

Interface module for direct control of outdoor units Fujitsu Inverter

ACC OUTDOOR for INVERTER

Interface module is specified for direct control of Fujitsu outdoor units equipped with compressor with capacity control made by frequency inverter. These units are furnished by intelligent electronics which ensures all their operational functions. Outdoor unit is normally controlled by appropriate inner unit through orders sent via communication bus. Confirmation of these orders and further system informations are sent back by outdoor unit via the same bus on the inner unit.

In case the individual inner unit is used, for example to connect AHU exchanger, industrial evaporator or refrigerant/water exchanger, then it is necessary to use source of orders, that means to replace original inner unit with communication module which is described as ACC OUTDOOR for INVERTER.



Technical specification

Power supply:	230 VAC 50Hz 2W	
Connection cord:	Communication and supply	3x Cu 1,5 mm ²
	Signal conductors ...	Cu 0,5 - 1,25 mm ² , shielded
Cover:	IP20	
Dimensions (H x W x D):	87 x 67 x 70 mm	
Weight:	230 g	

Description

Module is intended to be fixed on DIN rail mounting, width is 3 standard DIN modules. Module communication with outdoor unit and its power supply are ensured by 3-wired cable which is connected to appropriate terminal of outdoor unit. Module has got inputs for connecting of controlling signals and temperature sensors and outputs for PC connection and for heater cable control.

Position of the unit

Control unit can be placed or inside the building (for example in in regulation box) or directly in outdoor unit in area of electronics

Connection of control unit

Control unit is connected with condensing unit by 3-wired cable (for example CYKY 3x 1,5Cu). It is necessary to respect correct connection of connecting conductors. Wrong connection can cause destruction of communication module and process board of condensing unit.

Temperature sensors

For module activity it is necessary to provide information about temperature of inner exchanger. ETS-A temperature sensor is providing this service and is part of module set. In case that PC is used for

monitoring activity of the whole system it is possible to connect up to further 7 temperature sensors (ETS-B up ETS-F), 4 of them are of fixed function, further 3 ones are random applicable.

Location of temperature sensor ETS-A

Sensor is scanning temperature of inner exchanger. At the air exchanger there is optimal position in the middle of the length of exchanger pipping. At desk exchanger the sensor must be placed in the middle between the bottom outlets of water and refrigerant pipping. Sensor must have good thermal contact with pipping (for example through heat conducting sealant) and must be properly isolated against the environmental (Mirelon, Armaflex).

With respect to possible electro-magnetic clutter the length of wires to thermal sensors must be as short as possible. Extension cable must be shielded. Maximal length of cables is 10m. We recommend to use ferritic anticlutter element.

Module Control

To control module there are two inputs. Module can be delivered in two versions which can differ in function of controlling inputs.

1. Inverter capacity is controlled by two dual-stage inputs, UP and DOWN. This module version is intended for thermal pumps with heating function only, with controlling through standard boiler regulators, the best solutions are the equitherm ones
2. Module is activated by leading of positive direct voltage on input ON. Input voltage in range from 0 to 10V correspond to the capacity request for 0-100%. By leading of voltage +12V on H/C input the heating mode is set up, by the level of 0V or by input disconnection cooling mode is set up. This version is intended for cooling and heating controlled through supervised system of measurement and regulation

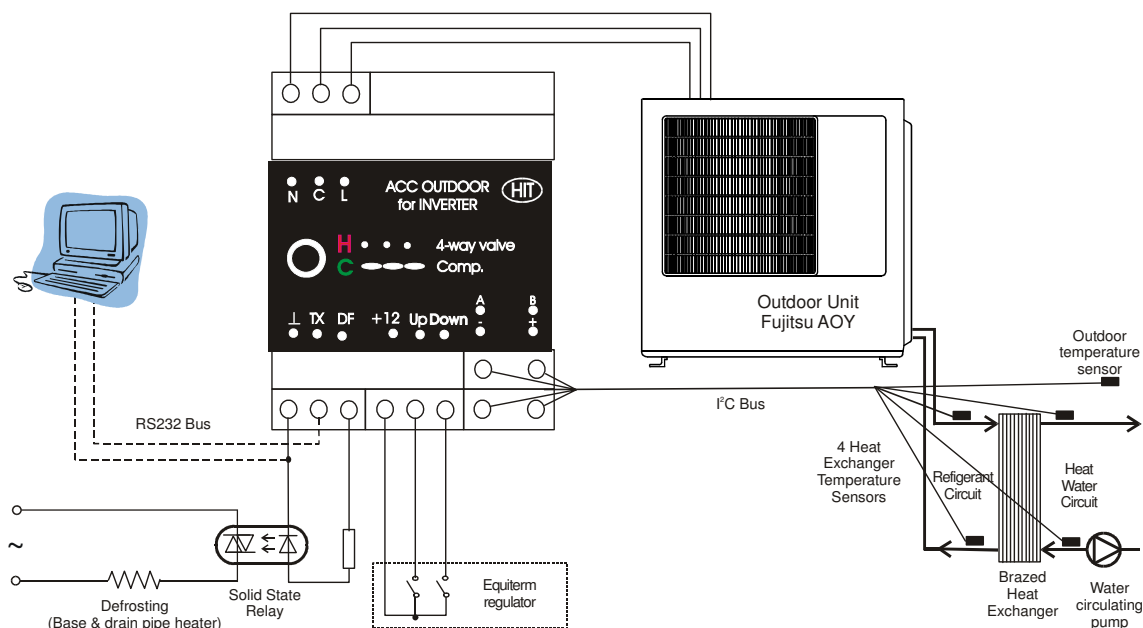
In case of sufficient interest there it is possible to equipped module with OpenTherm interface.

