Twido Programmable controller

Catalogue

2009

Schneider Electric

Twido programmable controller

Twido base controllers

I/O modules

Communication

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Communication *(continued)*

Software

Advantys Telefast ABE 7 pre-wired I/O system

Technical information

Twido programmable controller
Compact, modular and Extreme base controllers

Applications		Compact base controllers IP 20			
					
Discrete I/O	Basic number of inputs	10 6 sink/source ⎓ 24 V inputs *(1)*	16 9 sink/source ⎓ 24 V inputs *(1)*	24 14 sink/source ⎓ 24 V inputs *(1)*	40 24 sink/source ⎓ 24 V inputs *(1)*
	Number of outputs	4 relay outputs	7 relay outputs	10 relay outputs	14 relay outputs 2 source transistor outputs
	Type of connection	Non-removable screw terminal block			
Extension I/O	Number of extension modules			4 modules max. *(2)*	7 modules max. *(2)*
	Discrete I/O modules			15 types of module: input, output, mixed 8, 16, 24, 32 channels, connection by screw or spring terminals or by HE 10 connector	
	Analogue I/O modules			10 types of module: input, output, mixed 2, 4 or 8 channels, connection by screw terminals	
	Communication			CANopen bus master module, AS-Interface master module (2 max)	
Maximum number of I/O per configuration (base controller with I/O extension modules)		10	16	88/120/152 according to whether I/O extension has: screw terminals *(3)*/spring terminals/HE 10 connector	152/184/248 according to whether I/O extension has: screw terminals/spring terminals/ HE 10 connector
Integrated counting and positioning	Counting 5 kHz	3 x 16 bit counting channels *(5)*			4 x 16 bit counting channels *(4)*
	Counting 20 kHz	1 x 16 bit counting channel (on dedicated discrete inputs)	1 x 32 bit counting channel (on dedicated discrete inputs)		2 x 32 bit channels (on dedicated discrete inputs)
	7 kHz positioning				2 x PWM/PLS function channels
Functions	PID			Yes	
	Event processing			Yes	
Communication	Integrated	1 RS 485 serial port	1 RS 485 serial port, 1 optional RS 232C/RS 485 serial port		Ethernet port (on TWD LC●E)
	Ethernet TCP/IP	TwidoPort interface module (via RS 485 serial port)			
	Extension			CANopen or AS-Interface see above	
Supply voltage		∿ 100...240 V for TWD LCA● (⎓ 24 V discrete sensors powered by the base controller), ⎓ 19.2…30 V for TWD LCD●			
Programming	Application memory	700 instructions	2000 instructions	3000 instructions	3000 instructions, 6000 with memory extension
	Internal bits	128 bits	128 bits	256 bits	
	Internal words *(5)*	3000			
	Standard function blocks *(5)*	64 timers, 128 counters		128 timers, 128 counters	
	Double words		Yes		
	Floating, Trigonometrical				Yes
	Real-time clock	Optional real time clock cartridge, using 16 real-time clock blocks			Integrated
Twido base controller models	Standard	**TWD LC●A 10DRF** *(6)*	**TWD LC●A 16DRF** *(6)*	**TWD LC●A 24DRF** *(6)*	**TWD LC●A 40DRF** *(6)*
	With integrated Ethernet port				**TWD LC●E 40DRF** *(6)*
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(1) Sink input: positive logic. Source input: negative logic.
(2) Within the consumption limit controlled by TwidoSuite software.
(3) With maximum of 42 relay outputs (on base controller and I/O extensions).

