

## DFTP/I: output module for 2 rolling shutters and 4 generic inputs

DFTP/I modules, through the **Domino** bus, allow the driving of 2 motors to move rolling shutters, venetian-blinds, awnings and similar devices. DFTP/I modules also allow to transmit, on the **Domino** bus, the status of 4 generic ON-OFF inputs (connected, for example, to push-buttons, switches, limit switches, etc.). These 4 inputs can also be used as local commands of the outputs of DFTP/I itself.

The standard version of DFTP/I module, identified as DFTP/I AA, is suitable for the connection of AC motors with two windings (ex. rolling shutters, rolling up blinds).

On demand, it is possible to provide a special version of the module, identified by the suffix DD, for 2 dc motors (venetian blinds, mosquito net, vasistas), or also a mixed version, identified by the suffix AD, for one ac motor and one dc motors.

As for almost all modules of **Domino** family, the bus itself carries the power supply for DFTP/I module operation. Near to the inputs terminal block, the module features a small pushbutton with double function (see the related paragraph) and a green LED that shows the operating status; the same green LED normally flashes every 2 seconds about to signal that the module is properly supplied and operating.

Removing the cover of the bus terminal block, a small connector (PRG) can be accessed; this one allows the connection to the optional tester/programmer.

DFTP/I module takes, inside the **Domino** bus, *one input address and one output address with the same value* (base address); in other words, assigning address n to the module, it will fill both input address n and output address n. A white label on the top panel allows the writing of the programmed module base address for an immediate visual identification. For more details about the programming, refer to the related documentation. DFTP/I module housing is a DIN 3M module of reduced height.

**Note: this data sheet applies DFTP/I module equipped with firmware 7.0 or higher.**

### Mode of operation

DFTP/I module automatically performs different functions as here described; assume that the module has been programmed to control a shutter by two push-buttons (**Open** and **Close**) connected to an input module (or to the inputs of the same DFTP/I module).

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 (complete 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, **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, DFTP/I module cannot identify the reaching of the limit of allowed movement; check that the selected actuator integrates the proper limit switches, otherwise the motor may be damaged.
- To avoid motor damages and dangerous inrush currents, DFTP/I module automatically wait for 2 seconds before to invert the motor direction.

During the automatic opening and closing functions, the relays driving the motor remain excited even if the limit switch has been reached; DFTP/I automatically switch off relays after a fixed time (Actuation Timeout). This time, by default, is 60 seconds but its value can be in the range 1 to 254 seconds, see next paragraphs. If the Actuation time out value has not been specified in the equation, it will be automatically set to the default value (60).

**Setting Actuation Time out to 0 (zero), the automatic function will be disabled (but this is not true for centralized commands).**

It is also possible to define a time, called "Delay from command", which will delay the starting of the shutter in respect to a centralized command; this avoids that all rolling shutters start at the same time. The "Delay from command", is set by default to 0, but it can be increased up to 255 (4 minutes and 15 seconds).

**Information on the bus**

DFTP/I module takes, inside **Domino** bus, one input address and one output address with the same value.

**Input section**

Regarding the input section, the meaning of the related points is listed in the following table.

IN	
Point	Data
1	IN 1
2	IN 2
3	IN 3
4	IN 4
5	-
6	-
7	-
8	-
9	M1 Op
10	M1 Cl
11	M2 Op
12	M2 Cl
13	-
14	-
15	-
16	-

Where:

- IN1..IN4: the status of the 4 physical inputs of the module
- M1 Op: when "1" means that motor 1 is opening the shutter
- M1 Cl: when "1" means that motor 1 is closing the shutter
- M2 Op: when "1" means that motor 2 is opening the shutter
- M2 Cl: when "1" means that motor 2 is closing the shutter

**Output section (COMMAND)**

The master modules, e.g DFCP, DFWEB and DFTouch, must be able to send commands to shutter modules in order to properly activate the motors. The commands may be of the type "Open/Close" or "Go to position x". Generally, the several Masters belonging to **Domino** family manage themselves these commands; in all other cases (e.g. Mod-BUS supervisors) the syntax of the Word to be sent to the module must be as here bottom described.

Two types of commands are available, depending on the status of the points 9 and 10; if both points are "0", then the commands are of the type Open and Close, otherwise the commands are of the type "Go to position x%".

**Open/Close commands**

In this case the most significant byte of the Word at the output address must be 0; on the other hand, the least significant byte will contain 4 control bits, each one activating, when set to "1", the command listed in the following table.

To stop a motor, both related bits must be set to "0"; if both bits are set to "1", an opening command will be anyway executed.

