FCU

Fan Coil Unit Controller

MODEL	DESCRIPTION
iSMA-B-FCU-HH	Fan Coil Unit controller with 230 V AC power supply and 0.5 A 230 V AC triac output
iSMA-B-FCU-HL	Fan Coil Unit controller with 230 V AC power supply and 0.5/0.3 A 24 V AC triac output
iSMA-B-FCU-LL	Fan Coil Unit controller with 24 V AC power supply and 0.5/0.3 A 24 V AC triac output

APPLICATION AND USE

The FCU fully programmable controller is built with the aim of controlling fan control units. The controller is factory-equipped with the two most popular open communication protocols, Modbus RTU/ASCII and BACnet MS/TP, which are selected using DIP switches. To minimize time and simplify the commissioning process, the controller is delivered with a default application, which supports the most popular types of FCUs. A dedicated DIP switch allows adjusting the parameters of the application. Additionally, in the BACnet protocol, the application has a built-in function that allows automatic binding of master and slave controllers in groups (20 groups on the bus, up to 6 devices in one group).
If the default application does not meet the project requirements, it can be modified or created from scratch by the free software, iSMA Tool. Changing the application is possible in real-time by USB.
There are three hardware versions with different types of triac outputs and power supply.

FEATURES

- Universal default application
- Support for 2-pipe or 4-pipe systems
- Application adjustable by dedicated DIP switch
- Addressing from 0 to 254 by DIP switch
- Sedona Framework 1.2 support
- iSMA Tool – free of charge programming soft
- Connection to higher level system with Modbus RTU/ASCII or BACnet MS/TP
- mini USB to manage application (provides power)
- Real-time programming
- Onboard 18 inputs/outputs
- Fast processor with ARM core
- 2 RJ12 (1 RS485) for wall panels connection
- Built-in 24 V AC for external equipment (version 230 V AC)
- Easy firmware management, backup, and restore with the FCU Updater software

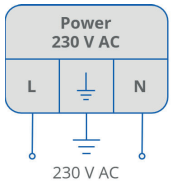
TECHNICAL SPECIFICATION

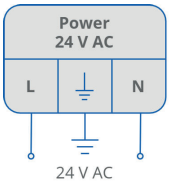
DESCRIPTION		FCU-HH	FCU-HL	FCU-LL
Power supply	Voltage	230 V AC ± 10%		24 V AC ± 10%
Special inputs	Number of inputs	4		
	Voltage input	Voltage measurement: 0-10 V DC Input impedance: 120 kΩ Measurement accuracy: ±50 mV Measurement resolution: ±6 mV		
	Digital input	Output current ~0.2 mA		
	Resistance input	Measurement of resistance: 0-700 kΩ Measurement resolution for 20 kΩ load: 20 Ω		
	Temperature input	Measurement with attached RTDs (resistance temperature detectors) Resolution ±0.1°C Accuracy ±0.2°C at 25°C		
	Measurement resolution	12-bit		

The performances stated in this sheet can be modified without any prior notice.

