 63ºC	Read	O	O	
35	Remote control switch configuration	b0: 0 Master/1Slave b1: 0 wih RCS/1 Without RCS	Read/Write	O		
36	Remote control switch group	0: No group 1~255	Read/Write	O		
37	CN3 Configuration status	b0: Input 1 open/close b1: Input 2 open/close b2: Enabled/Disabled (Indicates if the unit has CN3 enabled with any function)	Read	O		
38~49	Reserved					
50	Control Unit Run/Stop	0: Stop 1: Run	Read/Write			O
51	Control Unit Mode	0: Cool 1: Heat	Read/Write			O
52	Control Circuit 1 Run/Stop	0: Stop 1: Run	Read/Write			O
53	Control Heat. OTC Zone 1	0: No 1: Points 2: Gradient 3: Fix	Read/Write			O
54	Control Cool. OTC 1	0: No 1: Points 2: Fix	Read/Write			O

Offset	Description	Values	Read/Write	Availability		
				VRF	RAC	ATW
55	Control Circuit 1: Water heating Fix Setting Temp	0~80	Read/Write			O
56	Control Circuit 1: Water cooling Fix Setting Temp	0~80	Read/Write			O
57	Control Circuit 1: Eco mode	0: ECO 1: Comfort	Read/Write			O
58	Control Circuit 1: Heat ECO Offset Temperature	1~10	Read/Write			O
59	Control Circuit 1: Cool ECO Offset Temperature	1~10	Read/Write			O
60	Control Circuit 1: External MBS/KNX Thermostat Available	0: Not Available 1: Available	Read/Write			O
61	Control Zone 1: Thermostat Setting	0~65535	Read/Write			O
62	Control Zone 1: Room Ambient Temperature	-32667~32667	Read/Write			O
63	Control Circuit 2 Run/Stop	0: Stop 1: Run	Read/Write			O
64	Control Heat. OTC Zone 2	0: No 1: Points 2: Gradient 3: Fix	Read/Write			O
65	Control Cool. OTC Zone 2	0: No 1: Points 2: Fix	Read/Write			O
66	Control Circuit 2: Water heating Fix Setting Temp	0~80	Read/Write			O
67	Control Circuit 2: Water cooling Fix Setting Temp	0~80	Read/Write			O
68	Control Circuit 2: Eco mode	0: ECO 1: Comfort	Read/Write			O
69	Control Circuit 2: Heat ECO Offset Temperature	1~10	Read/Write			O
70	Control Circuit 2: Cool ECO Offset Temperature	1~10	Read/Write			O
71	Control Circuit 2: External MBS/KNX Thermostat Available	0: Not Available 1: Available	Read/Write			O
72	Control Zone 2: Thermostat Setting	0~65535	Read/Write			O
73	Control Zone 2: Room Ambient Temperature	-32667~32667	Read/Write			O
74	Control DHWT Run/Stop	0: Stop 1: Run	Read/Write			O
75	Control DHWT Setting Temperature	0~80	Read/Write			O
76	Control DHW Boost	0: No request 1: Request	Read/Write			O
77	Reserved					
78	Control DHW Demand Mode	0: Standard 1: High demand	Read/Write			O
79	Control Swiming Pool Run/Stop	0: Stop 1: Run	Read/Write			O
80	Control Swiming Pool Setting Temperature	0~80	Read/Write			O
81	Control AntiLegionella Run/Stop	0: Stop 1: Run	Read/Write			O

Offset	Description	Values	Read/Write	Availability		
				VRF	RAC	ATW
82	Control AntiLegionella Setting Temperature	0~80	Read/Write			O
83	Control Block menu	0: No 1: Block (user cannot access the menu)	Read/Write			O
84	Control Yutaki Forced OFF	0: Normal Operation 1: Forced OFF	Read/Write			O
85	Space Heating Heater Forced OFF	0: Normal Operation 1: Heater Forced OFF	Read/Write			O
86	Control Communication Alarm bit	0: No 1: Alarm	Read/Write			O
87~99	Reserved					
100	Status Unit Run/Stop	0: Stop 1: Run	Read			O
101	Status Mode	B0: 0: Cool / 1: Heat B1: 0: Normal / 1: Auto	Read			O
102	Status Circuit 1 Run/Stop	0: Stop 1: Run	Read			O
103	Status Heat. OTC 1	0: No 1: Points 2: Gradient 3: Fix	Read			O
104	Status Cool. OTC 1	0: No 1: Points 2: Fix	Read			O
105	Status Circuit 1: Water heating Fix Setting Temp	0~80	Read			O
106	Status Circuit 1: Water cooling Fix Setting Temp	0~80	Read			O
107	Status Circuit 1: Eco mode	0: ECO 1: Comfort	Read			O
108	Status Circuit 1: Heat ECO Offset Temperature	1~10	Read			O
109	Status Circuit 1: Cool ECO Offset Temperature	1~10	Read			O
110	Status Circuit 1: Thermostat Setting Temperature	50~350 (5,0~35,0)	Read			O
111	Status Circuit 1: Thermostat Room Temperature	0~1000 (0,0~100,0)	Read			O
112	Status Circuit 1: Wireless Setting Temperature	50~350 (5,0~35,0)	Read			O
113	Status Circuit 1: Wireless Room Temperature	0~1000 (0,0~100,0)	Read			O
114	Status Circuit 2 Run/Stop	0: Stop 1: Run	Read			O
115	Status Heating OTC 2	0: No 1: Points 2: Gradient 3: Fix	Read			O
116	Status Cooling OTC 2	0: No 1: Points 2: Fix	Read			O

Offset	Description	Values	Read/Write	Availability		
				VRF	RAC	ATW
117	Status Circuit 2: Water heating Fix Setting Temp	0~80	Read			O
118	Status Circuit 2: Water cooling Fix Setting Temp	0~80	Read			O
119	Status Circuit 2: Eco mode	0: ECO 1: Comfort	Read			O
120	Status Circuit 1: Heat ECO Offset Temperature	1~10	Read			O
121	Status Circuit 1: Cool ECO Offset Temperature	1~10	Read			O
122	Status Zone 2: Thermostat Setting	50~350 (5,0~35,0)	Read			O
123	Status Zone 2: Ambient Temperature	0~1000 (0,0~100,0)	Read			O
124	Status Circuit 2: Wireless Setting Temperature	50~350 (5,0~35,0)	Read			O
125	Status Circuit 2: Wireless Room temperature	0~1000 (0,0~100,0)	Read			O
126	Status DHWT Run/Stop	0: Stop 1: Run	Read			O
127	Status DHWT Setting Temperature	0~80	Read			O
128	Status DHW Boost	0: Disable 1: Enable	Read			O
129	Reserved					
130	Status DHW Demand Mode	0: Standard 1: High demand	Read			O
131	Status DHW Temperature	-80~100	Read			O
132	Status Swim.Pool Run/Stop	0: Stop 1: Run	Read			O
133	Status Swim. Pool Setting Temperature	0~80	Read			O
134	Status Swim. Pool Temperature	-80~100	Read			O
135	Status AntiLeg. Run/Stop	0: Stop 1: Run	Read			O
136	Status AntiLeg.Setting Temperature	0~80	Read			O
137	Status block menu	0: No 1: Block	Read			O
138	Status Communication Alarm bit	0: No 1: Alarm	Read			O
139	LCD Central Mode	0: Local 1: Air (Not available for Yutampo) 2:Water (Not available for Yutampo) 3: Full	Read			O

