

Weesion

A NEW **PERSPECTIVE** OF ROOM CONTROL

INSTRUCTION MANUAL

W10U BACnet / Modbus 06.2025

W10U is a small (X=105mm, Y=145mm, Z=40mm) communication enabled multifunctional fan coil or chilled beam remote I/O device, developed for **intelligent room control applications and BMS integration**.

MEDICINE OF LARGE, EXPENSIVE PROJECTS

Reduce a big quantity of cables, mounting material, electrical boxes in the ceiling and it brings a short installation time.

No other unnecessary control boxes or cables are required in the installation between the thermostat and fan-coil neither between fan-coils.

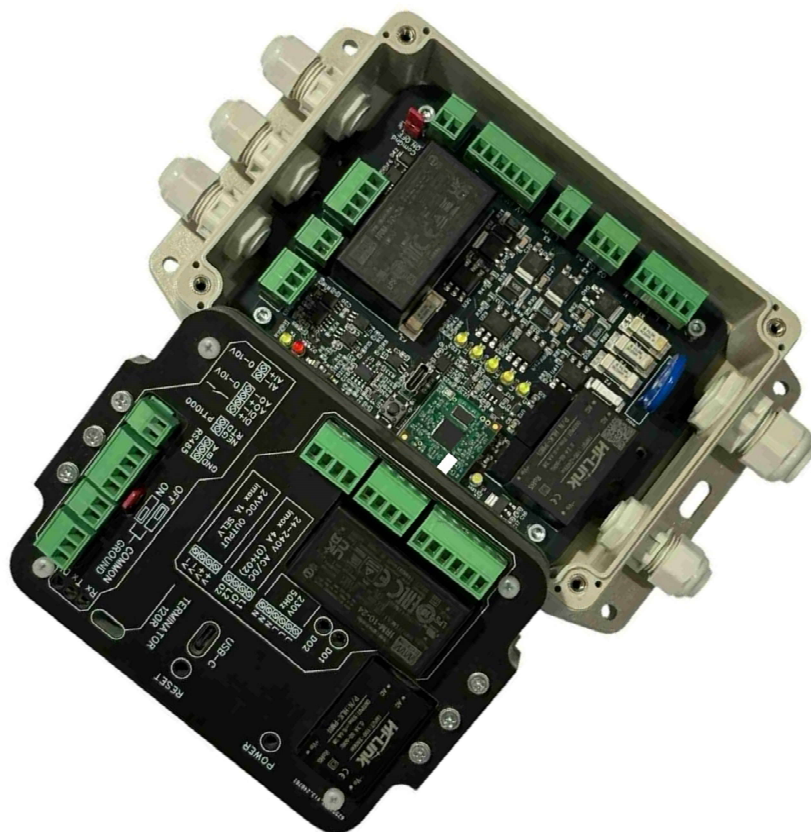
Easy zoning and controlling a group of fan-coils after BMS integration. In a case of future reconstruction, integrator can easily change the group of fan-coils in the BMS without changes in the ceiling installations.

Power supply is mainly used from the fan-coil unit and among the units it is enough to install communication cables.

www.weesion.eu

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1. SAFETY AND USER INFORMATION



HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH	
Follow safe electrical work practices. See all applicable local codes.	
Read and understand the instructions before installing the product. Follow the instructions during installation.	
Installation, wiring, testing or service must be performed only by a qualified persons in accordance with all applicable codes and regulations.	
Do not use the product for life or safety applications.	
Do not install the product in hazardous or classified locations.	
Do not exceed the product's ratings or maximum limits.	
The product may use multiple voltage/power sources.	
Turn off ALL power supplying equipment before working on or inside the equipment.	
Use a properly rated voltage sensing device to confirm that all power is off.	
Do NOT depend on the product for voltage indication.	
Products rated only for basic insulation must be installed on insulated conductors.	
Remove all wire scraps and tools, replace all doors, covers and protective devices before powering the equipment.	
Failure to follow these instructions will result in death or serious injury.	

2. TECHNICAL INTRO

MAIN FUNCTIONS:

EC FAN CONTROL WITH 0-10Vdc OUTPUT

2 MORE 0-10Vdc OUTPUTS TO CONTROL HEATING AND COOLING VALVES OR VARIABLE AIR VALVE

1x ANALOG INPUT 0-10V TO CONNECT CO2 OR OTHER SENSORS

2x DIGITAL OUTPUTS FOR ON/OFF CONTROL OF HEATING AND COOLING VALVES

1x DIGITAL INPUT FOR WINDOW CONTACT, MOVEMENT SENSOR OR OTHER POTENTIAL-FREE CONTACT

1x TERMISTOR INPUT TO CONNECT PT1000 SENSOR

230VAC POWER SUPPLY (USB-C PORT ALSO POWER'S UP THE MODULE – FOR TESTING AND COMM SETTINGS ONLY) – 230VAC IS MOSTLY UTILIZED FROM THE FANCOIL UNIT.

