

## DFTP: relay output module for 2 rolling shutters

DFTP modules allow the bi-directional driving, through the bus **Domino**, of 2 generic motors to move, for instance, roll-up blinds, venetian blinds, shutters, awning, and similar devices. DFTP module provides a 2-pole terminal block for the connection to the bus; as for almost all modules of **Domino** family, the bus itself carries the power supply for the module operation.

On the top side, 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. A small connector (PRG) allows the connection to the optional tester/programmer.

A 6-pole terminal block allows the connection of 2 bi-directional motors. A white label on the top panel allows the writing of the programmed module address for an immediate visual identification.

DFTP is a module specifically developed for up and down driving of shutters; its operation will be described in the next paragraph.

For more details about the address assignment and the functions that can be programmed, refer to the related documentation.

The small dimensions of DFTP module allow the housing directly in the standard rectangular wall box, like standard box 503 or similar types, completed by the frame and the cover plate of the preferred manufacturer.

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

### Mode of operation

DFTP 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.

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 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 define **GoTo** commands to execute partial movements, in order to close the shutter at a given percentage in respect to the total displacement. Since a position information is not generally available for the standard shutters, this function is based on the command timing, pointed that a proper configuration has been performed (see the related paragraph); take in account that the closing and opening times can change with time and climatic conditions due to variation of frictions, so a certain error in the positioning is possible.

#### Notes:

- As previously mentioned, DFTP module is not able to identify the moment wherein the limit of allowed movement is reached (both for opening and closing); 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 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 module automatically switch off relays after a predetermined time (Actuation Time out). The default time is 60 seconds but it can be any value in the range 1 to 254 seconds, see paragraph about programming and configuration. If the Actuation time out value has not been specified in the equation, it will be automatically set to the default value (60) by BD-Tools. **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).

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### Programming

The equation controlling DFTP 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 output of the DFTP module, **I1.1** and **I1.2** are the inputs that control both 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% (GoTo). More opening and closing (both of local and centralized type), 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, for example 40 seconds, simply specify it in the equation like in the following example:

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

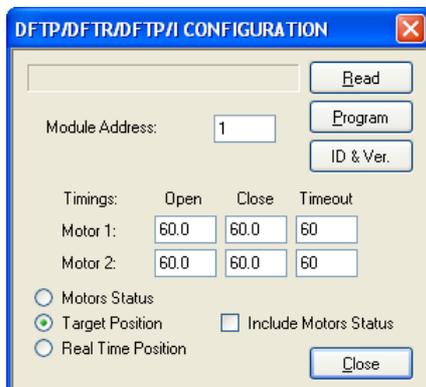
In order to delay the motor start after a centralized command (Delay from command), for example 5 seconds for opening and 10 for closing, specify these values in the equation:

```
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
```

These delays refer exclusively to OP and CP commands. If not specified, the Delay from command will be zero.

### Configuration

The several parameters of DFTP 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.

### Sending commands from a Master

The master modules, e.g. DFCEP, 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. ModBUS supervisors) the syntax of the Word to be sent to the module must be as here bottom described.

#### Open/Close Commands

In this case the most significant byte of the Word must be 0; on the other hand, the least significant byte will contain 4 control bits, each one activating, when set to "1", the described command:

|    |    |    |    |    |    |   |   |   |   |   |   |    |    |    |    |
|----|----|----|----|----|----|---|---|---|---|---|---|----|----|----|----|
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3  | 2  | 1  | 0  |
| 0  | 0  | 0  | 0  | 0  | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 2C | 2O | 1C | 1O |

Where:

- 2C: close shutter 2
- 2O: open shutter 2
- 1C: close shutter 1
- 1O: open shutter 1

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.

#### "Go to position x" (GOTO) commands

In this case the most significant byte of the Word specifies which of the 2 motors must go to the position specified by the least significant byte:

|    |    |    |    |    |    |    |    |                    |   |   |   |   |   |   |   |
|----|----|----|----|----|----|----|----|--------------------|---|---|---|---|---|---|---|
| 15 | 14 | 13 | 12 | 11 | 10 | 9  | 8  | 7                  | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0  | 0  | 0  | 0  | 0  | 0  | M2 | M1 | Position (0...100) |   |   |   |   |   |   |   |

Where:

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

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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.

**Status request to shutter module**

The shutter management modules have one output address (and one input address for DFTP/I); the available information in the output section, following a status request, can be freely configured among the following 3 options:

- 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 with the following Word:

|    |    |    |    |    |    |   |   |   |   |   |   |    |    |    |    |
|----|----|----|----|----|----|---|---|---|---|---|---|----|----|----|----|
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3  | 2  | 1  | 0  |
| P  | 0  | 0  | 0  | 0  | 0  | 0 | 0 | 0 | 0 | 0 | 0 | 2C | 2O | 1C | 1O |

Where:

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

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 with the following Word:

|    |    |                 |    |    |    |   |   |                 |   |   |   |   |   |   |   |  |
|----|----|-----------------|----|----|----|---|---|-----------------|---|---|---|---|---|---|---|--|
| 15 | 14 | 13              | 12 | 11 | 10 | 9 | 8 | 7               | 6 | 5 | 4 | 3 | 2 | 1 | 0 |  |
| 0  | 0  | Position M2 / 2 |    |    |    | 0 | 0 | Position M1 / 2 |   |   |   |   |   |   |   |  |