Offset	Description	Values	Read/Write	Availability		
				VRF	RAC	ATW
140	System Configuration	b0: Zone 1 Heating Available	Read			O
		b1: Zone 2 Heating Available				
		b2: Zone 1 Cooling Available				
		b3: Zone 2 Cooling Available				
		b4: DHWT Available				
		b5: SWP Available				
		b6: Room thermostat available Zone 1				
		b7: Room thermostat available Zone 2				
		b8: Wireless Setting C1				
		b9: Wireless Setting C2				
		b10: Wireless Room Temperature C1				
		b11: Wireless Room Temperature C2				
		b12: Slave Unit				
141	Operation State	0: OFF	Read			O
		1: Cool Demand –OFF				
		2: Cool Thermo-OFF				
		3: Cool Thermo-ON				
		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				
142	Outdoor Ambient T°	-80~100	Read			O
	(Outdoor ambient temperature)					
143	Water Inlet T°	-80~100	Read			O
	(Water Inlet unit temperature)					
144	Water outlet T°	-80~100	Read			O
	(Water outlet unit temperature)					
145	H-Link Communication State	0: No alarm	Read			O
		1: There is no communication with RCS or Yutaki unit during more than 180 seconds				
		2: Data initialization				
146	Software PCB		Read			O
147	Software LCD		Read			O
148	Unit Capacity		Read			O
149	Unit Power Consumption		Read			O
150	Water Outler HP (TwoHP)	0~100 Only for Yutaki S & S Combi	Read			O
151	Ta1av: Outdoor Unit Ambient Average Temperature	-80~100	Read			O

Offset	Description	Values	Read/Write	Availability		
				VRF	RAC	ATW
152	Ta2: Second Ambient Temperature (inst)	-80~100	Read			O
153	Ta2av: Second Ambient Temperature (avg)	-80~100				O
154	O2: Water outlet Temp 2 (Two2)	-80~100	Read			O
155	O3: Water outlet Temp 3 (Two3)	-80~100	Read			O
156	Tg: Gas Temperature (THMg)	-80~100	Read			O
157	Tl: Liquid Temperature (THMl)	-80~100	Read			O
158	EVI: Indoor expansion valve openning	0~100	Read			O
159	CD: Capacity Data		Read			O
160	Mixing Valve Opening	0~100	Read			O
161	Defrosting	0: No defrosting	Read			O
		1: Defrosting				
162	Unit Model	0: Yutaki S	Read			O
		1: Yutaki SC				
		2: Yutaki S80				
		3: Yutaki M				
		4: Yutaki SC Lite (New)				
		5: Yutampo (New)				
		6: YCC (New)				
163	Th: Water Temp Setting (Ttwo)	-80~100	Read			O
164	Water Flow	Water Flow [0.1m3/h]	Read			O
165	Pump Speed	0~100	Read			O
166	System status 2	Bit 0: Defrost	Read			O
		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 enabled				
		Bit10: Forced OFF				
		Bit11: DHW recirculation Pump State				
		Bit12: Solar Pump Output State				
167	Alarm number	0: Alarm	Read			O
		XXX: Alarm number				
168	R134a Discharge Temperature		Read			O
169	R134a Suction temperature		Read			O
170	R134a Discharge Pressure		Read			O
171	R134a Suction pressure		Read			O
172	R134a Compressor frequency		Read			O
173	R134a Indoor Expansion valve opening		Read			O
174	R134a Compressor current value		Read			O
175	R134a Retry Code		Read			O
176	R134 Te SH		Read			O
177	R134 Secondary Current		Read			O

Offset	Description	Values	Read/Write	Availability		
				VRF	RAC	ATW
178	R134 Stop Code		Read			O
179~ 189	Reserved					
190	YCC - Enabled Units	0~8	Read			O
191	YCC - Working Units	0~8	Read			O
192	YCC - Required Units	0~8	Read			O

NOTE

- *Register address is calculated as: 5000+(Modbus_Id*200)+offset*
- *Modbus_Id as configured by configuration software*
- *For VRF / Package units, only the relevant data are available (heating units registers will not give any value). The situation is the same for heating units (registers related to air/air units will not give any value).*
- *Availability:*
  - PAC: VRF and package units.
  - RAC: Domestic units connected to the H-link via PSC-6RAD or SPX-RAMHLK
  - ATW: Air to water units.
- *(1) Take into account only if it is different from zero.*
- *(2) Bit 0 (ON/OFF) and Bit 4 (Louver) selectable only when all centrals are actived.*
- *In order to full lock setting from RCS (Central shown in RCS) set this register to 31*

5.3 OUTDOOR UNITS

Some state registers about outdoor unit have been added. Using these registers it is now possible to know the status of the refrigerant cycle. Some control registers have also been added.

Offset	Description	Values	Read/Write
0	Outdoor Air Temperature	-63ºC ~ 63ºC	Read
1	Compressor Discharge Temperature	0 ~ 200 ºC	Read
2	Heating Evaporating Temperature		Read
3	Number of operating Compressor		Read
4	Discharge Pressure	0.0 ~ 5.0 MPa (0.1 MPa)	Read
5	Suction Pressure	-0.2 ~2.0MPa (0.1 MPa or 0.01MPa depending unit)	Read
6	Total Current	0 ~ 255 A	Read
7	Total Real Frequency	0 ~ 255 Hz	Read
8	EVO1	0 ~ 100 %	Read
9	EVO2 / Hot Bypass	0 ~ 100 %	Read
10	EVB	0 ~ 100 %	Read
11	Outdoor Unit Option Enabled	0: Disable 1: Enable (it's possible to use the following options, also if the value of register 16 "Power Level Set" is 1)	Read/Write
12	Noise Control Enabled	0: Disable 1: Enable (it's possible to send the noise level)	Read/Write
13	Noise Control Level Set	0~9 (See the service manual of Outdoor unit, function db)	Read/Write
14	Power Control Enabled	0: Disable 1: Enable (it's possible to send the power level)	Read/Write
15	Power Level	0~100%	Read/Write
16	Power Level Set	0~100%	Read
17	Power Level Current Value	0~100%	Read

Offset	Description	Values	Read/Write
18	Power Control Possible	0: Not possible	Read
		1: Possible	

NOTE

- *Register address is calculated as: 5000+(Modbus_Id*200)+offset*
- *Modbus_Id as configured by configuration software*

5.4 OPTIONAL FUNCTIONS

Some optional functions of the indoor units have been added so that they can be managed from the BMS.

Offset	Description	Values	Read/Write
0	b1 (Heating temperature compensation)	0~4	Read/Write
1	b2 (Circulation function at heating Thermo-OFF)	0~1	Read/Write
2	b4 (Change of filter cleaning period)	0~4	Read/Write
3	c5 (Static pressure selection)	0~2	Read/Write
4	c8 (Control by the temperature sensor of the remote control switch)	0~2	Read/Write
5	Cb (Selection of forced stoppage logic)	0~1	Read/Write
6	Cd (Stop of indoor unit fan during cooling Thermo-OFF conditions)	0~1	Read/Write
7	CE (Stop of indoor unit fan during heating Thermo-OFF conditions)	0~1	Read/Write
8	d1 (Management of indoor unit operation after a power supply cut off -option 1)	0~1	Read/Write
9	d3 (Management of indoor unit operation after a power supply cut off -option 2)	0~1	Read/Write
10	d4 (RPI(M) Prevention of low air outlet temperature in cooling mode)	0~1	Read/Write
11	d5 (Prevention of low air outlet temperature in heating mode)	0~1	Read/Write
12	E1 (KPI: Ventilation mode / Econofresh cooling mode)	0~2	Read/Write
13	E2 (KPI: Increase of air supply volume / Econofresh enthalpy Sensor)	0~1	Read/Write
14	E4 (KPI: Pre-cooling / preheating period / Econofresh: CO2 sensor)	0~2	Read/Write
15	E8 (Control for stop of the indoor unit fan during heating Thermo-OFF conditions (with remote sensor THM-R2AE connected to the THM4 connector in the indoor unit PCB)	0~1	Read/Write
16	E9 (Intermittent fan operation in heating stop)	0~1	Read/Write
17	Eb (Indoor unit fan control during cooling Thermo-OFF conditions)	0~2	Read/Write
18	EE (Control in “Automatic” indoor fan speed mode)	0~1	Read/Write
19	EF (Control in “Automatic” indoor fan speed mode (supporting High H))	0~1	Read/Write
20	H4 (KPI: Operation modes for the ventilation unit with energy recovery)	0~1	Read/Write
21	K5 (Detection level of the motion sensor kit)	0~2	Read/Write
22	K6 (Selection of allowed operation modes when the control sensor of the indoor unit is set by C8 function)	0~3	Read/Write

NOTE

- *Register address is calculated as: 40000+(Modbus_Id*100)+offset*
- *Modbus_Id as configured by configuration software*

5.5 ALARM CODE LIST

Refer to Service Manual for the alarm explanation and repair procedure in case of Indoor Unit or Outdoor Unit alarm.

