

16/32 output modules with HE 10 type connectors



16 --- 24 V transistor outputs

16 --- 24 V transistor outputs

32 --- 24 V transistor outputs

32 --- 24 V transistor outputs

By HE 10 type connector

By HE 10 type connector
Allows use of the Telefast pre-wired system

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Transistor

--- 20.4...28.8 V

Sink

Source

Sink

Source

1 common point

2 common points

0.1 A nominal

1 A at 28.8 V

Between channels: common point.
Between bus and channels: by photocoupler.

TWD DDO 16UK

TWD DDO 16TK

TWD DDO 32UK

TWD DDO 32TK

Presentation

The range of Twido I/O modules includes input modules, output modules and mixed input/output modules. With the 15 I/O modules offered, in addition to the I/O integrated in 24 I/O compact base controllers and modular base controllers, configurations can be adapted to best suit application requirements, so optimising costs. The following discrete I/O modules are available :

- 1 ~ 120 V discrete input module, 8 channels, fitted with a removable screw terminal block.
- 4 = 24 V discrete input modules comprising an 8-channel module, two 16-channel modules and a 32-channel module, equipped with either removable screw terminal blocks or HE 10 type connector, depending on the model. These modules can be either "sink or source".
- 8 discrete output modules comprising two output modules with 8 and 16 relay outputs, three output modules with 8, 16 or 32-channel "sink" transistor outputs and three output modules with 8, 16 or 32-channel "source" transistor outputs, equipped with either removable screw terminal blocks or HE 10 type connector, depending on the model.
- 2 discrete mixed input and output modules, comprising one 4-channel input/4-channel relay output module with removable screw terminal block and one 16-channel input/8-channel relay output module with non-removable spring terminal block.

The narrow width of these I/O modules (17.5 mm, 23.5 mm, 29.7 mm or 39.1 mm) makes it possible to build Twido configurations of up to 264 I/O with a minimal overall size of L 255.4 mm x H 90 mm x D 81.3 mm.

All these discrete I/O modules and the analogue I/O modules are connected to the base controller by stacking them on a rail, starting from the right-hand side panel of the base controller, according to the following rules :

- For 24 I/O compact base controllers TWD LC●A 24DRF: 4 modules max. (see characteristics page 6).
- For 40 I/O compact base controllers TWD LCA● 40DRF: 7 modules max. (see characteristics page 6).
- For 20 I/O modular base controllers TWD LMDA 20D●K: 4 modules max. (see characteristics page 13).
- For 20 and 40 I/O base controllers TWD LMDA 20DRT/40D●K: 7 modules max. (see characteristics page 13).

All the discrete I/O modules are electrically isolated with the use of a photocoupler between the internal electronic circuit and the input/output channels.

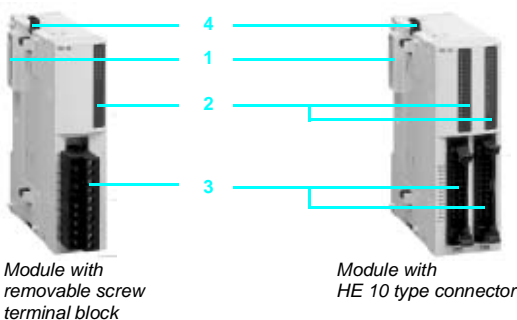
Description

Twido discrete I/O modules comprise :

- 1 An extension connector for electrical connection to the previous module (1).
- 2 One or two blocks for displaying the channels and module diagnostics.
- 3 One or two connection components of varying type, depending on the model :
 - removable screw terminal block (1 or 2) for modules whose reference ends in **T**,
 - HE 10 type connector (1 or 2) for modules whose reference ends in **K**,
 - non-removable spring terminal block for module TWD DMM 24DRF.
- 4 Latching mechanism for attachment to the previous module.

These modules are mounted on a symmetrical rail. Fixing kit TWD XMT 5 (supplied in lots of 5) allows plate or panel mounting. For modules with removable screw terminal block, the terminal blocks are supplied with the module.