Where:

- Position M2 / 2: this is 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
- Position M1 / 2: this is 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

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

Choosing this configuration, the module answers to a status request with the following Word:

|    |    |                 |    |    |    |    |    |                 |   |   |   |   |   |   |   |  |
|----|----|-----------------|----|----|----|----|----|-----------------|---|---|---|---|---|---|---|--|
| 15 | 14 | 13              | 12 | 11 | 10 | 9  | 8  | 7               | 6 | 5 | 4 | 3 | 2 | 1 | 0 |  |
| 2C | 2O | Position M2 / 2 |    |    |    | 1C | 1O | Position M1 / 2 |   |   |   |   |   |   |   |  |

Where:

- 2C: when this bit is "1", then the motor 2 is closing the shutter
- 2O: when this bit is "1", then the motor 2 is opening the shutter
- Position M2 / 2: this is 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
- 1C: when this bit is "1", then the motor 1 is closing the shutter
- 1O: when this bit is "1", then the motor 1 is opening the shutter
- Position M1 / 2: this is 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

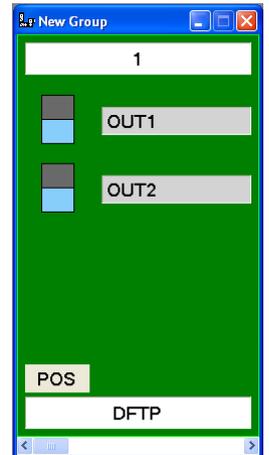
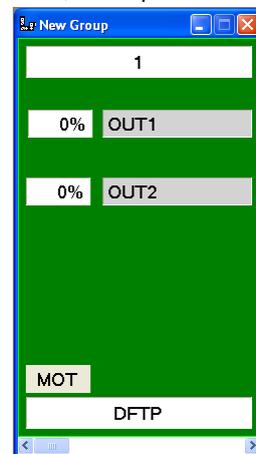
**Mapping**

DFTP module is shown on the map of BDTools and DCP Ide like in the picture on this right side.

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.

The graphic symbols near to labels OUT1 and OUT2 report the status of the two motors (in example of the picture 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 on this left side. 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.

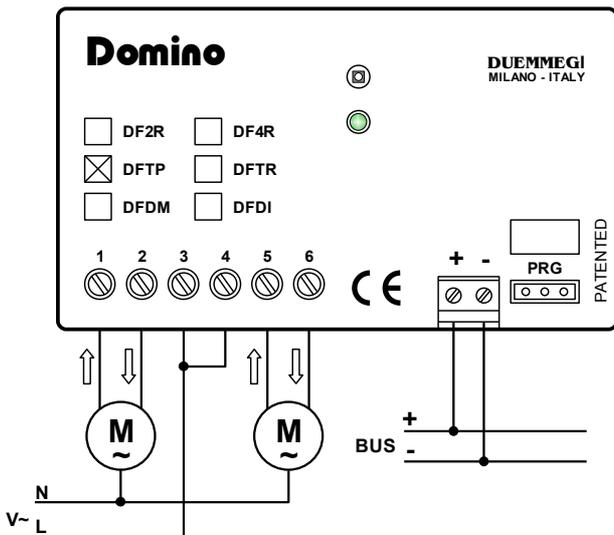
## Functions of the local pushbutton

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 module can be connected to 2 bi-directional motors, supplied at 230Vac; following figure shows the proper connections to be made.



**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.

**Note:** starting from lot code D4350064N, common terminals 3 and 4 are not internally connected.

### Correct disposal of this product



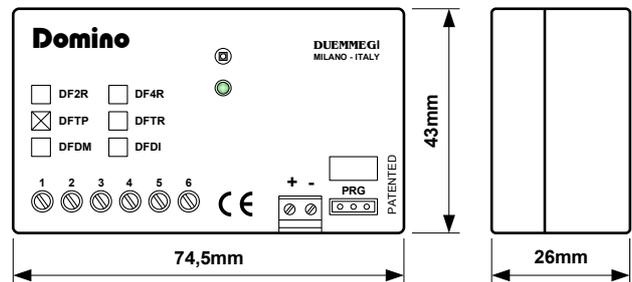
(Waste Electrical & Electronic Equipment)(Applicable in the European Union and other European countries with separate collection systems). This marking on the product, accessories or literature indicates that the product should not be disposed of with other household waste at the end of their working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

## Technical characteristics

|                                  |  |
|----------------------------------|--|
| Power supply (bus side)          | By specific centralized power supply Mod. DFPW2  |
| MAX Contact rating (each output) | <ul style="list-style-type: none"> <li>Resistive load (cosφ = 1): 5A at 250Vac (1250VA)</li> <li>Single-phase motor: 2.4A at 230Vac (550VA, 0.75HP)</li> </ul> |
| MAX switching voltage            | 250Vac   |
| Operating temperature            | -5 ÷ +50 °C  |
| Storage temperature              | -20 ÷ +70 °C   |
| Protection degree                | IP20   |

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

## 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:

- 2004/108/CE (EMC)
- 2006/95/CE (Low Voltage)
- 2002/95/CE (RoHS)