5.6 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.

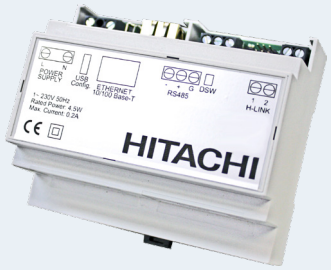
ESPAÑOL

1 GUÍA DEL PRODUCTO

1.1 NOMENCLATURA DE LAS UNIDADES

Control del controlador de la interfaz				
	Guión de separación			
		Compatible con H-LINK II		
			Número máximo de unidades controlables (8/16/64)	
				MB: gateway Modbus NET: gateway para CSNET Manager
HC	-	A	X	X

1.2 MODELOS

DESCRIPCIÓN

HC-A8MB
HC-A16MB
HC-A64MB
HC-A64NET

1.3 LISTA DE ACCESORIOS

DESCRIPCIÓN

Kit de configuración de la red

2 DATOS GENERALES DEL NUEVO PRODUCTO

2.3.1 Especificaciones del hardware

Elemento	Especificaciones
Alimentación	1~ 230 V ±10% 50 Hz
Consumo	4,5W (máximo)
Dimensiones exteriores	Ancho: 106 mm, Fondo: 90 mm, Alto: 58 mm
Peso	165 g
Condiciones de montaje	Interior (instalación en un lugar cerrado con acceso restringido)
Temperatura ambiente	0~60 ºC
Humedad	20~85% (sin condensación)

2.3.2 Comunicación

◆ RS485

Elemento	Especificaciones
Tipo	Modbus RTU para HC-A(8/16/64)MB
	No disponible para HC-A64NET
Conector	Puerto serie RS485 (3 terminales roscados)
Línea de comunicación	Cable de par trenzado apantallado, con un tercer cable (para el común), con polaridad
Sistema de comunicaciones	Conexión serie multipunto, semidúplex
Método de comunicación	Sin paridad o selección de paridad par/impar. Longitud de datos: 8 bits - 1 bit de parada
Velocidad transmisión (Baudios)	19200/9600 Baudios
Largo	Máx. 1200 m de acuerdo con EIA-485

◆ Ethernet

Elemento	Especificaciones
Tipo	Modbus TCP para HC-A(8/16/64)MB
	Comunicación TCP/IP para HC-A64NET
Conector	Ethernet (RJ45)
Línea de comunicación	Dos cables de par trenzado CAT5 o superior (T-568A/T-568B)
Sistema de comunicaciones	Dúplex completo
Largo	Máx. 100 m conforme a IEEE 802.3

◆ H-LINK

Elemento	Especificaciones
Comunicación con	HC-A(16/64)MB: sistemas SET FREE, UTOPIA, CENTRIFUGAL y sistemas de CALEFACCIÓN HC-A8MB y HC-A64NET: sistemas SET FREE, UTOPIA y CENTRIFUGAL
Línea de comunicación	Cable de par trenzado blindado, no polarizado
Sistema de comunicaciones	Semidúplex
Método de comunicación	Asíncrono
Velocidad de transmisión	9600 baudios
Longitud del cableado	1000 m máximo (longitud total del bus H-LINK I/E)
Número máximo de gateways	1 Gateway (HC-A(8/16/64)MB) / SISTEMA H-LINK
Número máximo de UI	HC-A64MB → hasta 64 * unidades interiores
	HC-A16MB → hasta 16 * unidades interiores
	HC-A8MB → hasta 8 * unidades interiores
	HC-A64NET → hasta 64* unidades interiores

3 INSTALACIÓN

3.1 RESUMEN DE SEGURIDAD

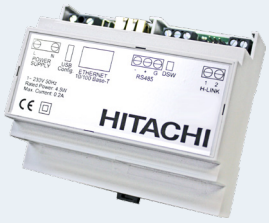
⚠ PELIGRO

- ***Lea atentamente este manual antes de realizar cualquier trabajo de instalación.***
- ***No instale este dispositivo en lugares a los que pueda acceder el público general. Instálelo en armarios eléctricos accesibles solo mediante el uso de una herramienta y protéjalo frente a eventuales perturbaciones electromagnéticas.***
- ***Asegúrese de haber instalado correctamente el dispositivo antes de conectar la alimentación eléctrica. Desconecte siempre la alimentación eléctrica antes de realizar cualquier trabajo de mantenimiento en el dispositivo.***

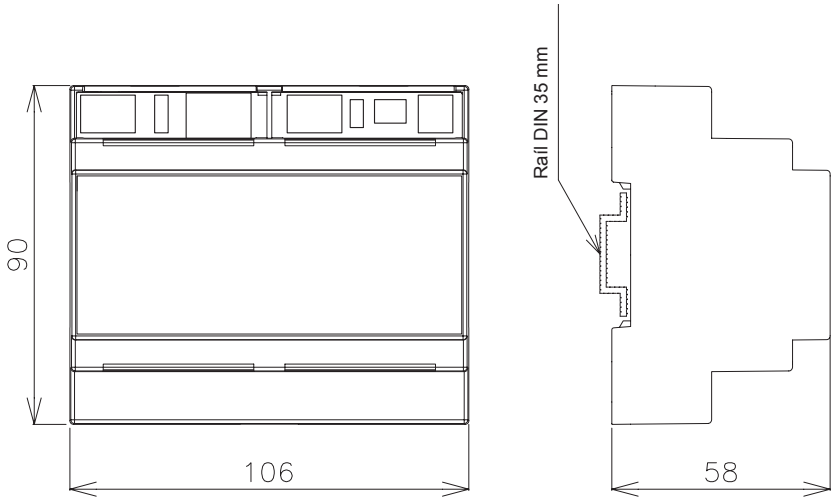
⚠ PRECAUCIÓN

- *Este dispositivo debe ser utilizado únicamente por un adulto o por una persona responsable que haya recibido formación o instrucciones técnicas de cómo manipularlo de forma adecuada y segura.*
- *Este es un producto de Clase A. En un ambiente doméstico, este dispositivo puede provocar interferencias de radio, en cuyo caso el usuario deberá tomar las medidas adecuadas.*
- *Es preciso vigilar a los niños para que no jueguen con el dispositivo.*
- *Asegúrese de que los componentes eléctricos suministrados por el instalador (interruptores de alimentación principal, disyuntores, cables, conectores y terminales de cables) se hayan seleccionado correctamente según los datos eléctricos indicados en este documento y que cumplen con la normativa local y nacional. Si fuera necesario contacte con la autoridad local correspondiente para obtener información acerca de la normativa, leyes, reglamentos, etc.*
- *No instale gateways de red / Modbus en lugares:*
  - *en los que algún vapor, aceite u otro líquido disperso pueda afectar al dispositivo.*
  - *en los que se detecte generación, acumulación o fugas de gases inflamables.*
  - *cercanos a alguna fuente de calor o de ruido electromagnético.*
  - *cercanos al mar, en entornos salinos, ácidos o alcalinos.*

