

Data sheets

DFAPP & DF8RIT

DFAPP

DFAPP: Ethernet Gateway for Domino bus

DFAPP module is a gateway between the Ethernet network and the **Domino** bus; through BTools and BDWizard support programs, it is possible to perform all usual operations such as the assignment of module addresses, the programming of the system functions, reading and editing of operating programs, updating firmware of modules and more yet through the Ethernet network, both locally and remotely. The same operations can be also performed in wireless mode connecting directly to DFAPP module through WiFi or through an access point properly configured.

DFAPP module also allows to control the home automation system through applications iCasaMia and ACasaMia available for free on the related stores; thanks to this last possibility, DFAPP module is a user-friendly solution for the control and management, both locally and remotely, of lighting, automation, air conditioning, scheduled operations, loads control, energy consumption, and more again.



DFAPP module allows to manage most of the variables of the **Domino** bus, specifically:

- digital inputs status
- status and command of real outputs
- value of analog inputs (eg. temperature)
- setting of analogue outputs (eg. dimmer)
- status and command of virtual points
- management of scheduled times

DFAPP module features a rel time clock with backup battery capable of retaining the time in case of main power supply failure.

As said above, through DFAPP module it is possible to program **Domino** modules, both locally and remotely, as well as update their firmware. DFAPP module is open to future developments, being itself completely upgradable.

Some LEDs visible from the panel provides an indication of the operating status of the module as described in the following table:

LED	Color	Function
POLL	Green	It flashes one time per second to indicate that the module is active
VAR	Green	It flashes in case of change of state of a Domino digital input module
BUS F.	Red	Fixed On when Domino bus failure occurs (if DFAPP is separately powered)
MOD F.	Red	On for 5s when a module does not answer to a message
TX	Yellow	It flashes when the communication is active
RX	Red	It flashes when the communication is active



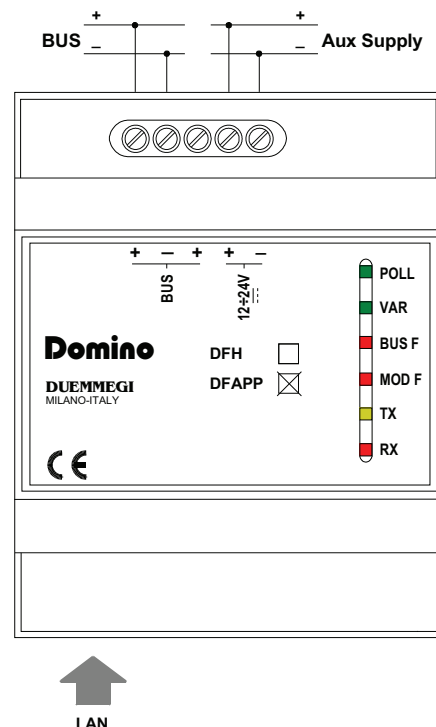
DFAPP module features a terminal block for the connection to the **Domino** bus and to an auxiliary power supply.

If the application does not require the connection of peripherals needing to be powered by the DFAPP USB ports, the auxiliary power supply can be avoided and the supply can be derived from the **Domino** bus. Otherwise, an auxiliary power supply is needed.

No more connections are required, except the Ethernet connection to a hub/router. DFAPP module is housed in a DIN 4M box for rail mounting.

Module connection

The following schematic diagram shows the connections required by DFAPP module.



DFAPP

As shown in this schematic diagram, DFAPP module must be connected to a dc power supply in the range 12 to 24V, to the **Domino** bus and to the Ethernet network.

If no peripheral devices that need to be powered by the DFAPP USB ports have to be connected, the auxiliary power supply can be avoided and power can be derived from the bus. The possibility to use this last method essentially depends on:

- the number of DFPW2 power supplies installed in the system
- the number of modules installed in the system
- the bus extension

As known, a single DFPW2 module, in a **Domino** system, can supply up to 50 “generic” modules about (in other words the classics input and output modules of the **Domino** family).