24V DC OUTPUT TO CONTROL THERMAL ACTUATORS OR AS A POWER SUPPLY FOR PROPORTIONAL VALVES, THERMOSTATS, ACTIVE SENSORS OR VAV BOX

BACNET MS/TP OR MODBUS RTU COMMUNICATION ADJUSTABLE BY USB-C PORT, END-OF-LINE RESISTOR SWITCH 120ohm

Two available mounting options:

- Surface mounting, supplied in electrical box with cable glands – IP43 version. No other components are required to complete your installation.
- Directly to the electrical box of fan-coil unit or to embed it into a new box – IP20 version.

3. BMS INTEGRATION

W10U uses BACnet points and Modbus registers to integrate own inputs and outputs to BMS.

There is no pre-programmed application. Control application is created in the BMS, or you can bind the BACnet or Modbus points with a pre-programmed thermostat. More information, recommendations and tips on weesion.eu.

Default communication settings for configuration in BMS or DDC controllers:

Communication protocol – **BACnet or Modbus**, Baud rate – **19200**, Parity – **NONE**, STOP BIT - **1**

Configuration of BACnet and Modbus communication parameters

1. Download and open the configuration software **Weesion Network Parameter Utility** from our website.
2. Connect the device to your PC or laptop with USB-C cable.
3. The module will turn on and after 1minute of initialization you can set-up the network configuration.
4. For detailed configuration see chapter 7. Communication settings.

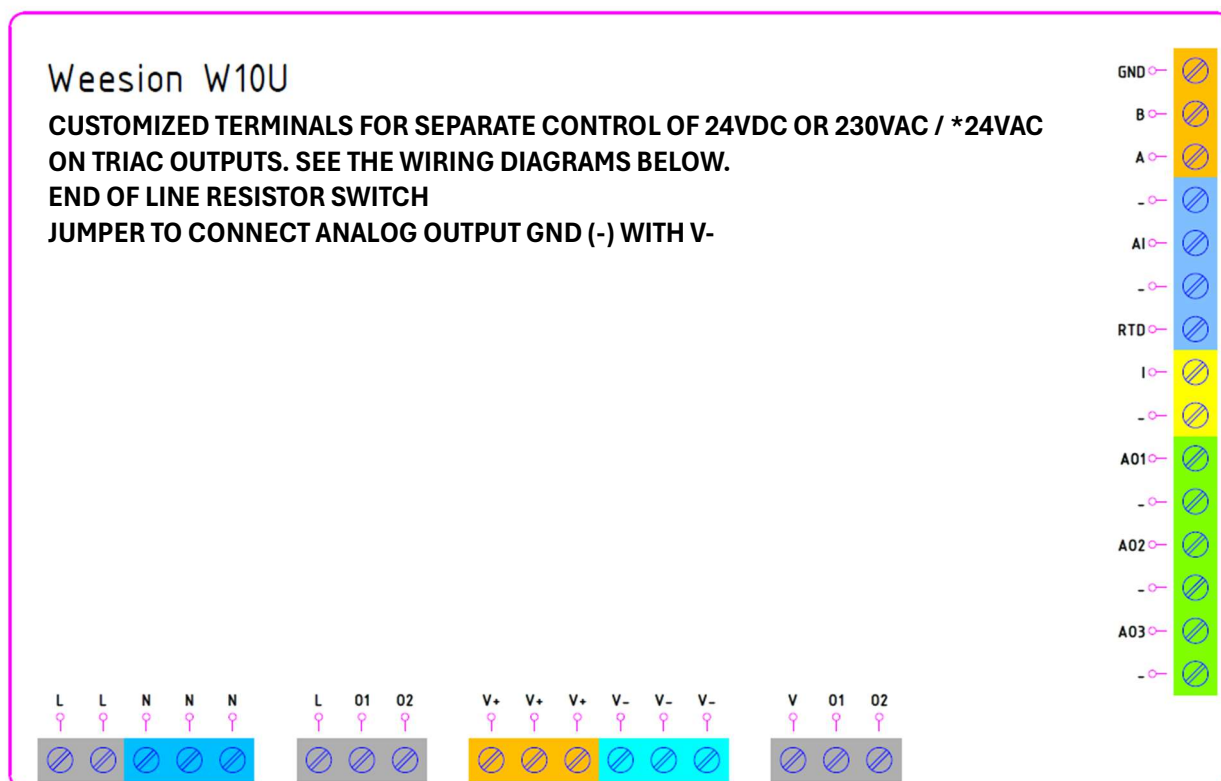
4. FAIL SAFE OUTPUT TIMEOUT

If there is a communication failure on RS485 the device will automatically deactivate its own outputs.