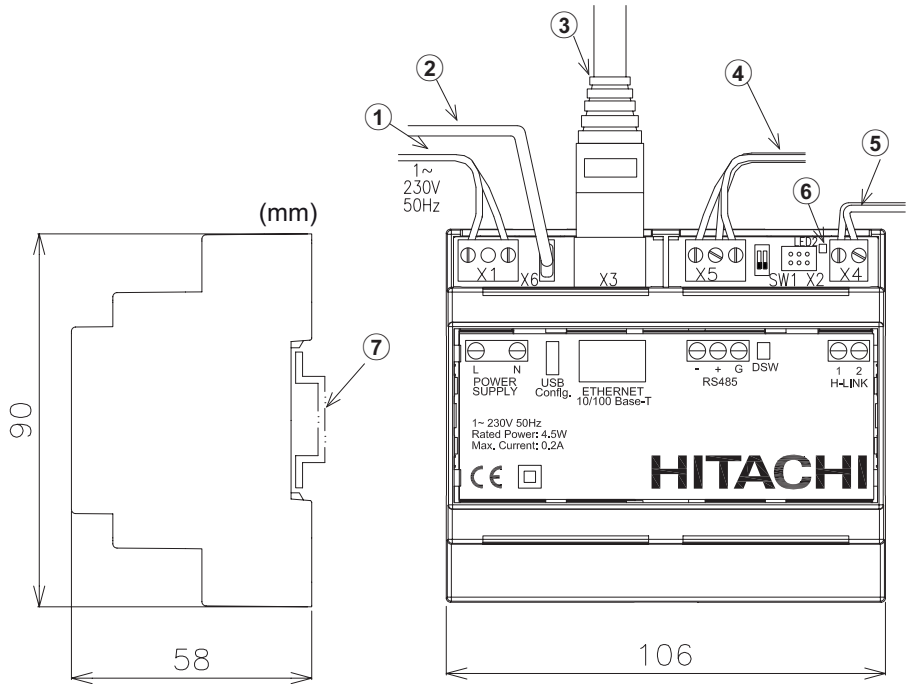
3.2 COMPONENTES SUMINISTRADOS DE FÁBRICA

Dispositivo Gateway		Manual de instrucciones		Memoria USB	
1x		1x		1x	

3.3 DATOS DIMENSIONALES



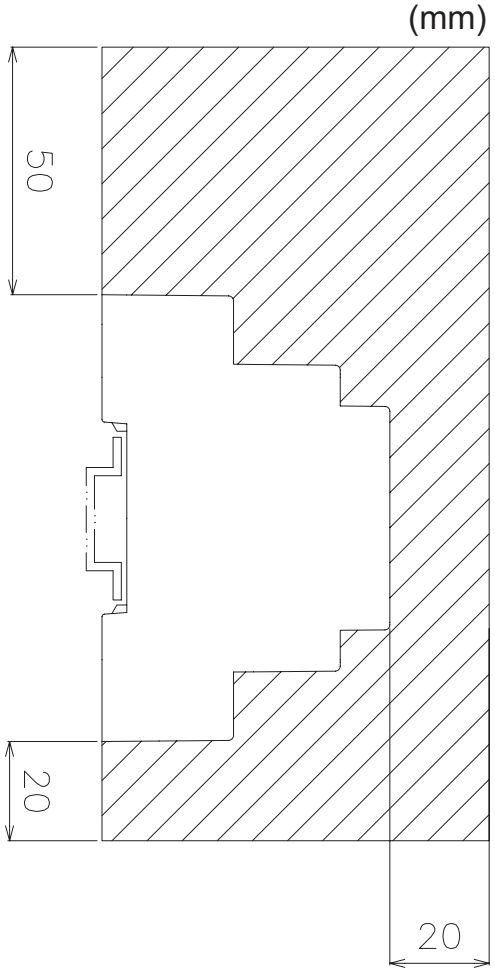
3.4 DESCRIPCIÓN DE LAS PIEZAS



Nº	Descripción
①	Fuente de alimentación externa
②	Cable USB para la configuración
③	Ethernet RJ45 HC-A(8/16/64)MB: Modbus TCP HC-A64NET : TCP/IP
④	RS485 Modbus RTU para HC-A(8/16/64)MB No disponible para HC-A64NET
⑤	Bus de comunicaciones H-LINK con unidades Hitachi
⑥	Led indicador de funcionamiento
⑦	Rail DIN 35 mm para montaje en el interior de la caja eléctrica

3.5 ESPACIO DE INSTALACIÓN

Para que el dispositivo funcione correctamente mantenga libre la zona sombreada.



ESPAÑOL

3.6 PROCEDIMIENTO DE INSTALACIÓN

⚠ PELIGRO

- ***No instale este dispositivo en lugares a los que pueda acceder el público general. Instálelo en lugares cerrados a los que solo se pueda acceder con llave.***
- ***Asegúrese de haber instalado correctamente el dispositivo antes de conectar la alimentación eléctrica. Desconecte siempre la alimentación eléctrica antes de realizar cualquier trabajo de mantenimiento o reparación en el dispositivo.***

⚠ PRECAUCIÓN

- *Asegúrese de que los componentes eléctricos suministrados por el instalador (interruptores de alimentación principal, disyuntores, cables, conectores y terminales de cables) se hayan seleccionado correctamente según los datos eléctricos indicados en este documento y que cumplen con la normativa local y nacional.*
- *Cualquier unidad no conectada o que no reciba alimentación cuando arranque las gateways de red / Modbus no será reconocida y deberá configurarse posteriormente.*
  - *Antes de alimentar y arrancar las gateways de red / Modbus, asegúrese de que:*
    - *1. Todos los circuitos están correctamente conectados.*
    - *2. Se han realizado todas las conexiones H-Link.*
    - *3. Se ha conectado correctamente el Modbus.*
- *Los cables de señal deben ser lo más cortos posible. Deje una distancia de 150 mm como mínimo entre otros cables de alimentación. No los conecte juntos (aunque pueden cruzarse). Si fuera necesario instalarlos juntos, adopte las siguientes medidas para evitar ruidos:*
  - *Para las comunicaciones, utilice cable blindado conectado a tierra en un extremo.*

3.7 CONFIGURACIÓN DE RED

En la memoria USB se suministra un software, el “Net configuration Tool”, para facilitar la configuración.

3.7.1 Requisitos del ordenador

Se requiere el uso de un ordenador con Microsoft Windows 7 o superior, un puerto USB libre y Java.

3.7.2 Parámetros configurables:

- *Paridad: Impar/Par/Desactivado*
- *Velocidad de comunicación: 9600/19200 bps*
- *Dirección Modbus*
- *Modbus TCP IP*

3.7.3 Procedimiento de configuración

◆ Configuración a través de un puerto USB

Este método es necesario cuando se desconoce el terminal IP.

1 Conecte el dispositivo de red a un ordenador mediante el cable USB (suministrado por el instalador o disponible con el kit de configuración de red)

2 Seleccione el puerto de comunicación del ordenador.

3 Pulse en la pantalla

◆ Configuración a través de un puerto Ethernet

1 Conecte el dispositivo de red a un ordenador mediante el cable ethernet (suministrado por el instalador o disponible con el kit de configuración de red o bien con el CSNET MANAGER)

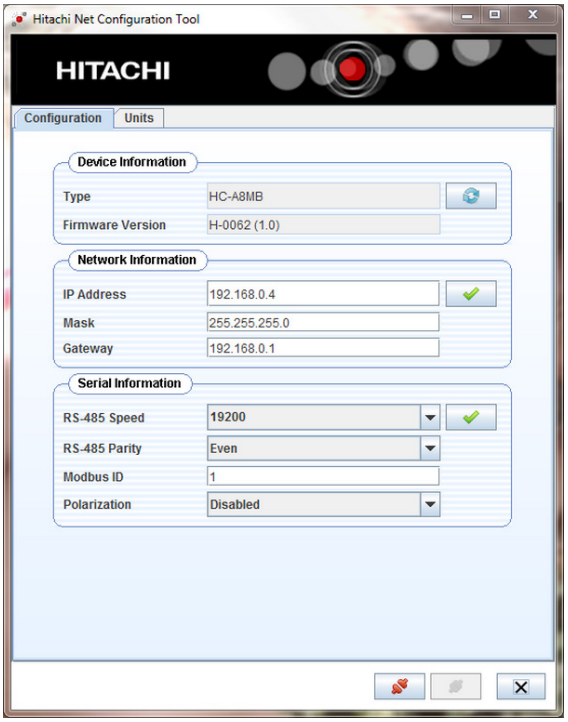
2 Introduzca los siguientes parámetros:

- Dirección IP: 192.168.0.4
- Puerto: Modbus Gateway/ HC-A64NET

3 Pulse en la pantalla

◆ Configuración del dispositivo y la comunicación

HC-A(8/16/64)MB



HC-A64NET

“Información del dispositivo”

Compruebe que el dispositivo de red se muestre en la tabla “Información del dispositivo”. Pulse actualizar si es necesario.