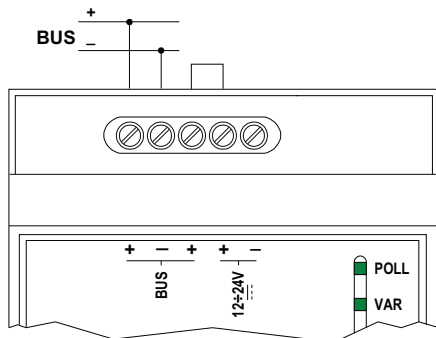
DFAPP module has a “weight”, from the point of view of the current consumption, equal to 20 “generic” modules. For instance, in a plant with a DFAPP and a single DFPW2 power supply, it will be possible to install as maximum:

50 modules – 20 modules = 30 generic **Domino** modules

If more modules have to be installed, then more DFPW2 modules are required.

Take in account that this rule does not consider the length of the bus, the section of the cable used for the bus and the location of DFPW2 modules. Remember that DFPW2 module features a LED reporting the overload condition; for details refer to the technical sheet of DFPW2 module.

To supply DFAPP module by the bus, execute the connections shown in the following schematic diagram.



Setting up

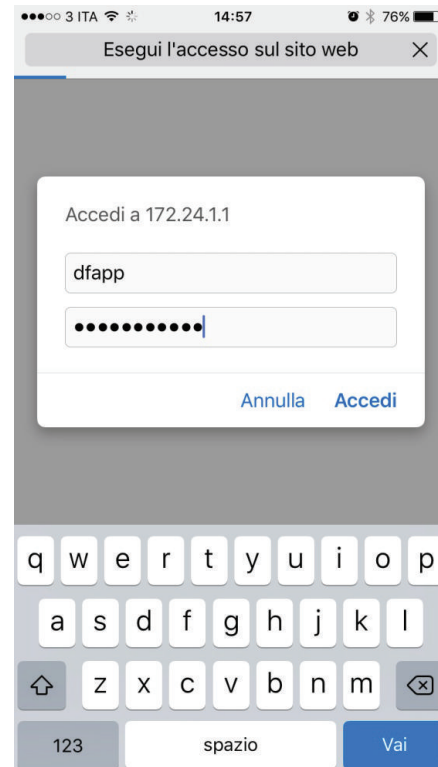
The DFAPP module features two factory-set IP addresses, one for wired connection (LAN) and one for WiFi connection (default SSID: Duemmegi-DFAPP, WiFi password: dfappsever); these addresses are:

	IP address	Port
LAN	192.168.1.251	1002
WiFi	172.24.1.1	1002

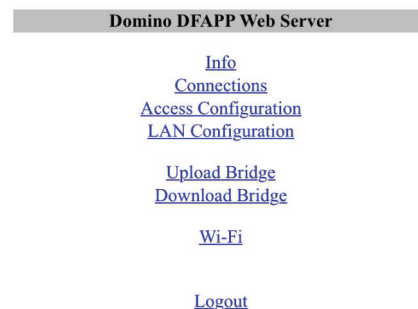
DFAPP module features a simple WEB server allowing to set the operating parameters. To access to this WEB server, use a web browser (also on a mobile device) by entering one of the two IP addresses listed before, depending on whether the connection takes place via LAN or WiFi.

Therefore, enter the IP address in the browser bar; you will be prompted for a username and password that are factory set to:

Username: dfapp
Password: dfappsever



The web server will be then accessed like in the following screenshot:



To change username and password select Access Configuration; the following page will be shown:

Domino DFAPP Web Server

Access Configuration

Username	dfapp
Password
Confirm	

Show Hide

[Menu](#)

Enter the desired username and password and then select Save; Show and Hide options allow to show or hide the password during its entering.

To change the communication parameters, select LAN Configuration; the following page will be shown:

Domino DFAPP Web Server

LAN Configuration

IP Address	192.168.1.135
Gateway	192.168.1.1
Subnet Mask	255.255.255.0
Port	1002

[Menu](#)

Enter the desired parameters and then select Save.