Digital outputs are set to FALSE (OFF) and analogue outputs to 0V.

In some BACnet MS/TP networks, the failsafe timeout may be triggered if no BACnet variables are exchanged for a certain period. To prevent this unwanted behaviour, we recommend configuring the **minimum guaranteed BACnet variable transfer interval** in the BMS to less than 5 minutes.

5. TERMINAL DESCRIPTION



Modules are designed to control 1pcs of fan-coil or chilled beam unit, but depending on your application, peripherals and their electrical properties, you can control a group of devices.

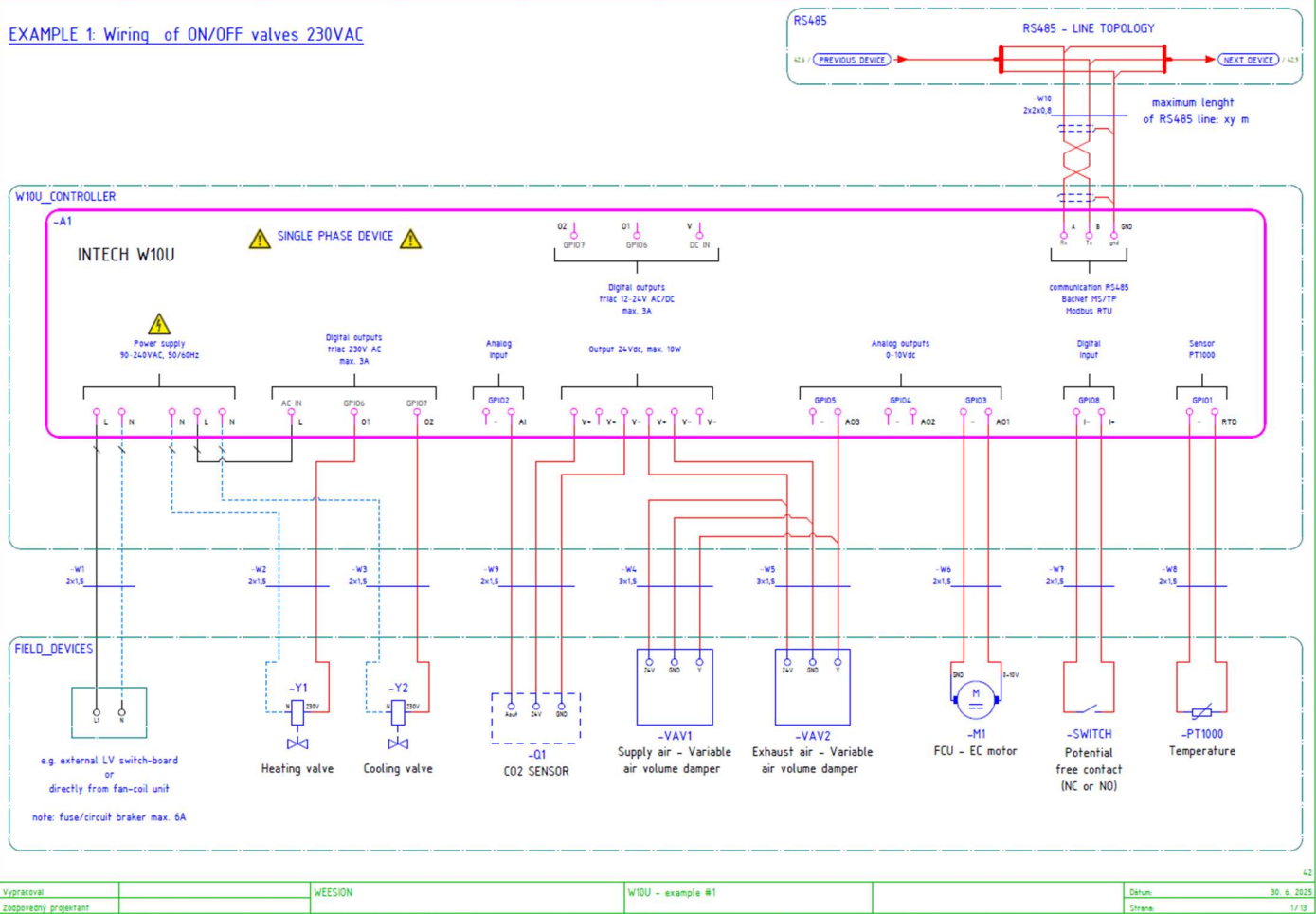
POWER SUPPLY

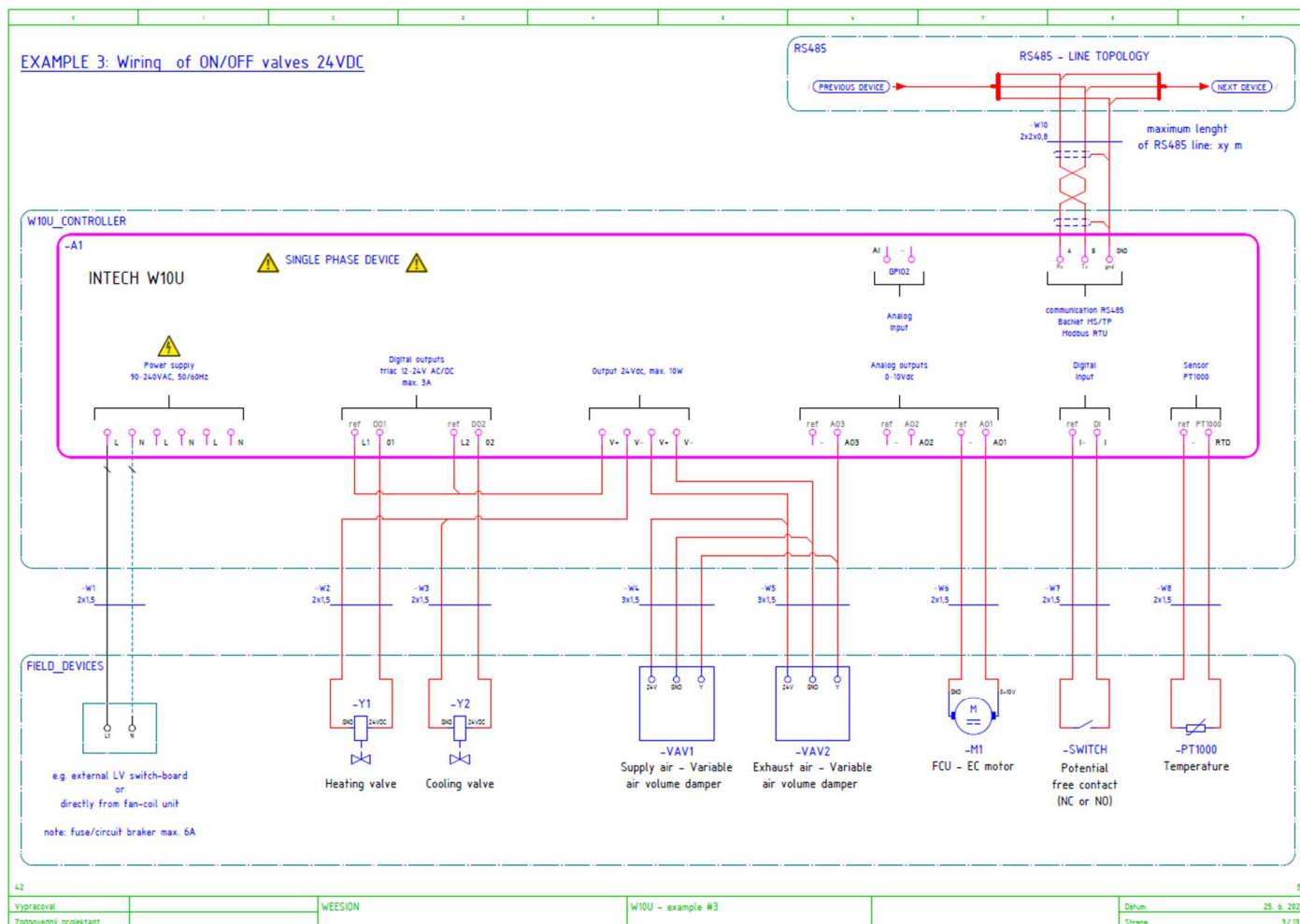
L - L	PHASE WIRE 240VAC, interconnected terminals
N - N - N	NEUTRAL WIRE, interconnected terminals
Digital outputs - AC and/or DC switching	
L	common AC TRIAC INPUT 12-240V AC for O1 and O2
O1	DIGITAL OUTPUT O1-L
O2	DIGITAL OUTPUT O2-L