OUT	
Point	Data
1	M1 Open
2	M1 Close
3	M2 Open
4	M2 Close
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0

**Open/Close commands**

If point 9 or point 10 in the output section is "1", then the command belongs to the type "Go to position x%"; the points 9 and 10 identify the motor which is the destination of the command.

OUT	
Point	Data
1	Position (0-100%)
2	
3	
4	
5	
6	
7	
8	
9	M1
10	M2
11	0
12	0
13	0
14	0
15	0
16	0

Where:

- M1: when set to "1", the position command has to be applied to shutter 1
- M2: when set to "1", the position command has to be applied to shutter 2
- Position (0...100): value in the range 0 to 100, intended as percentage of the fully closed position (0=fully opened, 100=fully closed)

If both bits M1 and M2 are set to "1", the command will be ignored; values greater than 100 in the field Position will be limited to 100.

**DFTP/I**

**Status request to shutter module**

Writing a data to the output address of a DFTP/I module, causes the actions described in the previous paragraph. On the other hands, when a controller (e.g. DFCP) executes a status request to the output address, DFTP/I module answers in one of the following mode, depending on it was configured.

The options of the answer to a status request to the output address are the following 3:

- the status of the motors
- the final position with or without information about the status of the motors
- the real time position (thus changing during the movement of the shutter) with or without information about the status of the motors

The details about these 3 options will be described in the following.

**Status of the Motors**

Choosing this setting, the module answers to a status request as follows:

OUT	
Point	Data
1	M1 Op
2	M1 Cl
3	M2 Op
4	M2 Cl
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	P

Where:

- M1 Op: when this bit is "1", then the motor 1 is opening the shutter
- M1 Cl: when this bit is "1", then the motor 1 is closing the shutter
- M2 Op: when this bit is "1", then the motor 2 is opening the shutter
- M2 Cl: when this bit is "1", then the motor 2 is closing the shutter
- P: waiting for address programming (it reports the fixed ON status of the PRG LED of the module)

*Note: this kind of answer to a status request is identical to that one of shutter modules with firmware version lower than 7.0.*

**Final Position or Real Time Position WITHOUT Status of the Motors**

Choosing this configuration, the module answers to a status request as follows:

OUT	
Point	Data
1	M1 Position divided by 2
2	
3	
4	
5	
6	
7	0
8	0
9	M2 Position divided by 2
10	
11	
12	
13	
14	
15	0
16	0

Where:

- M1 Position divided by 2: a value in the range 0 to 50 that, multiplied by 2, reports the position of the shutter 1 as percentage 0...100% of the fully closed position
- M2 Position divided by 2: a value in the range 0 to 50 that, multiplied by 2, reports the position of the shutter 2 as percentage 0...100% of the fully closed position

**Final Position or Real Time Position WITH Status of the Motors**

Choosing this configuration, the module answers to a status request as follows:

OUT	
Point	Data
1	M1 Position divided by 2
2	
3	
4	
5	
6	
7	M1 Op
8	M1 Cl
9	M2 Position divided by 2
10	
11	
12	
13	
14	
15	M2 Op
16	M2 Cl

Where:

- M1 Position divided by 2: a value in the range 0 to 50 that, multiplied by 2, reports the position of the shutter 1 as percentage 0...100% of the fully closed position
- M1 Op: when this bit is "1", then the motor 1 is opening the shutter
- M1 Cl: when this bit is "1", then the motor 1 is closing the shutter
- M2 Position divided by 2: a value in the range 0 to 50 that, multiplied by 2, reports the position of the shutter 2 as percentage 0...100% of the fully closed position

- M2 Op: when this bit is “1”, then the motor 2 is opening the shutter
- M2 Cl: when this bit is “1”, then the motor 2 is closing the shutter

## Programming

The equation controlling DFTP/I module is similar to the following example:

```
O1.1 = OI1.1 | CI1.2 | OPI3.1 | CPI3.2 | \
      HI5.1 | G(50) I7.1 | G(80) I7.2
```

In this example, **O1.1** is the first output of the DFTP/I, **I1.1** and **I1.2** are the inputs controlling the opening and the closing, **I3.1** and **I3.2** are the inputs for the centralized opening and closing.

Input **I5.1** is the Halt command, while **I7.1** and **I7.2** force the closing to 50% and 80% respectively (GoTo).

In this example, the “local” inputs I1.1 and I1.2 of the same DFTP/I have been used, but inputs of other modules (e.g. DF4I) can be of course used.

More opening, closing (local and centralized), Halt and GoTo commands are allowed, simply adding them to the equation.