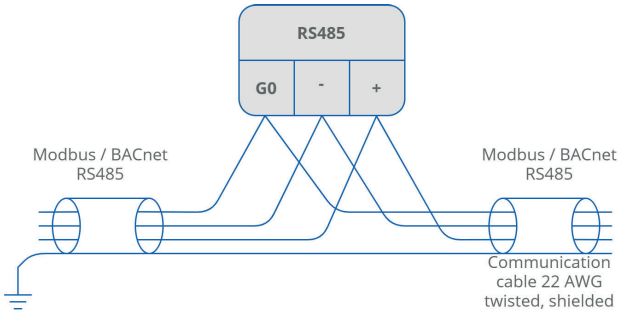
DESCRIPTION		FCU-HH	FCU-HL	FCU-LL
Digital inputs	Number of inputs	4		
	Type	Dry contact		
	Maximum input frequency	100 Hz		
Analog outputs	Number of outputs	3		
	Voltage range	0-10 V DC		
	Maximum load current	5 mA		
	Resolution	12-bit		
	Accuracy	±1%		
Digital outputs	Number of outputs	5		
	Resistive load AC1 (FAN, CLG)	6 A at 230 V AC or 6 A at 30 V DC		
	Inductive load AC3 (FAN, CLG)	75 VA at 230 V AC or 10 W at 30 V DC		
	Resistive load AC1 (HTG)	10 A at 230 V AC or 10 A at 30 V DC		
	Inductive load AC3 (HTG)	750 VA at 230 V AC		
Triac outputs	Number of outputs	2		
	Load	Min.: 1 mA Max.: 0.5 A at 230 V AC	Min.: 1 mA Max.: 0.3 A at 24 V AC $I_{max} = 0.3\ A = I_{TO1} + I_{TO2} + I_{24VOut}$	Min.: 1 mA Max.: 0.5 A at 24 V AC
	Peak load per channel	1.5 A (30 s)		
	Gate control	Zero crossing turn ON		
	Frequency range	47 to 63 Hz		
	Snubber	Snubberless triac		
Power supply output	Voltage	24 V AC ± 20%, 7 VA	24 V AC ± 20%, 7 VA (also used for triac outputs)	24 V AC ± 20%, 7 VA
COM1	RS485 interface	Up to 128 devices		
		Half-duplex		
	Communication protocol	Modbus RTU/ASCII or BACnet MS/TP set by switch		
	Port	Screw connector		
	Baud rate	2400-115200		
COM2	RS485 interface	Up to 128 devices		
		Half-duplex		
	Communication protocol	Modbus RTU		
	Ports	RJ12		
	Baud rate	2400-115200		
	Power supply for external device	34 V DC ± 15%, 2.5 W		
USB1	mini USB	Type B		
Ingress protection	IP rating	IP 20 for indoor installation		
Temperature	Storage	-40°C to +85°C (-40°F to +185°F)		
	Operating	-10°C to +50°C (14°F to 122°F)		
Humidity	Relative	5 to 95% RH (without condensation)		
Screw connectors	Type	Removable screw terminals		
	Maximum cable size	2.5 mm^2 (18...12 AWG)		
Housing	Material	Self-extinguishing plastic (PC/ABS)		
	Mounting	DIN (DIN EN 50022 norm) 2 screw holders		
Dimensions	Width	123.30 mm/4.85 in		
	Length	136.60 mm/5.38 in		
	Height	54.50 mm/2.15 in		