The two menu items Upload Bridge and Download Bridge allow to upload/read the management software of DFAPP; these features, in particular Upload Bridge, allow to update the module to the latest available version.

The WiFi menu item will open the page shown in the following figure and it allows to enable or disable the WiFi section of DFAPP; the IP address and Subnet Mask cannot be changed. Instead, selecting WiFi Access Configuration, it is possible to change the Network Name (SSID) and the WiFi login password (which by default is dfappserver).

Domino DFAPP Web Server

Wi-Fi

Enable Disable

IP Address	172.24.1.1
Subnet Mask	255.255.255.0

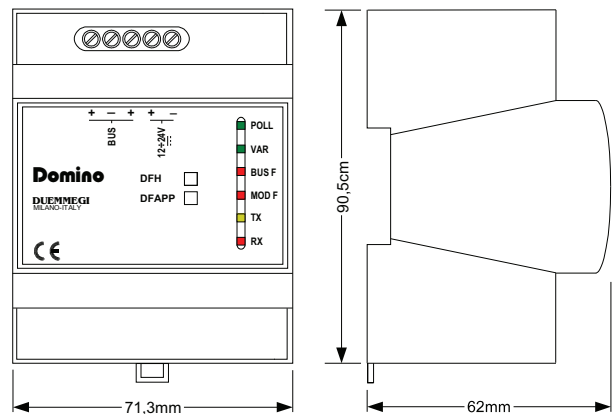
[Wi-Fi Access Configuration](#)

[Menu](#)

Technical characteristics

Power supply	12 ÷ 24V SELV or by Domino bus if USB ports not used (weight: 20 standard modules)
MAX current consumption	160mA @ 12V 90mA @ 24V
CPU	Raspberry Pi 3 con CPU quad-core Cortex-A53 Broadcom BCM2837 1.2GHz
WiFi	BCM43438 WiFi on board
RAM	1GB
SSD	Micro SD industrial-grade SLC 8GB
Available interfaces	4 USB 1 Ethernet 10/100Mbps
Real time clock	Yes, with internal backup battery
Housing	DIN standard 4M for rail mounting
Operating temperature	0 ÷ +50 °C
Storage temperature	-20 ÷ +70 °C
Protection degree	IP20

Outline dimensions



Correct disposal of this product



(Waste Electrical & Electronic Equipment)
(Applicable in the European Union and other European countries with separate collection systems). This marking on the product, accessories or literature indicates that the product should not be disposed of with other household waste at the end of their working life. To prevent possible harm to

the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources. Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

Installation and use restrictions

Standards and regulations

The design and the setting up of electrical systems must be performed according to the relevant standards, guidelines, specifications and regulations of the relevant country. The installation, configuration and programming of the devices must be carried out by trained personnel.

The installation and the wiring of the bus line and the related devices must be performed according to the recommendations of the manufacturers (reported on the specific data sheet of the product) and according to the applicable standards.

All the relevant safety regulations, e.g. accident prevention regulations, law on technical work equipment, must also be observed.

Safety instructions

Protect the unit against moisture, dirt and any kind of damage during transport, storage and operation. Do not operate the unit outside the specified technical data.

Never open the housing. If not otherwise specified, install in closed housing (e.g. distribution cabinet). Earth the unit at the terminals provided, if existing, for this purpose. Do not obstruct cooling of the units. Keep out of the reach of children.

Setting up

The physical address assignment and the setting of parameters (if any) must be performed by the specific softwares provided together the device or by the specific programmer. For the first installation of the device proceed according to the following guidelines:

- Check that any voltage supplying the plant has been removed
- Assign the address to module (if any)
- Install and wire the device according to the schematic diagrams on the specific data sheet of the product
- Only then switch on the 230Vac supplying the bus power supply and the other related circuits

Applied standards

This device complies with the essential requirements of the following directives:

- 2014/30/UE (EMC)
- 2014/35/UE (Low Voltage)
- 2011/65/UE (RoHS)

Note

Technical characteristics and this data sheet are subject to change without notice.