In the previous example the Actuation Time out, being not specified, is equal to 60 seconds default value; if another value is required by the specific application, for example 40 seconds, simply specify it in the equation as follows:

```
O1.1(40) = OI1.1 | CI1.2 | OPI3.1 | \
          CPI3.2 | HI5.1 | \
          G(50) I7.1 | G(80) I7.2
```

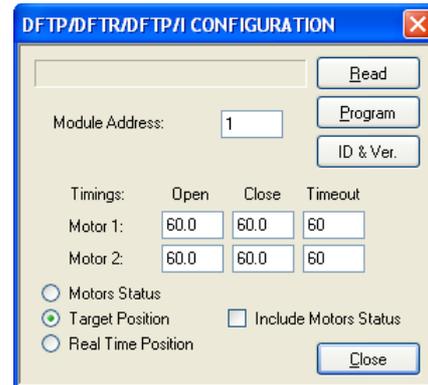
In order to delay the motor start after a centralized command (Delay from command), for example 5 seconds for opening and 10 for closing, specify these values in the equation as follows:

```
O1.1(40) = OI1.1 | CI1.2 | OP(5) I3.1 | \
          CP(10) I3.2 | HI5.1 | \
          G(50) I7.1 | G(80) I7.2
```

If not specified, the Delay from command will be zero.

## Configuration

The several parameters of DFTP/I module can be set by BDTools or DCP Ide selecting, from main menu, “Programming”, then “Modules Configuration” and finally “DFTP / DFTP/I / DFTR”; the following window will be shown:



Enter, in the related text box, the address of the shutter module to be configured.

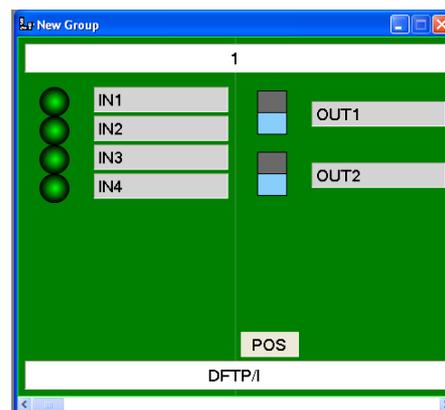
Enter in the Timings section the exact times measured to perform a whole opening and closing, both for motor 1 and for motor 2. The maximum allowed value of the opening and closing times is 127.5 seconds (2 minutes about) with resolution of 0.5 seconds.

Timeout is the maximum time for the motor command and a value greater than the opening and closing time must be chosen (e.g., if the opening and closing times are 30 seconds, the Timeout may be set to 45 seconds).

The other options in the window allow to choose the type of the answer of the module to a status request; these 3 options will be described in the next paragraph.

## Mapping

Since DFTP/I module is a mixed input/output module, it will be displayed on the map of BDTools and DCP Ide like in the following figure.

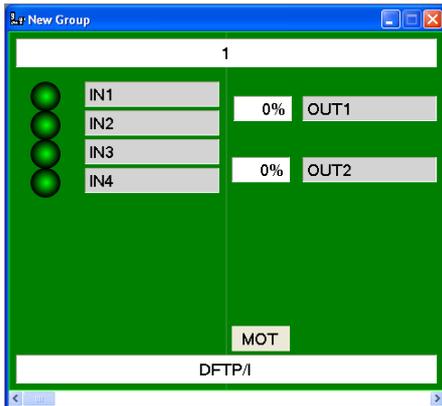


**DFTP/I**

As for all other **Domino** modules, the background of the module is in green color if the module is connected and properly working, otherwise the background is in red color. As usual, each input is shown on the map in red or green color depending on the status of the related input.

The graphic symbols near to labels OUT1 and OUT2 report the status of the two motors (in example of the figure they are both stopped).

Right clicking on the text box POS, the option Position will appear; left clicking on Position, the graphic representation of the module will change as shown in the following figure.



The two text boxes near to labels OUT1 and OUT2 will show the closing percentage of the two shutters.

With a double click on these text boxes, it is possible to enter a value in the range 0 to 100 in order to move the related shutter to the desired value. The background of the box will be red or light blue if a closing or opening movement is running. Repeating the described action on the text box MOT, the previous representation will be shown.

**Functions of the local pushbutton**

The pushbutton on the module has a double function: pushing it for a time lower than 3 seconds, the module switches to the addressing mode, during which the LED on the module is fixed lighted; the addressing mode will be active until the module receives the address and anyway no more than 10 seconds from the last release of the pushbutton. When the module enters the addressing mode, all outputs will be switched off.