“Información de red”

Si el dispositivo de red está integrado en una red LAN / Modbus a través de Ethernet, configure los siguientes parámetros:

- Dirección IP: permite modificar la IP del puerto del dispositivo de red (“192.168.0.4” de forma predeterminada).
- Máscara: utilice 255.255.255.0 como predeterminada o pregunte a su técnico informático el valor correcto (“255.255.255.0” de forma predeterminada).
- Gateway: dirección de la getaway LAN (“192.168.0.1” de forma predeterminada).

“Información de serie”

Si el dispositivo de red está integrado en una red Modbus a través del puerto serie RS485, configure los siguientes parámetros:

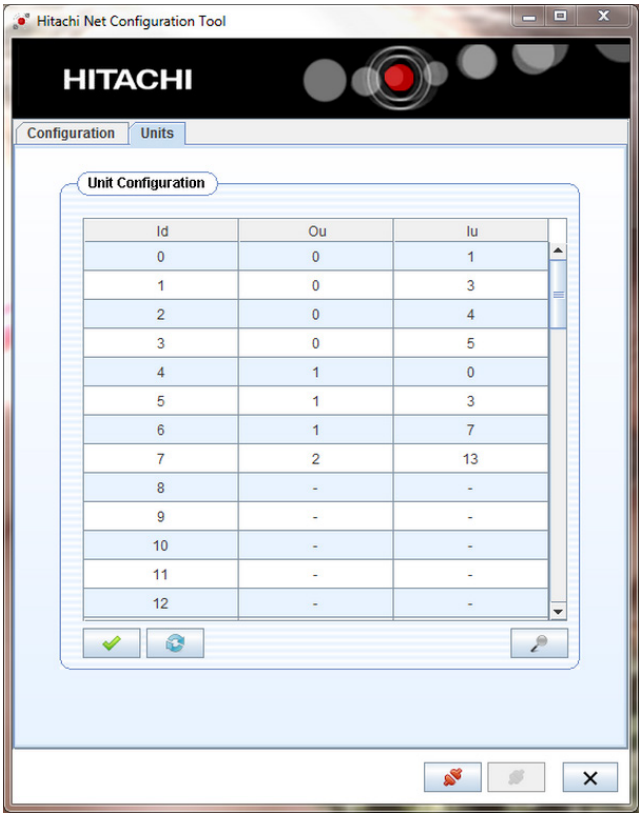
- RS485: 9600/19200 bps (“19200” bps de forma predeterminada)
- RS485: Paridad Ninguno/Impar/Par (“Par” de forma predeterminada)
- Id del Modbus: 1~128 (“1” de forma predeterminada)
- Polarización: Comunicación: polarización (“Desactivado” de forma predeterminada)

NOTA

Este apartado no está disponible para el modelo HC-A64NET

“Configuración de la Id de las unidades”

- Pulsado  se ejecutará el direccionamiento automático
- La configuración manual se puede realizar asignando una Id a cada dirección H-LINK
  - *Dirección de la unidad exterior (Ou) y dirección de la unidad interior (Iu)*



- Confirme la configuración pulsando 
- Pulse el botón de actualización  cuando modifique las unidades conectadas a la red.

NOTA

Este apartado no está disponible para el modelo HC-A64NET

4 CABLEADO ELÉCTRICO

Nombre	Conexión	Especificaciones del cable
X1	Fuente de alimentación (1)	Utilice cables de 0,75 mm2 que no sean más ligeros que el cable flexible forrado de policloropreno (código 60245 IEC 57).
X3	Ethernet (1)	Cables LAN de categoría 5 o superior Conexión al ordenador: Utilice cable cruzado (un juego de cable en el kit de configuración de red) para la conexión directa. Conexión LAN: Se necesita un cable directo (suministrado para el instalador) para la conexión a un distribuidor comercial (Hub).
X4	H-LINK (1)	Cable de par trenzado blindado de 0,75 mm². El blindaje debe estar conectado a tierra solo por un extremo.
X5	RS485 (1)	Cable de tres núcleos de 0,75 mm² conectado a tierra solo por un extremo. Use colores distintos para cada cable.
X6	USB (1)	Cable conector USB mini B (un juego de cable en el kit de configuración de red

NOTA

(1) Estos cables serán suministrados por el instalador.

4.1 CONFIGURACIÓN DEL CONMUTADOR DIP

Nombre	Función	Ajuste de fábrica	Descripción
SW1	Configuración		SW1-1: Resistencia final del Modbus (*). SW1-2: No se utiliza (mantener siempre en "ON")

NOTA

(*) No aplica para el HC-A64NET.

5 FUNCIONAMIENTO

5.1 COMPATIBILIDAD

Estos dispositivos no son compatibles con ninguno de los siguientes controladores de Hitachi:

- *Mandos a distancia centralizados*
- *Controles del aire acondicionado de edificios (*)*
- *Otros gateways BMS de Hitachi (LONWORKS, BACNET, KNX, FIDELIO)*
- *Otros gateways MODBUS de Hitachi*
- *Otras unidades del mismo modelo*

NOTA

(*) El HC-A64NET es compatible con CSNET Manager.

5.2 UNIDADES INTERIORES

5.2.1 Datos disponibles para HC-A(8/16/64)MB

Offset (1)	Nombre	Descripción	Valores	Lectura/escritura
0	EXIST	Existe	0: No existe 1: Existe	Lectura
1	SYSTEM_ADDRESS	Dirección del sistema	0~63	Lectura
2	UNIT_ADDRESS	Dirección de la unidad		
3	SET_ONOFF	Orden de ajuste de marcha/paro	0: Paro 1: Marcha	Lectura/escritura
4	SET_MODE	Orden de ajuste del modo	0: Frío 1: Deshumidificación 2: Ventilador 3: Calor 4: Auto	Lectura/escritura
5	SET_FAN	Orden de ajuste del ventilador	0: Baja 1: Media 2: Alta 3: High2 4: Auto	Lectura/escritura
6	SET_TSET	Temperatura de ajuste	ºC (Configure de acuerdo al rango de trabajo de la unidad)	Lectura/escritura
7	SET_LOUVER	Ajuste del deflector	0 ~ 7 (7 es automático)	Lectura/escritura
8	SET_CENTRAL	Ajuste central (3)	Bit 0: On/Off (siempre se puede parar) Bit 1: Modo Bit 2: Temp. ajustada Bit 3: Ventilador Bit 4: deflector	Lectura/escritura
9	READ_ONOFF	Estado de On/Off	0: Off 1: On	Lectura
10	READ_MODE	Estado del modo	0: Frío 1: Deshumidificación 2: Ventilador 3: Calor 4: Auto	Lectura
11	READ_FAN	Estado del ventilador	0: Baja 1: Media 2: Alta 3: High2 4: Auto	Lectura
12	READ_TSET	Estado de la temperatura de ajuste	ºC (Configure de acuerdo al rango de trabajo de la unidad)	Lectura
13	READ_LOUVER	Estado del deflector	0 ~ 7 (7 es automático)	Lectura
14	(no se utiliza)	(no se utiliza)	(no se utiliza)	(no se utiliza)
15	TIN	Lectura de la temperatura de entrada (2)	-63ºC ~ 63ºC	Lectura
16	TOUT	Lectura de la temperatura de salida (2)	-63ºC ~ 63ºC	Lectura
17	TGAS	Lectura de la temperatura de la tubería de gas (2)	-63ºC ~ 63ºC	Lectura
18	TLIQUID	Lectura de la temperatura de la tubería de líquido (2)	-63ºC ~ 63ºC	Lectura
19	ERROR_CODE	Código de alarma	Alarma de la unidad desde la pantalla 7 segmentos	Lectura
20	STOP_CAUSE	Causa de parada del compresor	(consulte el manual de servicio)	Lectura
21	VALVE_OPEN	Apertura de la válvula de expansión de la unidad interior	0~100	(no se utiliza)
22	OPER_CONDITION	Condición de funcionamiento de la unidad	0: OFF 1: Thermo OFF 2: Termostato encendido 3: Alarma	Lectura