DF8RIT

DF8RIT: mixed module with 8 inputs, 8 outputs, 1 temperature and regulator

DF8RIT module for **Domino** bus performs, in a single box, the following features:

- 8 digital inputs for potential free contacts
- 8 power-relay outputs which can be set for the ON-OFF command of generic loads or, as pairs, for the management of rolling shutters, awnings and similar devices driven by double winding motors
- 1 analog input for temperature probe, measurement range $-20 \div +50^{\circ}\text{C}$, suitable for both internal and external temperature detection
- ambient temperature regulator function, featuring weekly programming (chrono-thermostat, operationally identical to DFCT **Domino** module)

The chrono-thermostat function, if enabled, allows to regulate, through the **Domino** bus, the ambient temperature of a room of the house. This function allows to decentralize the ambient temperature regulation, thus considerably simplifying the programming of **Domino** system. The user interface can be realized by one or more DFTouch video-terminals or by a supervisor, touch screen terminals, Web Server via Internet or Intranet etc.; the remote control via GSM phone is also possible.

DF8RIT module provides a 2-way terminal blocks for the connection to the bus; like for almost all modules of **Domino** family, the power supply required for the operation of the module is derived from the bus itself.

Near to the bus terminal block, a small push-button allows the address programming and a green LED shows when the module is ready to receive the address itself; the same LED normally flashes every 2 seconds about to signal that the module is properly operating. A small 3-way connector (PRG) under the bus terminal cover allows the connection to the optional tester/programmer.

The module also provides:

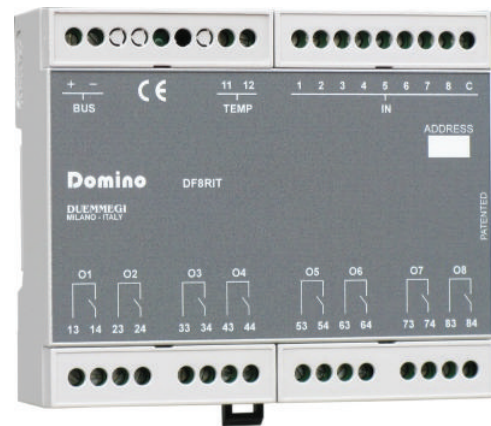
- a 9-way terminal block for the connection to the 8 input contacts and the common signal
- a 2-way terminal block for the connection to the temperature probe
- 4 terminal blocks, 4-ways each one, connected to the contacts of the 8 output relays; these relays feature bistable coils in order to minimize the current consumption and keep the previous contact status even in power supply failure conditions

DF8RIT housing is a modular 6-unit box for DIN rail with reduced height.

The temperature sensor (to be ordered separately choosing among various available versions) is very small and can be easily inserted in the panel of the preferred wall box.