Power Supply

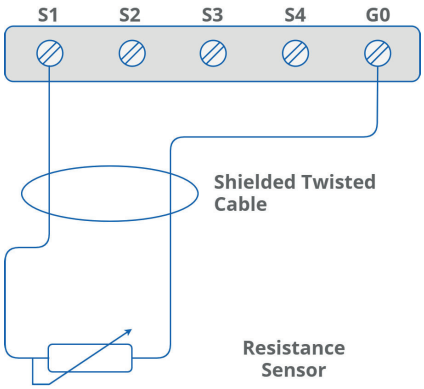


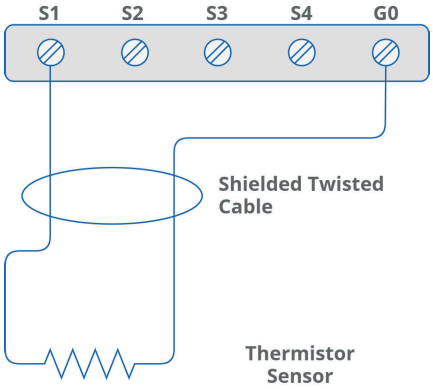


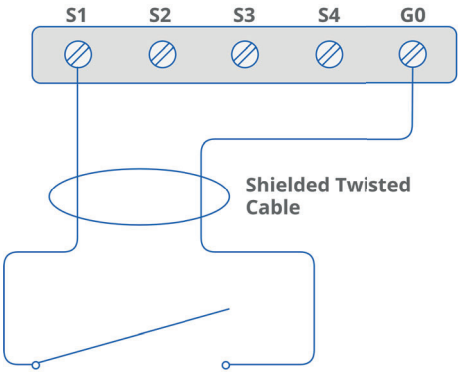
Communication

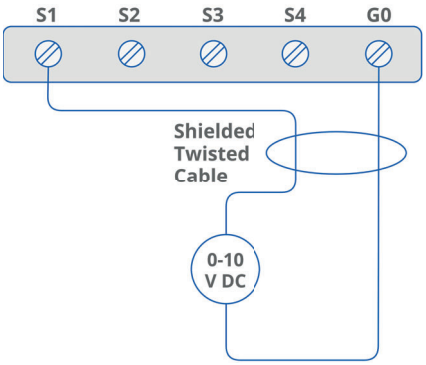


Special Inputs

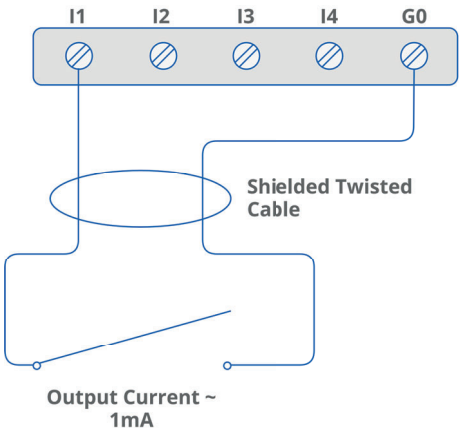




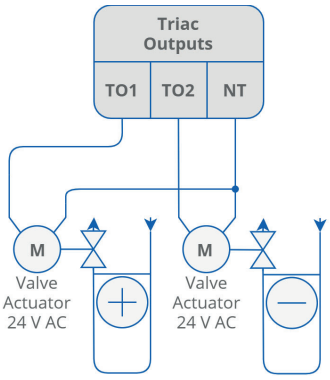


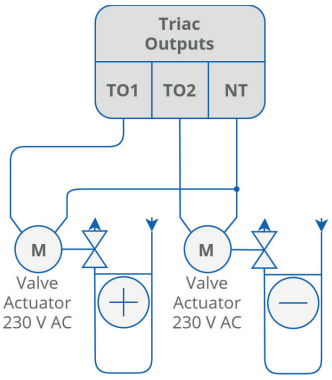


Digital Inputs