Offset (1)	Nombre	Descripción	Valores	Lectura/escritura
23	(no se utiliza)	(no se utiliza)	(no se utiliza)	(no se utiliza)
24	AMBIENT TEMPERATURE	Temperatura ambiente (2)	-63ºC ~ 63ºC	Lectura
25	RCS_TEM	Temperatura del mando a distancia (solo si está disponible en la unidad) (2)	-63ºC ~ 63ºC	Lectura
26	RCS_CONFIG	Configuración de interruptor de control remoto	b0: 0 Maestro / 1 Esclavo b1: 0 con mando a distancia / 1 sin mando a distancia	Lectura/escritura
27	RCS_GROUP	Grupo de interruptores de control remoto	0: sin grupo 1~255	Lectura/escritura
28~30	(no se utiliza)	(no se utiliza)	(no se utiliza)	(no se utiliza)
31	REM_TEM	Temperatura del sensor remoto (2)	-63ºC ~ 63ºC	Lectura

NOTA

- *(1) La dirección de registro se calcula del siguiente modo: "N + (Dirección * 32) + Offset" donde:*
- *N: La posición en la tabla de datos en la 2000, la posición 20000 está también disponible para mantener la compatibilidad con la gateway Modbus antigua.*
- *Dirección: dirección de la unidad interior configurada por el software.*
- *(2) Estos números hacen referencia a un valor de 16 bits que utiliza un formato de 2 complementos para valores negativos.*
- *(3) Bit 0 (on/off) y Bit 4 (deflector) seleccionables solo cuando todas las centrales estén activadas.*
- *Para bloquear completamente los ajustes desde el mando a distancia (el mando a distancia indica central), establezca este registro en 31.*

5.2.2 Datos disponibles para HC-A(16/64)MB

Offset	Descripción	Valores	Lectura/escritura	Disponibilidad		
				VRF	Adaptador	ATW
0	Existe	0: No exist	Lectura	O	O	
		1: Exist				
1	Dirección del sistema	H-LINK 1: 0~15	Lectura	O	O	
2	Dirección de la unidad	H-LINK 2: 0~63		O	O	
3	Type	0: Indoor Unit	Lectura	O	O	
4	Orden de ajuste de marcha/paro	0: Stop	Lectura/escritura	O	O	
		1: Run				
5	Orden de ajuste del modo	0: Cool	Lectura/escritura	O	O	
		1: Dry				
		2: Fan				
		3: Heat				
		4: Auto				
6	Orden de ajuste del ventilador	0: Low	Lectura/escritura	O	O	
		1: Medium				
		2: High				
		3: High2				
		4: Auto				
7	Ajuste de la temperatura	ºC (set according to the unit working range)	Lectura/escritura	O	O	
8	Temperature setting with 0.5°C intervals	ºC x 10 (19.5ºC read as 195)	Lectura/escritura	O		
9	Heating temperature setting for AUTO Cool/Heat	°C	Lectura/escritura	O		
10	Heating Temperature setting for AUTO Cool/heat with 0.5°C intervals	ºC x 10 (19.5ºC read as 195)	Lectura/escritura	O		
11	Cooling Temperature setting for AUTO Cool/heat	°C	Lectura/escritura	O		
12	Cooling Temperature setting for AUTO Cool/heat with 0.5°C intervals	ºC x 10 (19.5ºC read as 195)	Lectura/escritura	O		
13	Ajuste del deflector	0 ~ 7 (7 is Auto)	Lectura/escritura	O		
14	Central setting (2)	Bit 0: On/Off (always can be stopped)	Lectura/escritura	O	O	
		Bit 1: Mode				
		Bit 2: Setting Temp				
		Bit 3: Fan				
		Bit4: Louver				
15	Estado de On/Off	0: Off	Lectura	O	O	
		1: On				
16	Estado del modo	0: Cool	Lectura	O	O	
		1: Dry				
		2: Fan				
		3: Heat				
		4: Auto				

Offset	Descripción	Valores	Lectura/escritura	Disponibilidad		
				VRF	Adaptador	ATW
17	Estado del ventilador	0: Low 1: Medium 2: High 3: High2 4: Auto	Lectura	O	O	
18	Estado de la temperatura de ajuste	ºC (set according to the unit working range)	Lectura	O	O	
19	Temperature setting with 0.5°C intervals status	ºC x10 (19.5ºC read as 195)	Lectura	O		
20	Heating temperature setting for AUTO Cool/Heat status	°C	Lectura	O		
21	Heating Temperature setting for AUTO Cool/heat with 0.5°C intervals status	ºC x 10 (19.5ºC read as 195)	Lectura	O		
22	Cooling Temperature setting for AUTO Cool/heat status	°C	Lectura	O		
23	Cooling Temperature setting for AUTO Cool/heat with 0.5°C intervals status	ºC x 10 (19.5ºC read as 195)	Lectura	O		
24	Estado del deflector	0 ~ 7 (7 is Auto)	Lectura	O		
25	Air inlet temperature reading	-63 °C ~ 63 °C	Lectura	O		
26	Air outlet temperature reading	-63 °C ~ 63 °C	Lectura	O		
27	Lectura de la temperatura de la tubería del gas	-63 °C ~ 63 °C	Lectura	O		
28	Lectura de la temperatura de la tubería del líquido	-63 °C ~ 63 °C	Lectura	O		
29	Código de alarma	Alarma de la unidad desde la pantalla 7 segmentos	Lectura	O	O(1)	
30	Causa de parada del compresor	(consulte el manual de servicio)	Lectura	O		
31	Abertura de la válvula de expansión de la unidad interior	0~100	Lectura	O		
32	Condición de funcionamiento de la unidad	0: OFF 1: Thermo OFF 2: Thermo ON 3: Alarm	Lectura	O	O	
33	Remote temperature sensor (THM4) value	-63 °C ~ 63 °C	Lectura	O		
34	Remote control switch temperature (only when available in the unit)	-63 °C ~ 63 °C	Lectura	O	O	
35	Configuración del mando a distancia	b0: 0 Master/1Slave b1: 0 wih RCS/1 Without RCS	Lectura/escritura	O		
36	Grupo de mando a distancia	0: No group 1~255	Lectura/escritura	O		
37	CN3 Configuration status	b0: Input 1 open/close b1: Input 2 open/close b2: Enabled/Disabled (Indicates if the unit has CN3 enabled with any function)	Lectura	O		
38~49	Reservado					

Offset	Descripción	Valores	Lectura/escritura	Disponibilidad		
				VRF	Adaptador	ATW
50	Control de unidad Marcha/Paro	0: Stop 1: Run	Lectura/escritura			O
51	Control de unidad de modo	0: Cool 1: Heat	Lectura/escritura			O
52	Control de circuito 1 de Marcha/Paro	0: Stop 1: Run	Lectura/escritura			O
53	Control de calor. OTC Zone 1	0: No 1: Points 2: Gradient 3: Fix	Lectura/escritura			O
54	Control frío. OTC 1	0: No 1: Points 2: Fix	Lectura/escritura			O
55	Control Circuit 1: Water heating Fix Setting Temp	0~80	Lectura/escritura			O
56	Control Circuit 1: Water cooling Fix Setting Temp	0~80	Lectura/escritura			O
57	Control de circuito 1: modo ECO	0: ECO 1: Comfort	Lectura/escritura			O
58	Control de circuito 1: temperatura de compensación ECO de calefacción	1~10	Lectura/escritura			O
59	Control Circuit 1: Cool ECO Offset Temperature	1~10	Lectura/escritura			O
60	Control Circuit 1: External MBS/KNX Thermostat Available	0: Not Available 1: Available	Lectura/escritura			O
61	Control Zone 1: Thermostat Setting	0~65535	Lectura/escritura			O
62	Control Zone 1: Room Ambient Temperature	-32667~32667	Lectura/escritura			O
63	Control Circuit 2 Run/Stop	0: Stop 1: Run	Lectura/escritura			O
64	Control de calor. OTC Zone 2	0: No 1: Points 2: Gradient 3: Fix	Lectura/escritura			O
65	Control frío. OTC Zone 2	0: No 1: Points 2: Fix	Lectura/escritura			O
66	Control Circuit 2: Water heating Fix Setting Temp	0~80	Lectura/escritura			O
67	Control Circuit 2: Water cooling Fix Setting Temp	0~80	Lectura/escritura			O
68	Control Circuit 2: Eco mode	0: ECO 1: Comfort	Lectura/escritura			O
69	Control Circuit 2: Heat ECO Offset Temperature	1~10	Lectura/escritura			O