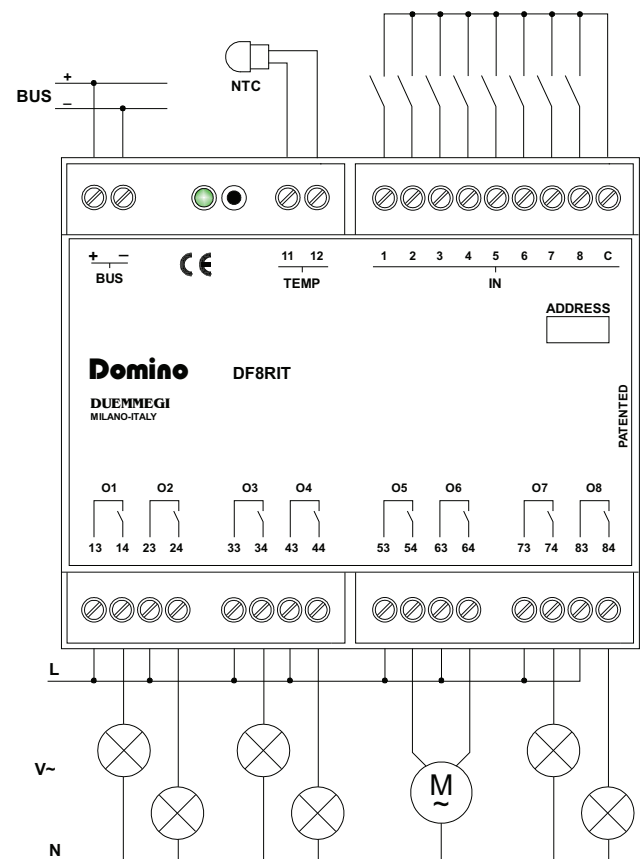
Address programming

Due to the numerous available parameters, DF8RIT module takes, inside the **Domino** bus, from 1 to 7 input addresses and from 1 to 10 output addresses, depending on the functions that have been enabled.



Wiring

The following schematic diagram shows the connections for DF8RIT module.



When connecting motors for shutter, it is mandatory to use the pairs 1-2, 3-4, 5-6, 7-8; It is not allowed to use pairs other than those listed.

Information on the bus

DF8RIT module takes, inside **Domino** bus, a variable amount of input and output addresses depending on the functions that have been enabled, going from a minimum of 1 input and 1 output address to a maximum of 7 input and 10 output addresses. The maximum value of the base address must be less or equal to 245; greater values will be discarded by the module which will return an address assignment error.

Each one of the active addresses provides the information described in the following tables, where n is the base address assigned to DF8RIT module.

Input section

IN							
Point	n	+1	+2	+3	+4	+5	+6
1	In 1	Position SHUTTER 1	Position SHUTTER 2	Position SHUTTER 3	Position SHUTTER 4	Heat	Ambient Temperature (°K x 10)
2	In 2					Cool	
3	In 3					Smin	
4	In 4					Smed	
5	In 5					Smax	
6	In 6					Soff	
7	In 7					Sman	
8	In 8					Fail	
9	Out 1	SP1					
10	Out 2	SP2					
11	Out 3	SP3					
12	Out 4	OFF					
13	Out 5	SPM					
14	Out 6	Man					
15	Out 7	SUM					
16	Out 8	-					

Output section

OUT										
Point	n	+1	+2	+3	+4	+5	+6	+7	+8	+9
1	Out 1	Go to position (0-100%) SHUTTER 1	Go to position (0-100%) SHUTTER 2	Go to position (0-100%) SHUTTER 3	Go to position (0-100%) SHUTTER 4	-	SP1 (°K x 10)	SP2 (°K x 10)	SP3 (°K x 10)	SPM (°K x 10)
2	Out 2					-				
3	Out 3					Smin				
4	Out 4					Smed				
5	Out 5					Smax				
6	Out 6					Soff				
7	Out 7					Sman				
8	Out 8					-				
9	-	SP1								
10	-	SP2								
11	-	SP3								
12	-	OFF								
13	-	SPM								
14	-	Man								
15	-	SUM								
16	-	-								

The meaning of information in the previous tables will be detailed in the following paragraphs.

ON-OFF inputs and outputs

The input and output addresses having the base value are always enabled and report the following information.

Input section n

IN	
Point	n
1	Input 1
2	Input 2
3	Input 3
4	Input 4
5	Input 5
6	Input 6
7	Input 7
8	Input 8
9	Status of output 1
10	Status of output 2
11	Status of output 3
12	Status of output 4
13	Status of output 5
14	Status of output 6
15	Status of output 7
16	Status of output 8

The points 1 to 8 report the status of the related digital input of the module (1 = input contact closed), the points 9 to 16 report the status of the 8 relays (1 = relay contact closed); these last points allow to use the output status as input of the equations.

Output section n

OUT	
Point	n
1	Command output 1 (or Open 1)
2	Command output 2 (or Close 1)
3	Command output 3 (or Open 2)
4	Command output 4 (or Close 2)
5	Command output 5 (or Open 3)
6	Command output 6 (or Close 3)
7	Command output 7 (or Open 4)
8	Command output 8 (or Close 4)
9	-
10	-
11	-
12	-
13	-
14	-
15	-
16	-

The points 1 to 8 control the related relay outputs of the module (1 = close relay contact); in the case of outputs configured for shutter control, the commands will be Open and Close and they will be automatically mutually exclusive points with proper safety delay when inverting the direction of the shutter.