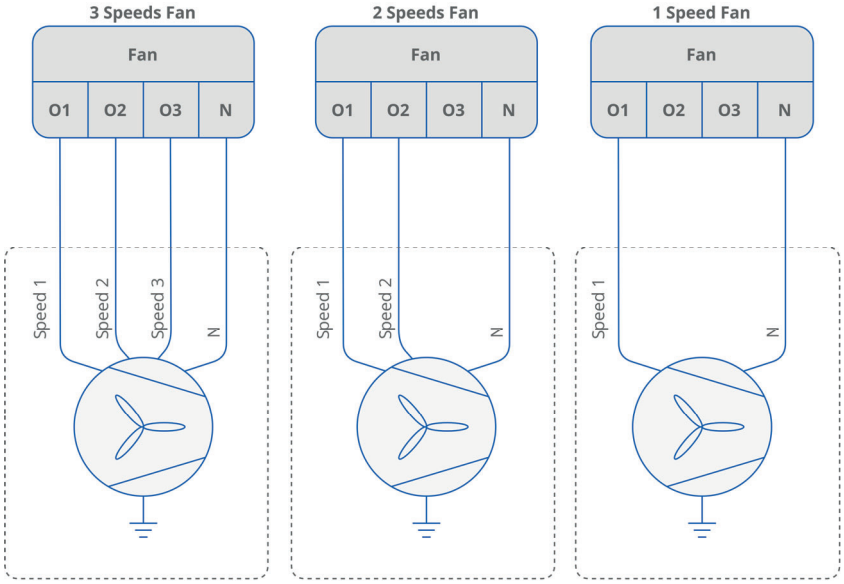


Triac Outputs

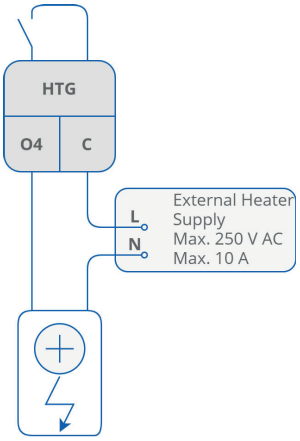




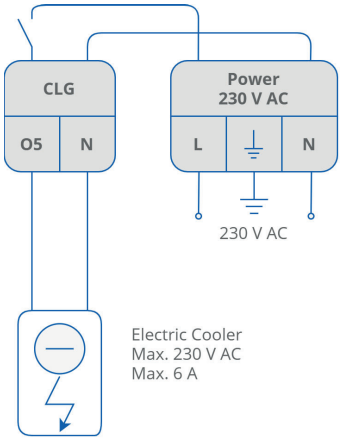
Digital Outputs (O1-O3 Fan Relays)

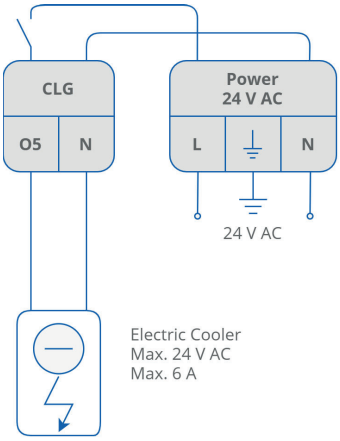


Digital Outputs (O4 HTG)

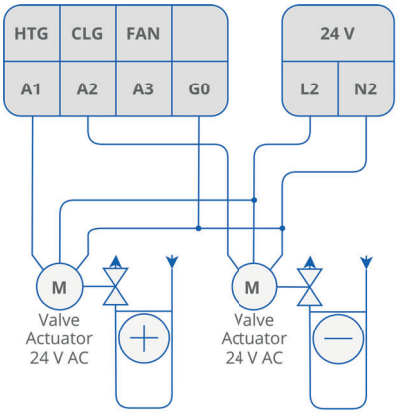


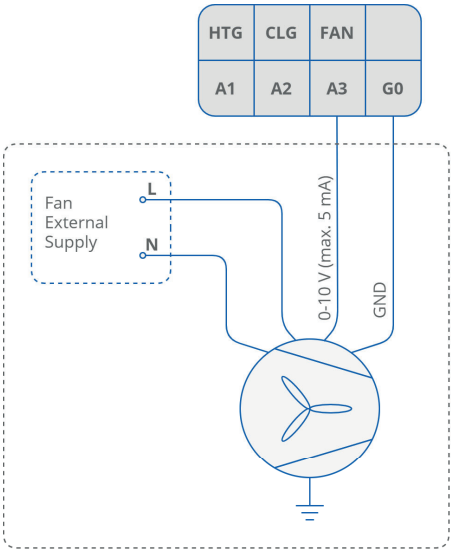
Digital Outputs (O5 CLG)