(1) A connector on the right-hand side panel ensures continuity of the electrical link with the next I/O module.








Module with removable screw terminal block

Module with HE 10 type connector




General characteristics

Temperature	°C	Operation : 0...+ 55. Storage : - 25...+ 70.	
Relative humidity		30 to 95 %, without condensation	
Degree of protection		IP 20	
Altitude	m	Operation : 0...2000. Storage : 0...3000.	
Vibration resistance	Mounted on  rail	Hz	10...57, amplitude 0.075 mm, acceleration 57...150 Hz
		m/s ²	9.8 (1 gn)
		Hz	2...25, amplitude 1.6 mm, acceleration 25...100 Hz
	Plate or panel mounted (using fixing kit TWD XMT 5)	m/s ²	39.2 (4 gn)
Shock resistance	m/s ²	147 (15 gn) for 11 ms	






Characteristics of input channels

Module type	TWD	DAI 8DT	DDI 8DT	DDI 16DT	DDI 16DK	DDI 32DK	DMM 8DRT	DMM 24DRF		
Number of input channels		8	8	16	16	32	4	16		
Rated input voltage	V	~ 120 V  24 sink/source								
Connection		Removable screw terminal block			HE 10 type connector		Removable screw terminal block	Spring terminal block		
Commons		2	1			2	1			
Input voltage range	V	~ 85...132 V		 20.4...28.8						
Rated input current	mA	7.5	7		5		7			
Input impedance	kΩ	11	3.4		4.4		3.4			
Filter time	At state 1	ms	25	8						
	At state 0	ms	30	8						
Isolation		No isolation between channels, isolation with internal logic by photocouplers								
Internal consumption for all inputs	At state 1	 5 V	mA	55	25	40	35	65	25 (1)	65 (1)
		 24 V	mA	0					20 (1)	45 (1)
	At state 0	 5 V	mA	25	5		10		5 (1)	10 (1)

Characteristics of transistor output modules

Module type	TWD	DDO 8UT	DDO 8TT	DDO 16UK	DDO 16TK	DDO 32UK	DDO 32TK
Number of output channels		8		16		32	
Output logic (2)		Sink	Source	Sink	Source	Sink	Source
Connection		Removable screw terminal block		HE 10 type connector			
Commons		1					2
Nominal output values	Voltage	V	24				
	Current	A	0.3		0.1		
Output voltage range	Voltage	V	20.4...28.8				
	Current per channel	A	0.36		0.12		
	Current per common	A	3		1		
Response time	At state 1	μs	300				
	At state 0	μs	300				
Residual voltage (voltage at state 1)	V	1 max					
Maximum inrush current	A	1					
Leakage current	mA	0.1					
Overvoltage protection	V	39					
Maximum power of filament lamp	W	8					
Isolation		No isolation between channels, isolation with internal logic by photocouplers					
Consumption for all the outputs	At state 1	 5 V	mA	10	10	20	
		 24 V	mA	20	40	70	
	At state 0	 5 V	mA	5	5	10	

Characteristics of relay output channels

Module type	TWD	DRA 8RT	DRA 16RT	DMM 8DRT	DMM 24DRF	
Number of output channels		8 N/O contacts	16 N/O contacts	4 N/O contacts	8 N/O contacts	
Output currents	Current per channel	A	2			
	Current per common	A	7	8	7	
Minimum switching load	mA	0.1/0.1  V (reference value)				
Contact resistance (when new)	mΩ	30 max				
Loads (resistive, inductive)	A	2A/~ 240 V or 2A/  30 V (with 1800 operations/hour max) : - electrical life : minimum 100 000 operations - mechanical life : minimum 20 x 10 ⁶ operations				
rms insulation voltage	V	~1 500 for 1 minute				
Consumption for all the outputs	At state 1	 5 V	mA	30	45	See values above (input channels)
		 24 V	mA	40	75	See values above (input channels)
	At state 0	 5 V	mA	5	5	See values above (input channels)

(1) Consumption values are indicated for all inputs/outputs at state 0 or at state 1.
(2) Source output : positive logic, sink output : negative logic.