The ON-OFF outputs can be programmed using all the typical functions of **Domino** system, like in the following list:

- Logic combinations (& | !)
- Set/Reset (S R)

- Toggle (T S R, included actuation timeout on all 8 ON-OFF outputs)
- Timer (max 8 for module)
- Scheduler
- Analog threshold

Warning: when connecting a shutter actuator to a pair of outputs of DF8RIT module that have not been set for that function, the actuator and the module can be damaged if the two outputs are simultaneously activated

Rolling shutter function

Operation in rolling shutter mode

The outputs set for rolling shutter management automatically performs different functions as here described.

Assume that a pair of outputs has been programmed for opening and closing from two push-buttons (**Open** and **Close**) connected to an input module (or to inputs of DF8RIT itself).

Pushing and holding down the Open push-button or the Close push-button, the rolling shutter will be opened or closed; releasing the push-button, the rolling shutter will stop in the position reached at that moment.

If the limit switch has been reached before the push-button releasing, the rolling shutter will stop anyway (**provided that the motor assembly includes proper limit switches** to switch off the motor power; these limit switches have no connection with the **Domino** system).

A short touch on Open push-button or on Close push-button causes the movement of the motor until the limit switch is reached or until a programmable time out elapses (full opening and closing function, called automatic mode). If during the automatic movement any Open or Close button is pushed again, the shutter stops at that position (this operation is called counter-command).

It is also possible to define **centralized** commands ("**Open Priority**" and "**Close Priority**"), that work like local commands as previously defined except that **the priority command is only automatic** and it will be always executed regardless of the status of the rolling shutter (moving or not moving). In other words, if the rolling shutter was moving, **a priority command will be never executed as counter-command**.

It is possible to define additional commands performing the unconditional **Halt**, allowing to stop the motor regardless of the function currently in execution.

Finally, it is possible to add **GoTo** commands to perform partial movements, so as to close the shutter to a given percentage with respect to the total displacement. Since a position information is not generally available for standard shutter, this function is based on the timing of the command, after appropriate configuration (see related paragraph); please note that the time of opening and closing can vary with time and climatic conditions because of the variation of friction, therefore it is possible a certain error in the positioning.

Notes:

- As previously mentioned, DF8RIT module cannot identify the reaching of the limit of allowed movement; check that the selected actuator integrates the proper limit switches, otherwise the motor and the module may be damaged.
- To avoid damages to the motor and dangerous inrush currents, DF8RIT module automatically wait for 1 second about before to invert the motor direction.

Temperature controller function

DF8RIT module allows the ambient temperature regulation through the probe connected to the related terminals.

The module features two main regulation modes, one for the Winter season and one for the Summer season. For each one of these two seasons, the regulation takes place controlling the related point of the input section of the module (heat request in Winter and cooling request in Summer).

In addition, DF8RIT module controls 3 points of the input section which can be used, if needed, for the management of a 3-speed fancoil.

For each season, DF8RIT can be set for Automatic and Manual mode. In Automatic mode, the module allows to specify 3 setpoints: SP1, SP2, SP3. It is recommended to set SP3 as the setpoint with the highest temperature and SP1 as the one with the lowest temperature, regardless of the season.

In Manual mode, DF8RIT allows to specify an additional "manual" setpoint SPM. All setpoints can be set in the range 10.0 to 35.5°C and they can be changed in any moment through the bus. It is also available an OFF status, both in Automatic and in Manual mode; in Winter season, the OFF position causes the imposition of the no-frost setpoint, while in Summer it means completely OFF. The no-frost setpoint can be set, during the setting up, in the range 0 to 25.5°C. DF8RIT also features a weekly programmer whit half hour resolution; for each day of the week, the module allows to specify the relationship between the time and the desired setpoint. The scheduling is performed in a graphical way by DFTouch or another master device, thus simplifying the programming.

Inputs and outputs of temperature regulator

The following 2 input and 5 output addresses will be activated only if the temperature regulation function has been enabled in the configuration panel; if instead only the temperature reading has been enabled, only the input address n+6 will be activated.