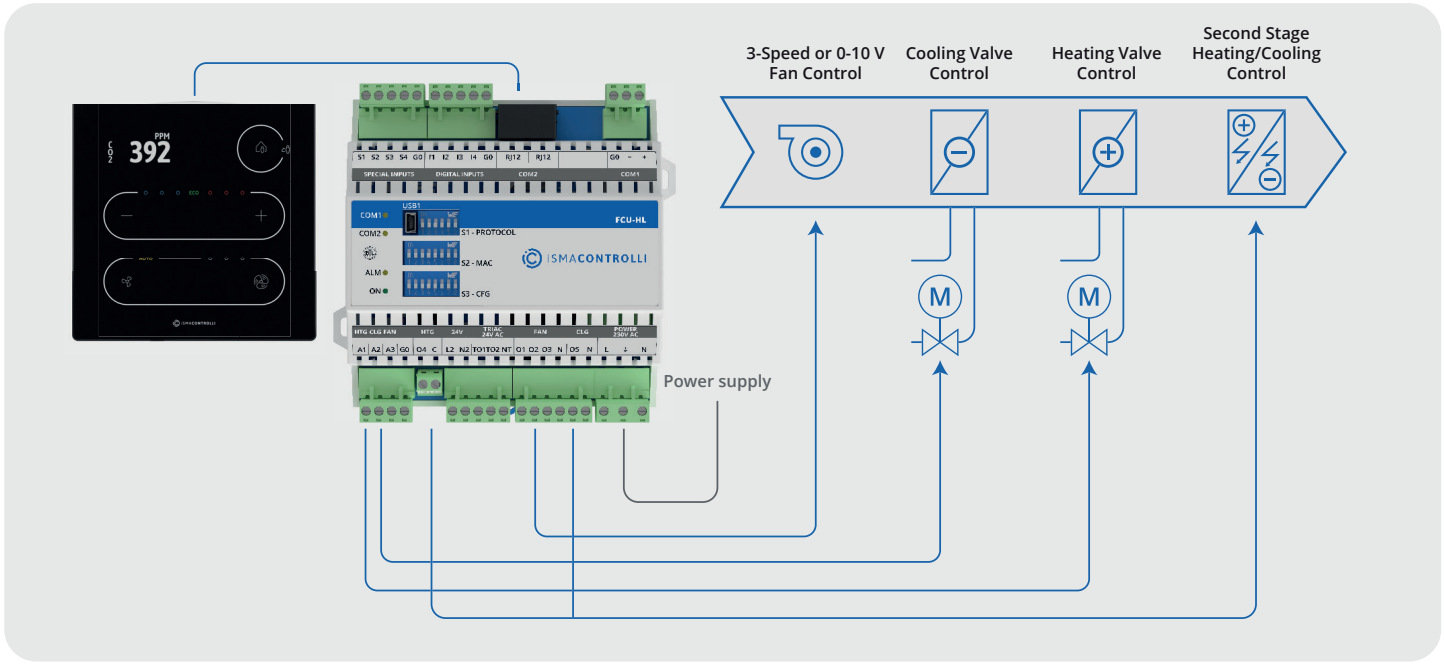


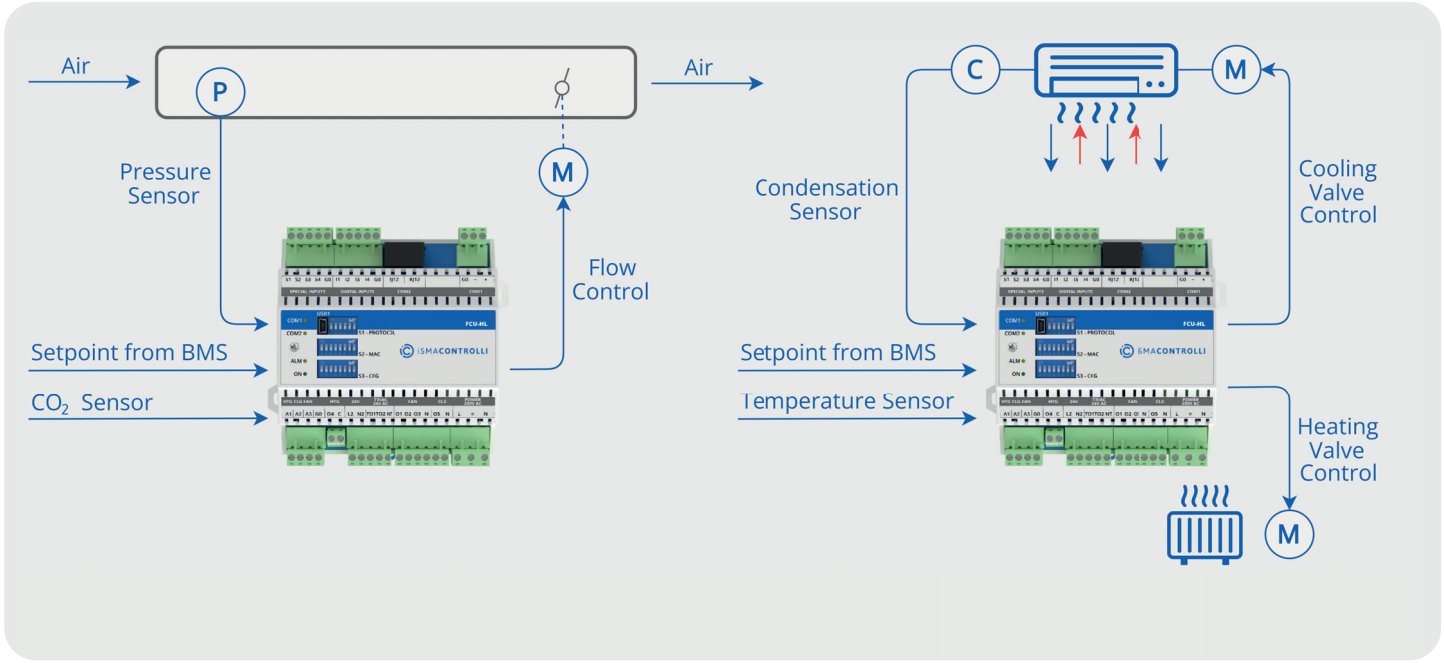
Analog Outputs





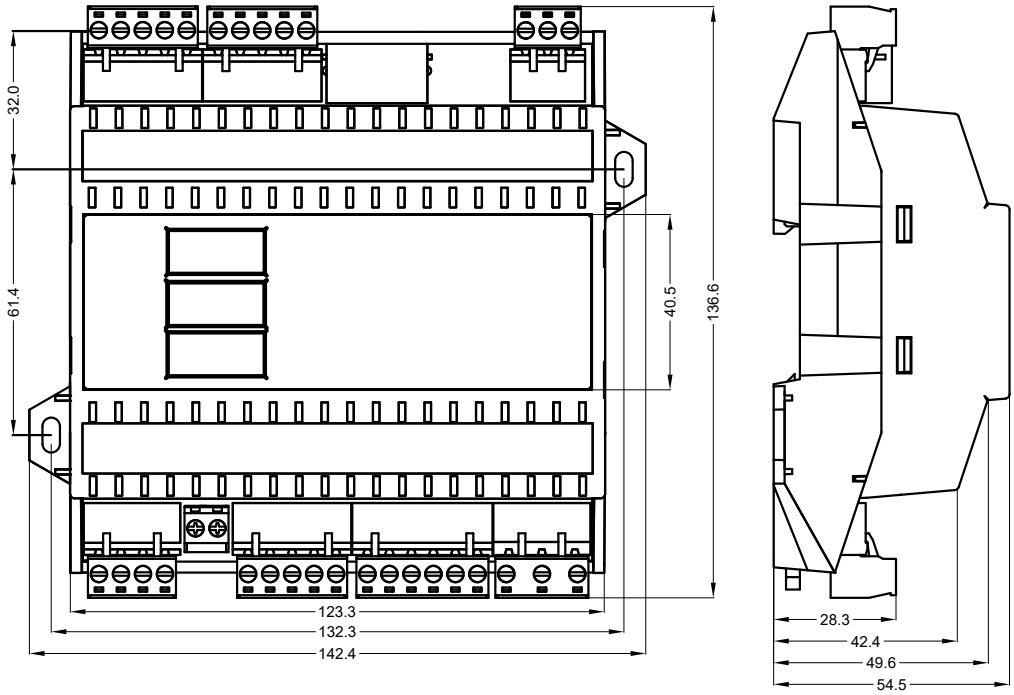
APPLICATION EXAMPLE





DEDICATED SOFTWARE

FCU Updater - Windows-based freeware configuration tool made for FCU controllers and wall panels

iSMA Tool - Programming tool for devices driven by the Sedona Framework

DIMENSIONS [mm]