Twido programmable controller

Discrete I/O modules



TWD DDI 8DT



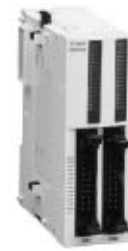
TWD DDI 32DK



TWD DDO 8T/DRA 8RT



TWD DDO 16K



TWD DDO 32K



TWD DRA 16RT



TWD DDM 8DRT



TWD DDM 24DRF

References

These discrete I/O modules are mounted on symmetrical \square rails to the right of the Twido base controller. The maximum number of discrete and/or analogue I/O modules which may be mounted depends on the type of base controller:

Type of TWD base	LC●A 10DRF	LC●A 16DRF	LC●A 24DRF	LCA● 40DRF	LMDA 20D●K	LMDA 20DRT	LMDA 40D●K
Number of modules	0	0	4	7	4	7	7

Discrete input modules

Input voltage	No. of channels	No. of common point	Connection	Reference	Weight kg
$\overline{\text{---}}$ 24 V sink/source	8	1	Removable screw terminal block (supplied)	TWD DDI 8DT	0.085
	16	1	Removable screw terminal block (supplied)	TWD DDI 16DT	0.100
	32	2	HE 10 type connector	TWD DDI 16DK (1) TWD DDI 32DK (1)	0.065 0.100
\sim 120 V	8	2	Removable screw terminal block (supplied)	TWD DAI 8DT	0.081

Discrete output modules

Type of output	No. of channels	No. of common point	Connection	Reference	Weight kg
Transistor $\overline{\text{---}}$ 24 V/0.3 A	8, sink	1	Removable screw terminal block (supplied)	TWD DDO 8UT	0.085
	8, source	1	Removable screw terminal block (supplied)	TWD DDO 8TT	0.085
Transistor $\overline{\text{---}}$ 24 V/0.1 A	16, sink	1	HE 10 type connector	TWD DDO 16UK	0.070
	16, source	1	HE 10 type connector	TWD DDO 16TK (1)	0.070
	32, sink	2	HE 10 type connector	TWD DDO 32UK	0.105
	32, source	2	HE 10 type connector	TWD DDO 32TK (1)	0.105
Relay 2 A (lth) \sim 230 V/ $\overline{\text{---}}$ 30 V	8 (N/O contact)	2	Removable screw terminal block (supplied)	TWD DRA 8RT	0.110
	16 (N/O contact)	2	Removable screw terminal block (supplied)	TWD DRA 16RT	0.145

Discrete mixed input/output modules

No. of I/O	No. and type of inputs	No. and type of outputs	No. of common point	Connection	Reference	Weight kg
8	4 I, $\overline{\text{---}}$ 24 V sink/source	4 O, relay (N/O contact) 2 A (lth)	Inputs : 1 common Outputs : 1 common	Removable screw terminal block (supplied)	TWD DMM 8DRT	0.095
24	16 I, $\overline{\text{---}}$ 24 V sink/source	8 O, relay (N/O contact) 2 A (lth)	Inputs : 1 common Outputs : 2 commons	Non-removable spring terminal block	TWD DMM 24DRF	0.140

(1) Module allowing use of the Telefast pre-wired system.

Twido programmable controller

Discrete I/O modules

References

Separate components

Application	Description	Reference	Weight kg
Fixing kit	For fitting discrete modules on a mounting plate or panel Sold in lots of 5	TWD XMT 5	–
Telefast pre-wired system for Twido	Connection sub-bases I/O connection sub-bases Pre-wired solutions Cables and accessories	See page 57	–

HE 10 type connectors

Description	Number of ways	Reference	Weight kg
HE 10 female connectors (sold in lots of 5)	20	TWD FCN 5K20	–
	26	TWD FCN 5K26	–