V	common DC TRIAC INPUT 24VDC for O1 and O2
O1	DIGITAL OUTPUT O1-V
O2	DIGITAL OUTPUT O2-V
O1-L and O1-V acting together according to their communication variables	
O2-L and O2-V acting together according to their communication variables	
Power supply for valves or external devices	
ˆ+V	24V DC +
ˆ+V	24V DC +
ˆ+V	24V DC +
ˆ-V	24V DC -
ˆ-V	24V DC -
ˆ-V	24V DC -
Analog outputs	
AO1	ANALOG OUTPUT AO1 0-10Vdc
-	GND - AO1
AO2	ANALOG OUTPUT AO2 0-10Vdc
-	GND - AO2
AO3	ANALOG OUTPUT AO3 0-10Vdc
-	GND - AO3
Digital input	
I-	GND
I+	POTENTIAL-FREE DIGITAL INPUT
Temperature input	
-	GND
RTD	temperature input PT1000
Analog input	
-	GND
AI	analog input 0-10Vdc
Communication	
A	RS485 A BACnet MS/TP or Modbus RTU
B	RS485 B BACnet MS/TP or Modbus RTU
GND	RS485 GND
USB C	communication parameter configuration
terminator	End of line resistor, ON=120ohm
Com GND	ON - connects GND V- with GND of analogue outputs 0-10Vdc
Reset	RESET