Input section n+5, n+6

IN		
Point	n+5	n+6
1	Heat request	Ambient Temperature (°K x 10)
2	Cooling request	
3	Speed MIN	
4	Speed MED	
5	Speed MAX	
6	Speed OFF	
7	Speed is in MAN mode	
8	Temperature probe failure	
9	Setpoint is SP1	
10	Setpoint is SP2	
11	Setpoint is SP3	
12	Setpoint is OFF	
13	Setpoint is SPM	
14	Temp. Regulation is MAN	
15	Season is Summer	
16	-	

The meaning of the input digital points at address n+5 is:

- **Point 1:** point=1 means that the regulator requires to switch ON the heating device (in Winter).
- **Point 2:** point=1 means that the regulator requires to switch ON the cooling device (in Summer).
- **Points 3..5:** mutually exclusive points; point=1 means that the regulator requires to switch ON the related speed (MIN, MED, MAX). If all points are OFF, then the fancoil is stopped (and in this case the following point 6 will be activated).
- **Point 6:** point=1 means that the fancoil is stopped.
- **Point 7:** point=1 means that the fancoil speed is set to Manual mode.
- **Point 8:** point=1 means temperature sensor failure (opened or in short circuit).
- **Point 9..13:** mutually exclusive points; point=1 means that DF8RIT is regulating at the related setpoint (SP1, SP2, SP3, OFF or SPM).
- **Point 14:** point=1 means that the regulation is set to Manual mode; point=0 means that it is set to Automatic mode.
- **Point 15:** point=1 means that temperature regulator is set to Summer season; point=0 means that it is set to Winter season.

The input address n+6 reports the **temperature** value detected by the probe connected to DF8RIT module, expressed as °Kx10; for instance 2980 means: $(2980 - 2730) / 10 = 25.0^{\circ}\text{C}$. If a probe connected to another module is used (see Configuration of temperature controller), the value reported by input address n+6 will be the temperature of that probe.

Output section n+5, n+6, n+7, n+8, n+9

OUT					
Point	n+5	n+6	n+7	n+8	n+9
1	-	SP1 (°K x 10)	SP2 (°K x 10)	SP3 (°K x 10)	SPM (°K x 10)
2	-				
3	Set speed MIN				
4	Set speed MED				
5	Set speed MAX				
6	Set speed OFF				
7	Set speed MAN				
8	-				
9	Set SP1				
10	Set SP2				
11	Set SP3				
12	Set OFF				
13	Set SPM				
14	Set MAN reg.				
15	Set Summer				
16	-				

The meaning of the output digital points at address n+5 is:

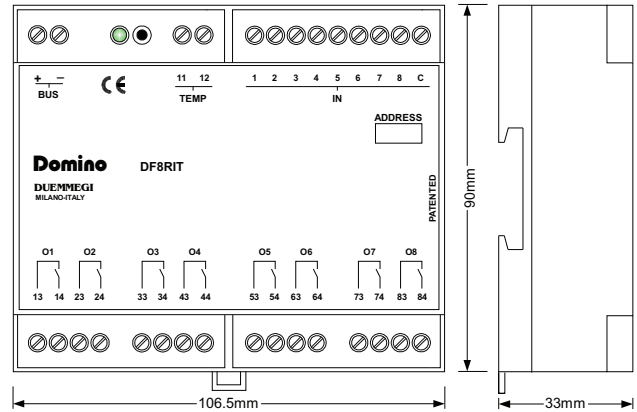
- **Point 3..6:** mutually exclusive points; setting to ON one of these points, the fancoil will be set to the related speed (MIN, MED, MAX or OFF). If one of these points is active, the automatic control of the fan is suspended. When enabling one of these points, point 7 too will be activated on both input and output address n+5, thus reporting that speed has been forced to manual mode.
- **Point 7:** setting this point to 1, the fancoil speed control will be changed to manual mode, and this means that the speed will not be decided by DF8RIT module, but by the status of point 3..6 described before. Setting this point to 0, the speed control of the fancoil will return to automatic mode.
- **Points 9..13:** mutually exclusive points; setting to ON one of these points, DF8RIT changes the regulation to the related setpoint (SP1, SP2, SP3, OFF, SPM). When the Auto mode is active, the imposition of a setpoint SP1-2-3 and OFF different from that one decided by the scheduler does NOT cause the switching to manual mode, but the new setpoint will be maintained until a different one will be imposed by the scheduler. When activating SPM while DF8RIT is in Auto mode, the mode will be forced to Man (which means that the scheduler will be disabled).
- **Point 14:** setting this point to 1, the temperature regulation will be changed to manual mode, and this means that setpoint SPM will be imposed; this setpoint can be however changed with one of the others acting on points 9..13 seen before. Setting this point to 0, the regulator returns to Auto mode.
- **Point 15:** setting this point to 1, the temperature controller will be set to Summer operation; setting it to zero, it will be set to Winter operation.