Pre-formed cables for discrete I/O modules with HE 10 connectors

Description	For use with Twido	Gauge C.s.a.	Cable length	Reference	Weight kg
Pre-formed cables, 1 pre-formed cable: one end with HE 10 connector, one end with free wires	Modular base controllers	22	3 m	TWD FCW 30M	0.405
	TWD LMDA	22	5 m	TWD FCW 50M	0.670
	20DTK/40DTK	0.035 mm ²			
	I/O extensions	22	3 m	TWD FCW 30K	0.405
	TWD DDI	0.035 mm ²			
	16DK/32DK TWD DDO 16●K/32●K	22 0.035 mm ²	5 m	TWD FCW 50K	0.670

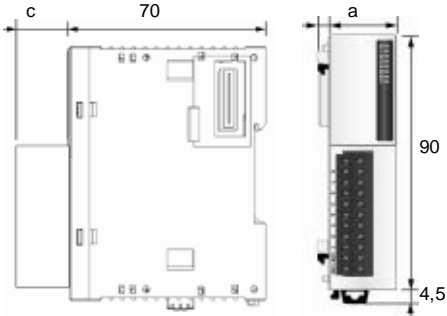
Connecting cables (1)

Description	For use with Twido	Gauge C.s.a.	Cable length	Reference	Weight kg
Discrete I/O pre-formed cables, 1 pre-formed cable: one end with 26-way HE 10 connector on Twido side, one end with two 20-way HE 10 connectors on Telefast side	Modular base controllers	28	1 m	ABF TP26MP100	0.200
	TWD LMDA	0.080 mm ²			
	20DTK/40DTK	28	2 m	ABF TP26MP200	0.500
		0.080 mm ²			
Discrete input pre-formed cables, 1 pre-formed cable: one end with 20-way HE 10 connector on Twido side, one end with 20-way HE 10 connector on Telefast side	Inputs	28	1 m	ABF TE20EP100	0.080
	TWD DDI	0.080 mm ²			
	16DK/32DK	28	2 m	ABF TE20EP200	0.140
Discrete output pre-formed cables 1 pre-formed cable: one end with 20-way HE 10 connector on Twido side, one end with 20-way HE 10 connector on Telefast side	Outputs	28	1 m	ABF TE20SP100	0.080
	TWD DDO	0.080 mm ²			
	16TK/32TK	28	2 m	ABF TE20SP200	0.140
		0.080 mm ²			
		28	3 m	ABF TE20SP300	0.210
		0.080 mm ²			

(1) Cables strictly for applications other than use of Telefast sub-bases with Twido controllers.
For use of Telefast sub-bases with Twido controllers, see pages 48 to 61.

Dimensions

Discrete I/O modules



TWD	a	c
DDI 8DT/DAI 8DT	23.5	14.6
DDI 16DT	23.5	14.6
DDI 16DK	17.6	11.3
DDI 32DK	29.7	11.3
DDO 8UT/8TT	23.5	16.6
DDO 16UK/16TK	17.6	11.3
DDO 32UK/32TK	29.7	11.3
DRA 8RT/16RT	23.5	14.6
DMM 8DRT	23.5	14.6
DMM 24DRF	39.1	1.0

Connections

ABF TP26MP●00

HE 10 26-way A	HE 10 20-way B	HE 10 20-way C
Twido side	Input side	Output side
1	–	18
2	20	–
3	–	20
4	12	–
5	–	17
6	11	–
7	–	19
8	10	–
9	–	–
10	9	–
11	–	8
12	8	–
13	–	7
14	7	–
15	–	6
16	6	–
17	–	5
18	5	–
19	–	4
20	4	–
21	–	3
22	3	–
23	–	2
24	2	–
25	–	1
26	1	–

ABF TE20EP●00

HE 10 26-way A	HE 10 20-way B
Twido side	Input side
1	–
2	–
3	18
4	20
5	16
6	8
7	15
8	7
9	14
10	6
11	13
12	5
13	12
14	4
15	11
16	3
17	10
18	2
19	9
20	1

ABF TE20SP●00

HE 10 26-way A	HE 10 20-way B
Twido side	Output side
1	18
2	20
3	19
4	17
5	16
6	8
7	15
8	7
9	14
10	6
11	13
12	5
13	12
14	4
15	11
16	3
17	10
18	2
19	9
20	1