Offset	Descripción	Valores	Lectura/escritura	Disponibilidad		
				VRF	Adaptador	ATW
70	Control Circuit 2: Cool ECO Offset Temperature	1~10	Lectura/escritura			O
71	Control Circuit 2: External MBS/KNX Thermostat Available	0: Not Available 1: Available	Lectura/escritura			O
72	Control Zone 2: Thermostat Setting	0~65535	Lectura/escritura			O
73	Control Zone 2: Room Ambient Temperature	-32667~32667	Lectura/escritura			O
74	Control del depósito de ACS Marcha/ Paro	0: Stop 1: Run	Lectura/escritura			O
75	Control consigna del depósito ACS	0~80	Lectura/escritura			O
76	Control impulso de ACS	0: No request 1: Request	Lectura/escritura			O
77	Reservado					
78	Control modo de demanda de ACS	0: Standard 1: High demand	Lectura/escritura			O
79	Control piscina Marcha/Paro	0: Stop 1: Run	Lectura/escritura			O
80	Control piscina consigna	0~80	Lectura/escritura			O
81	Control antilegionela Marcha/Paro	0: Stop 1: Run	Lectura/escritura			O
82	Control antilegionela consigna	0~80	Lectura/escritura			O
83	Control Bloqueo/Desbloqueo Menú	0: No 1: Block (user cannot access the menu)	Lectura/escritura			O
84	Control Yutaki Forced OFF	0: Normal Operation 1: Forced OFF	Lectura/escritura			O
85	Space Heating Heater Forced OFF	0: Normal Operation 1: Heater Forced OFF	Lectura/escritura			O
86	Control error/alarma	0: No 1: Alarm	Lectura/escritura			O
87~99	Reservado					
100	Estado de la unidad marcha/paro	0: Stop 1: Run	Lectura			O
101	Status Mode	B0: 0: Cool / 1: Heat B1: 0: Normal / 1: Auto	Lectura			O
102	Status Circuit 1 Run/Stop	0: Stop 1: Run	Lectura			O
103	Estado calefacción. OTC 1	0: No 1: Points 2: Gradient 3: Fix	Lectura			O
104	Status Cool. OTC 1	0: No 1: Points 2: Fix	Lectura			O
105	Status Circuit 1: Water heating Fix Setting Temp	0~80	Lectura			O

Offset	Descripción	Valores	Lectura/escritura	Disponibilidad		
				VRF	Adaptador	ATW
106	Status Circuit 1: Water cooling Fix Setting Temp	0~80	Lectura			O
107	Estado del circuito 1: modo ECO	0: ECO 1: Comfort	Lectura			O
108	Estado de circuito 1: temperatura de compensación ECO de calefacción	1~10	Lectura			O
109	Status Circuit 1: Cool ECO Offset Temperature	1~10	Lectura			O
110	Estado de circuito 1: termostato de la temperatura de ajuste	50~350 (5,0~35,0)	Lectura			O
111	Estado de circuito 1: termostato de la temperatura de la habitación	0~1000 (0,0~100,0)	Lectura			O
112	Estado de circuito 1: temperatura de ajuste inalámbrico	50~350 (5,0~35,0)	Lectura			O
113	Estado de circuito 1: temperatura de la habitación inalámbrico	0~1000 (0,0~100,0)	Lectura			O
114	Estado de circuito 2 Marcha/Paro	0: Stop 1: Run	Lectura			O
115	Estado modo OTC 2 calefacción	0: No 1: Points 2: Gradient 3: Fix	Lectura			O
116	Estado modo OTC 2 enfriamiento	0: No 1: Points 2: Fix	Lectura			O
117	Status Circuit 2: Water heating Fix Setting Temp	0~80	Lectura			O
118	Status Circuit 2: Water cooling Fix Setting Temp	0~80	Lectura			O
119	Status Circuit 2: Eco mode	0: ECO 1: Comfort	Lectura			O
120	Estado de circuito 1: temperatura de compensación ECO de calefacción	1~10	Lectura			O
121	Status Circuit 1: Cool ECO Offset Temperature	1~10	Lectura			O
122	Status Zone 2: Thermostat Setting	50~350 (5,0~35,0)	Lectura			O
123	Status Zone 2: Ambient Temperature	0~1000 (0,0~100,0)	Lectura			O
124	Status Circuit 2: Wireless Setting Temperature	50~350 (5,0~35,0)	Lectura			O
125	Status Circuit 2: Wireless Room temperature	0~1000 (0,0~100,0)	Lectura			O
126	Estado depósito ACS Marcha/Paro	0: Stop 1: Run	Lectura			O
127	Estado depósito ACS consigna	0~80	Lectura			O
128	Status DHW Boost	0: Disable 1: Enable	Lectura			O
129	Reservado					

Offset	Descripción	Valores	Lectura/escritura	Disponibilidad		
				VRF	Adaptador	ATW
130	Estado modo de demanda de ACS	0: Standard	Lectura			O
		1: High demand				
131	Status DHW Temperature	-80~100	Lectura			O
132	Estado piscina Marcha/Paro	0: Stop	Lectura			O
		1: Run				
133	Status Swim. Pool Setting Temperature	0~80	Lectura			O
134	Status Swim. Pool Temperature	-80~100	Lectura			O
135	Status AntiLeg. Marcha/paro	0: Stop	Lectura			O
		1: Run				
136	Estado antilegionela consigna	0~80	Lectura			O
137	Estado Bloqueo/Desbloqueo Menú	0: No	Lectura			O
		1: Block				
138	Estado error/alarma	0: No	Lectura			O
		1: Alarm				
139	LCD modo central	0: Local	Lectura			O
		1: Air (Not available for Yutampo)				
		2:Water (Not available for Yutampo)				
		3: Full				
140	Configuración del Sistema	b0: Zone 1 Heating Available	Lectura			O
		b1: Zone 2 Heating Available				
		b2: Zone 1 Cooling Available				
		b3: Zone 2 Cooling Available				
		b4: DHWT Available				
		b5: SWP Available				
		b6: Room thermostat available Zone 1				
		b7: Room thermostat available Zone 2				
		b8: Wireless Setting C1				
		b9: Wireless Setting C2				
		b10: Wireless Room Temperature C1				
		b11: Wireless Room Temperature C2				
		b12: Slave Unit				

Offset	Descripción	Valores	Lectura/escritura	Disponibilidad		
				VRF	Adaptador	ATW
141	Estado de operación	0: OFF 1: Cool Demand –OFF 2: Cool Thermo-OFF 3: Cool Thermo-ON 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	Lectura			O
142	Tº ambiente exterior (Outdoor ambient temperature)	-80~100	Lectura			O
143	Temperatura de entrada del agua (Water Inlet unit temperature)	-80~100	Lectura			O
144	Temperatura de salida del agua (Water outlet unit temperature)	-80~100	Lectura			O
145	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	Lectura			O
146	Software de la PCB		Lectura			O
147	Software de la LCD		Lectura			O
148	Capacidad de la unidad		Lectura			O
149	Unit Power Consumption		Lectura			O
150	Water Outler HP (TwoHP)	0~100 Solo para YUTAKI S y S Combi	Lectura			O
151	Ta1av: Outdoor Unit Ambient Average Temperature	-80~100	Lectura			O
152	Ta2: Second Ambient Temperature (inst)	-80~100	Lectura			O
153	Ta2av: Second Ambient Temperature (avg)	-80~100				O
154	O2: Water outlet Temp 2 (Two2)	-80~100	Lectura			O
155	O3: Water outlet Temp 3 (Two3)	-80~100	Lectura			O
156	Tg: Gas Temperature (THMg)	-80~100	Lectura			O
157	Tl: Liquid Temperature (THMl)	-80~100	Lectura			O
158	EVI: Indoor expansion valve openning	0~100	Lectura			O
159	CD: Capacity Data		Lectura			O
160	Mixing Valve Opening	0~100	Lectura			O
161	Descarche	0: No defrosting 1: Defrosting	Lectura			O