***24VAC switching from external power supply**

6. WIRING DIAGRAM EXAMPLES

EXAMPLE 1: Wiring of ON/OFF valves 230VAC





4. Protocol - select BACnet MS/TP or Modbus RTU slave.
5. MAC Address / device address on BACnet MS/TP or Modbus RTU network address (default = 1)
6. Baud rate – set BACnet MS/TP or Modbus RTU baud rate (default = 19200)

8. BACNET POINTS

Instance	BACnet name	BACnet object	function	value range	related hardware input/output
1	Temperature	analog input	read only	-5 to 50°C	PT1000 temperature input
2	Analog input	analog input	read only	0-100%	Analog input 0-10V
3	Analog output 1	analog output	read/write	0-100%	Analog output 1 0-10V
4	Analog output 2	analog output	read/write	0-100%	Analog output 2 0-10V
5	Analog output 3	analog output	read/write	0-100%	Analog output 3 0-10V
6	Dig.output-O1	digital output	read/write	TRUE / FALSE	Digital output O1
7	Dig.output-O2	digital output	read/write	TRUE / FALSE	Digital output O2
8	Digital input	digital input	read only	TRUE / FALSE	Digital input
9	RESET	binary value	read/write	TRUE / FALSE	X

To control outputs in standard control mode, we recommend to bind BACnet output objects to property PRIORITY 12 or higher.

9. MODBUS REGISTERS

Register	Description	Format	value range	related hardware input/output
<i>Funktion code 04 read - input registers</i>				
1	Temperature	16bit signed	-5 to 50°C	PT1000 temperature input
2	Analog input	16bit unsigned	0-100%	Analogue input 0-10V
<i>Funktion code 03 read /06 write - holding registers</i>				
3	Analog output 1	16bit unsigned	0-100%	Analog output 1 0-10V
4	Analog output 2	16bit unsigned	0-100%	Analog output 2 0-10V
5	Analog output 3	16bit unsigned	0-100%	Analog output 3 0-10V
<i>Funktion code 01 read /write 05 - single coil register</i>				
6	Dig.output-O1	binary/digital	TRUE / FALSE	Digital output O1
7	Dig.output-O2	binary/digital	TRUE / FALSE	Digital output O2
<i>Funktion code 02 read - discrete input register</i>				
8	Digital input	binary/digital	TRUE / FALSE	Digital input
<i>Funktion code 01 read /write 05 - single coil register</i>				
9	RESET	binary/digital	TRUE / FALSE	X

10. TECHNICAL DETAILS

Dimensions	X=145mm, Y=105mm, Z=40mm
Power supply	90-240Vac 50/60Hz
Power consumption	<2W
Operating temperature	0 to 50 °C
Operating humidity	5 to 75% RH non-condensing
Remote temperature sensor	PT1000 thermistor
Temperature sensor resolution	0.1°C (0.1F)
Digital outputs	triac max. 3A, switching 230Vac, 24Vdc, *24Vac
Digital inputs	Dry contact across terminals I and com, potential free
Analog outputs	0-10Vdc
Communication	RS485 - BACnet MSTP or Modbus/RTU
Protection class	IP43 or IP20
Terminal sizing	wire cross section up to 1,5mm2

11. ORDERING INFORMATION