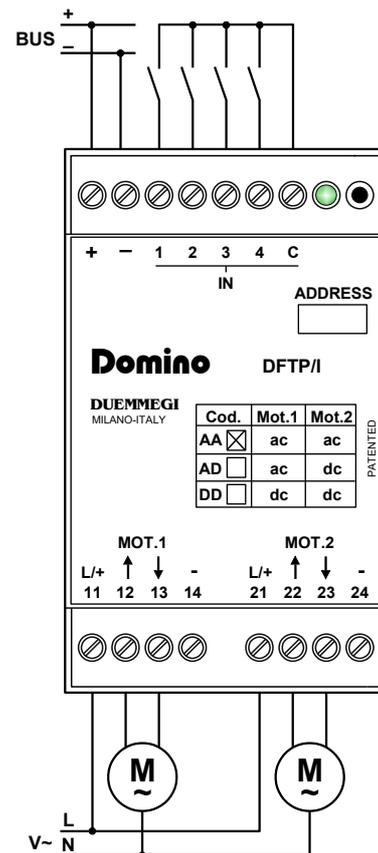
Holding down the pushbutton for more than 3 seconds, the module switches to the test mode; the LED signals this condition by a regular blinking (1s ON and 1s OFF). At every successive pushing of the button all the output will be alternatively switched between opening and closing. The module exit the test mode after 30 seconds from the last release of the pushbutton.

**Module connections**

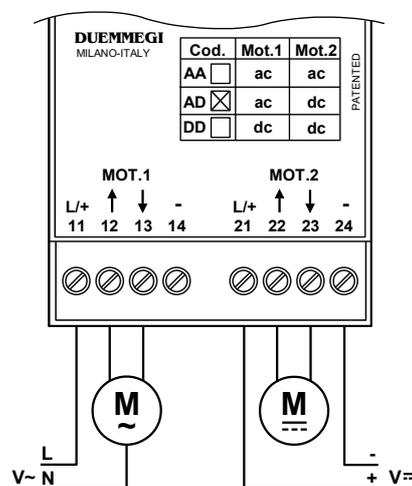
DFTP/I module performs two relays for each output; as said above, the standard version (AA) of the module is for two ac motors, but it is possible to require the version (AD) for one ac and one dc motor, or the version (DD) for two dc motors.

In any case, the module allows the connection to 4 potential-free contacts supplied by a voltage reference provided by the module itself (terminal C). Following pictures show the connections for each one of the 3 available versions.

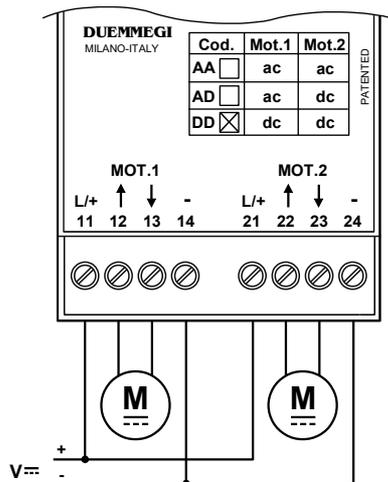
**Note:** DFTP/I module has a "weight", from the point of view of current consumption, equal to 2 modules. This means that, when evaluating the amount of modules which can be sustained by a single DFPW2 power supply, each DFTP/I must be considered equivalent to 2 standard **Domino** modules.



Connections for 2 ac motors



Connections for 1 ac motor and 1 dc motor



Connections for 2 dc motors

**Warning:** the output contacts of each module **CANNOT** be connected to different phases because the clearance between components do not allow this; otherwise the module may be damaged.

## Technical characteristics

Power supply (bus side)	By specific centralized power supply mod. DFPW2
Current consumption	Equivalent to 2 standard <b>Domino</b> modules
Number of inputs	4, potential-free contacts only
Current for each input contact	1mA (closed contact), 0mA (open contact)
MAX allowed length for input wires	10 meters
MAX Contact rating (each output)	<ul style="list-style-type: none"> <li>Resistive load (cosfi = 1): 5A at 250V~ (1250VA)</li> <li>Single-phase ac motor: 2.4A at 230V~ (550VA, 0.75HP)</li> <li>dc motor: 1.5A at 24V =</li> </ul>
MAX switching voltage	250V~
Operating temperature	-5 ÷ +50 °C (at +50 °C maximum applicable load is 200W)
Storage temperature	-20 ÷ +70 °C
Protection degree	IP20

## 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.

## Outline dimensions

### 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.