Offset	Descripción	Valores	Lectura/escritura	Disponibilidad		
				VRF	Adaptador	ATW
162	Modelo de unidad	0: Yutaki S 1: Yutaki SC 2: Yutaki S80 3: Yutaki M 4: Yutaki SC Lite (New) 5: Yutampo (New) 6: YCC (New)	Lectura			O
163	Th: Water Temp Setting (Ttwo)	-80~100	Lectura			O
164	Caudal de agua	Water Flow [0.1m3/h]	Lectura			O
165	Pump Speed	0~100	Lectura			O
166	Estado del sistema 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 enabled Bit10: Forced OFF Bit11: DHW recirculation Pump State Bit12: Solar Pump Output State	Lectura			O
167	Número de alarma	0: Alarm XXX: Alarm number	Lectura			O
168	Temperatura de descarga R134a		Lectura			O
169	Temperatura de aspiración R134a		Lectura			O
170	Presión de descarga R134a		Lectura			O
171	Presión de aspiración R134a		Lectura			O
172	Frecuencia del compresor R134a		Lectura			O
173	Apertura de la válvula de expansión interior R134a		Lectura			O
174	Valor actual del compresor R134a		Lectura			O
175	Código de reintento R134a		Lectura			O
176	R134 Te SH		Lectura			O
177	R134 Secondary Current		Lectura			O
178	R134 Stop Code		Lectura			O
179~ 189	Reservado					
190	YCC - Enabled Units	0~8	Lectura			O
191	YCC - Working Units	0~8	Lectura			O

Offset	Descripción	Valores	Lectura/escritura	Disponibilidad		
				VRF	Adaptador	ATW
192	YCC - Required Units	0~8	Lectura			O

NOTE

- *Register address is calculated as: 5000+(Modbus_Id*200)+offset*
- *Modbus_Id as configured by configuration software*
- *For VRF / Package units, only the relevant data are available (heating units registers will not give any value). The situation is the same for heating units (registers related to air/air units will not give any value).*
- *Availability:*
  - PAC: VRF and package units.
  - RAC: Domestic units connected to the H-link via PSC-6RAD or SPX-RAMHLK
  - ATW: Air to water units.
- *(1) Take into account only if it is different from zero.*
- *(2) Bit 0 (ON/OFF) and Bit 4 (Louver) selectable only when all centrals are actived.*
- *In order to full lock setting from RCS (Central shown in RCS) set this register to 31*

5.3 UNIDADES EXTERIORES

Some state registers about outdoor unit have been added. Using these registers it is now possible to know the status of the refrigerant cycle. Some control registers have also been added.

Offset	Descripción	Valores	Lectura/escritura
0	Temperatura del aire exterior	-63 °C ~ 63 °C	Lectura
1	Compressor Discharge Temperature	0 ~ 200 ºC	Lectura
2	Heating Evaporating Temperature		Lectura
3	Number of operating Compressor		Lectura
4	Presión de descarga	0.0 ~ 5.0 MPa (0.1 MPa)	Lectura
5	Presión de aspiración	-0.2 ~2.0MPa (0.1 MPa or 0.01MPa depending unit)	Lectura
6	Total Current	0 ~ 255 A	Lectura
7	Total Real Frequency	0 ~ 255 Hz	Lectura
8	EVO1	0 ~ 100 %	Lectura
9	EVO2 / Hot Bypass	0 ~ 100 %	Lectura
10	EVB	0 ~ 100 %	Lectura
11	Outdoor Unit Option Enabled	0: Disable 1: Enable (it's possible to use the following options, also if the value of register 16 "Power Level Set" is 1)	Lectura/escritura
12	Noise Control Enabled	0: Disable 1: Enable (it's possible to send the noise level)	Lectura/escritura
13	Noise Control Level Set	0~9 (See the service manual of Outdoor unit, function db)	Lectura/escritura
14	Power Control Enabled	0: Disable 1: Enable (it's possible to send the power level)	Lectura/escritura
15	Power Level	0~100%	Lectura/escritura
16	Power Level Set	0~100%	Lectura
17	Power Level Current Value	0~100%	Lectura
18	Power Control Possible	0: Not possible 1: Possible	Lectura

NOTE

- *Register address is calculated as: 5000+(Modbus_Id*200)+offset*
- *Modbus_Id as configured by configuration software*

5.4 FUNCIONES OPCIONALES

Some optional functions of the indoor units have been added so that they can be managed from the BMS.

Offset	Descripción	Valores	Lectura/escritura
0	b1 (Heating temperature compensation)	0~4	Lectura/escritura
1	b2 (Circulation function at heating Thermo-OFF)	0~1	Lectura/escritura
2	b4 (Change of filter cleaning period)	0~4	Lectura/escritura
3	c5 (Static pressure selection)	0~2	Lectura/escritura
4	c8 (Control by the temperature sensor of the remote control switch)	0~2	Lectura/escritura
5	Cb (Selection of forced stoppage logic)	0~1	Lectura/escritura
6	Cd (Stop of indoor unit fan during cooling Thermo-OFF conditions)	0~1	Lectura/escritura
7	CE (Stop of indoor unit fan during heating Thermo-OFF conditions)	0~1	Lectura/escritura
8	d1 (Management of indoor unit operation after a power supply cut off -option 1)	0~1	Lectura/escritura
9	d3 (Management of indoor unit operation after a power supply cut off -option 2)	0~1	Lectura/escritura
10	d4 (RPI(M) Prevention of low air outlet temperature in cooling mode)	0~1	Lectura/escritura
11	d5 (Prevention of low air outlet temperature in heating mode)	0~1	Lectura/escritura
12	E1 (KPI: Ventilation mode / Econofresh cooling mode)	0~2	Lectura/escritura
13	E2 (KPI: Increase of air supply volume / Econofresh enthalpy Sensor)	0~1	Lectura/escritura
14	E4 (KPI: Pre-cooling / preheating period / Econofresh: CO2 sensor)	0~2	Lectura/escritura
15	E8 (Control for stop of the indoor unit fan during heating Thermo-OFF conditions (with remote sensor THM-R2AE connected to the THM4 connector in the indoor unit PCB)	0~1	Lectura/escritura
16	E9 (Intermittent fan operation in heating stop)	0~1	Lectura/escritura
17	Eb (Indoor unit fan control during cooling Thermo-OFF conditions)	0~2	Lectura/escritura
18	EE (Control in “Automatic” indoor fan speed mode)	0~1	Lectura/escritura
19	EF (Control in “Automatic” indoor fan speed mode (supporting High H))	0~1	Lectura/escritura
20	H4 (KPI: Operation modes for the ventilation unit with energy recovery)	0~1	Lectura/escritura
21	K5 (Detection level of the motion sensor kit)	0~2	Lectura/escritura
22	K6 (Selection of allowed operation modes when the control sensor of the indoor unit is set by C8 function)	0~3	Lectura/escritura

NOTE

- *Register address is calculated as: 40000+(Modbus_Id*100)+offset*
- *Modbus_Id as configured by configuration software*

5.5 LISTA DE CÓDIGOS DE ALARMA

La dirección 19 indica el código de alarma que se muestra en la unidad interior. Consulte el Manual de Servicio para la explicación de la alarma y el procedimiento de reparación en caso de alarma en la unidad interior o exterior.

5.6 RESOLUCIÓN DE PROBLEMAS

CÓDIGO DE ALARMA	DESCRIPCIÓN	CONTRAMEDIDA
El LED2 parpadea	Funcionamiento anómalo	Apague la fuente de alimentación del dispositivo y enciéndala pasados 5 segundos. Si el LED2 sigue parpadeando póngase en contacto con el servicio de atención al cliente de Hitachi.

6 KIT DE CONFIGURACIÓN DE LA RED

Este accesorio proporciona al instalador de Hitachi todos los cables necesarios para poner en marcha la instalación del Modbus.

Lista de componentes:

Cable USB		Cable cruzado Ethernet		Memoria USB	
1x		1x		1x	

La memoria USB incluye un software para la comprobación de la comunicación Modbus en la puesta en marcha.

El cable USB es solo necesario durante la configuración del dispositivo (parámetros de red)

El cable Ethernet se proporciona para una conexión rápida con un ordenador portátil para la comprobación de la comunicación Modbus.