Module Output

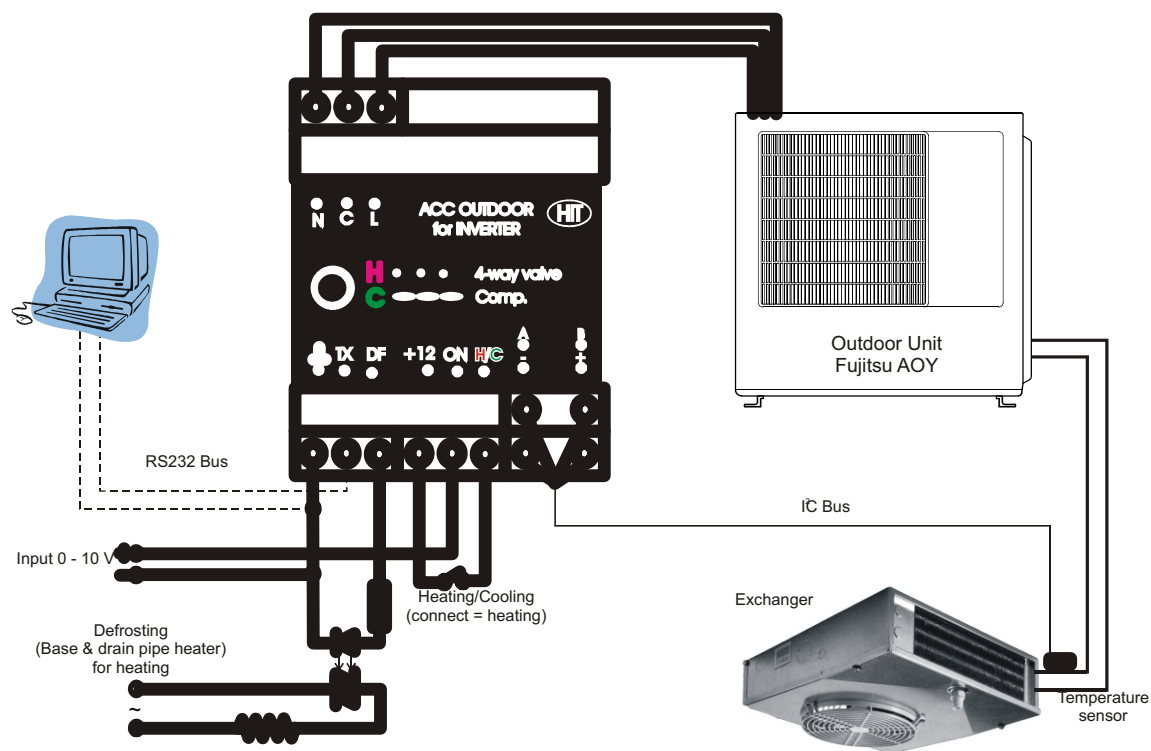
Module has got two outputs:

- Output to control heating cable for heating the unit bottom and to drain condensate. This output is activated during defrosting cycle of the unit and deactivated in 10 minutes after its finishing.
- Output to monitor module and outdoor unit activity through PC. Utility software monitors communication between module and outdoor unit, displays activity of compressor, 4-wired valve, temperature values up to 8 connected thermal sensors and calculation of thermal capacity based on temperature difference on the exchanger output and firmly set flow of heating medium.

Recommended connecting diagram – for thermal-water heating, controlled by equitherm regulator



Recommended connecting diagram – for air exchanger, controlling 0 - 10V



How to order:

Order has to contain following specifications:

1. Version of module:

- ACC OUTDOOR for INVERTER, input 0-10V
- ACC OUTDOOR for INVERTER, input for equitherm regulator

2. Equipment

- Basic version: 1 thermal sensor
- Full version: 5 thermal sensors, PC software

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