Output addresses n+6 to n+9 allow to set the value of the related setpoints. These values must be in the format °Kx10 (e.g. for instance 2980 means: $(2980 - 2730) / 10 = 25.0^{\circ}\text{C}$).

Technical characteristics

Power supply (bus side)	By specific centralized power supply mod. DFPW2
Current consumption	Equivalent to 2 standard Domino modules
Number of digital inputs	8, for potential-free contacts
Current for each digital input contact	1mA (closed contact), 0mA (open contact)
MAX allowed length for digital input wires	20 meters
Temperature sensor	NTC
Temper. measurement range	-20 ÷ +50 °C
Temper. measurement resolution	0.1 °C
Temper. measur. Linearity	±0.3 °C
Temper. measur. MAX error	±0.3 °C
MAX length of cables for the connection to temperature sensor	20 meters, with shielded cable, shield connected to terminal 12 sensor
Number of regulated zones	1
Type of regulation	Selectable among ON/OFF with hysteresis and PID
Intervention points (needed DFCK3 or DFCP modules)	48 for each day of the week
Setpoints	5 for Winter and 4 for Summer
Number of outputs	8, power relays with 2 coils latching type
MAX Contact rating (each output)	<ul style="list-style-type: none"> Resistive load (cosφ = 1): 12A at 250V~ (3000VA) Inductive load (cosφ = 0.5): 3.6A at 250V~ (900VA) Incandescent lamps: 8A at 250V~ (2000VA) Fluorescent lamps: 350W with 42uF MAX power factor correction capacitor
Rating on single phase motor	550VA (0.75HP)
MAX switching voltage	250V~
Housing	Modular box for DIN rail, width 6 modules, reduced height
Operating temperature	-5 ÷ +50 °C
Storage temperature	-20 ÷ +70 °C
Protection degree	IP20

Outline dimensions



Correct disposal of this product



(Waste Electrical & Electronic Equipment)
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Installation and use restrictions

Standards and regulations

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All the relevant safety regulations, e.g. accident prevention regulations, law on technical work equipment, must also be observed.

Safety instructions

Protect the unit against moisture, dirt and any kind of damage during transport, storage and operation. Do not operate the unit outside the specified technical data.

Never open the housing. If not otherwise specified, install in closed housing (e.g. distribution cabinet). Earth the unit at the terminals provided, if existing, for this purpose. Do not obstruct cooling of the units. Keep out of the reach of children.

Setting up

The physical address assignment and the setting of parameters (if any) must be performed by the specific softwares provided together the device or by the specific programmer. For the first installation of the device proceed according to the following guidelines:

- Check that any voltage supplying the plant has been removed
- Assign the address to module (if any)
- Install and wire the device according to the schematic diagrams on the specific data sheet of the product
- Only then switch on the 230Vac supplying the bus power supply and the other related circuits

Applied standards

This device complies with the essential requirements of the following directives:

- 2014/30/UE (EMC)
- 2014/35/UE (Low Voltage)
- 2011/65/UE (RoHS)

Note

Technical characteristics and this data sheet are subject to change without notice.