Modular base controllers IP 20				Extreme base controller IP 67
				
20		40		41
12 sink/source ⎓ 24 V inputs *(1)*		24 sink/source ⎓ 24 V inputs *(1)*		11 sink/source ⎓ 12/24 V source 2 inputs ⎓ 12/24 V sink
8 sink or source transistor outputs (depending on model)	6 relay outputs and 2 source transistor outputs	16 sink or source transistor outputs (depending on model)		2 source transistor outputs ⎓ 12/24 V 14 (⎓ 12 V) or 11 (⎓ 24 V) sink transistor outputs 1 PWM input + 3 PWM/PLS outputs
By HE 10 connector or Modicon Telefast ABE 7 pre-wired system (with base controller TWD LMDA 20DTK)	By removable screw terminal block	By HE 10 connector or Modicon Telefast ABE 7 pre-wired system (with base controller TWD LMDA 40DTK)		By 70-way connector
4 modules max. *(2)*	7 modules max. *(2)*			–
15 s of module: input, output, mixed 8, 16, 24, 32 channels, connection by screw or spring terminals or by HE 10 connector				–
10 types of module: input, output, mixed 2, 4 or 8 channels connection by screw terminals				Integrated: 8 inputs
CANopen bus master module, AS-Interface master module (2 max)				–
84/116/148 according to whether I/O extension has: screw terminals/spring terminals/ HE 10 connector	132/164/228 according to whether I/O extension has: screw terminals/spring terminals/ HE 10 connector	152/184/248 according to whether I/O extension has: screw terminals/spring terminals/ HE 10 connector		–
2 x 16 bit counting channels *(4)*				1 counting channel (10 kHz)
2 x 32 bit channels (on dedicated discrete inputs)				–
2 x PWM/PLS function channels				3 x PWM/PLS function channels
Yes				Yes
Yes				Yes
1 RS 485 serial port, 1 optional RS 232C/RS 485 serial port				1 RS 485 serial port
TwidoPort interface module (via RS 485 serial port)				2 integrated CANopen & CAN J1939 ports
CANopen or AS-Interface see above				Via Ethernet box **XGS Z33 ETH**
⎓ 19.2 V…30 V				⎓ 12 or 24 V (limited ⎓ 9…32 V)
3000 instructions	3000 instructions, 6000 with memory extension			3000 instructions
256 bits				
3000				
128 timers, 128 counters				
Yes				
	Yes			
Optional real time clock cartridge, using 16 real-time clock blocks				–
TWD LMDA 20D●K *(7)*	**TWD LMDA 20DRT**	**TWD LMDA 40D●K** *(7)*		**TWD LEDCK1**
21				32

(4) Dedicated ⎓ 24 V discrete inputs of the base controller and up/down counting with preset.
(5) The maximum values of the internal words and function blocks cannot be cumulated.
(6) Replace the ● in the reference with **A**: *∿ supply,* **D:** *⎓ supply.*
(7) Replace the ● in the reference with **T**: *source transistor outputs,* **U:** *sink transistor outputs.*

Twido programmable controller
Compact base controllers

564493-3-3

TWD LC●A 10DRF

564493-3-3

TWD LC●A 16DRF

564494-3-3

TWD LC●A 24DRF

121114-49-M

TWD LC●A/LC●E 40DRF

Presentation

The Twido range of compact programmable controllers offers an “all-in-one” solution in a compact overall size: 80 to 157 x 90 x 70 mm. Ten compact base controllers are available, differing in their processing capacity and in their number of ⎓ 24 V inputs and number of relay and transistor outputs (10, 16, 24 and 40 I/O).
These base controllers use:
□ an a.c. supply between ∿ 100 and 240 V (providing the ⎓ 24 V supply to the sensors),
□ or a d.c. supply between ⎓ 19.2 and 30 V (an external auxiliary supply must be provided for supply to the sensors).

This type of compact base controller offers the following advantages:
■ A significant number of I/O (up to 40 I/O) in a small overall size, so reducing the size of consoles or panels for applications where space is an important factor.

■ For 24 and 40 I/O models, a variety of extension options and product options offer the user a degree of flexibility which is generally only available with larger automation platforms:
□ with 24 I/O compact base controllers **TWD LC●A 24DRF**, up to 4 discrete and/or analogue I/O extension and/or communication modules.
□ with 40 I/O compact base controllers **TWD LC●● 40DRF**, up to 7 extension modules (discrete and/or analogue I/O and/or communication).

■ An optional modules, such as digital display, memory extension cartridge, real-time clock cartridge and additional RS 485 or RS 232C communication port.

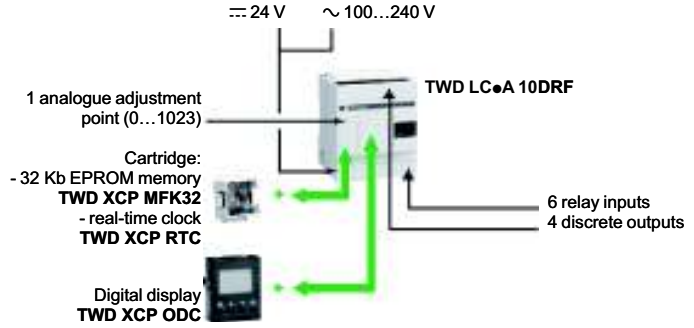
For further details, see page 7

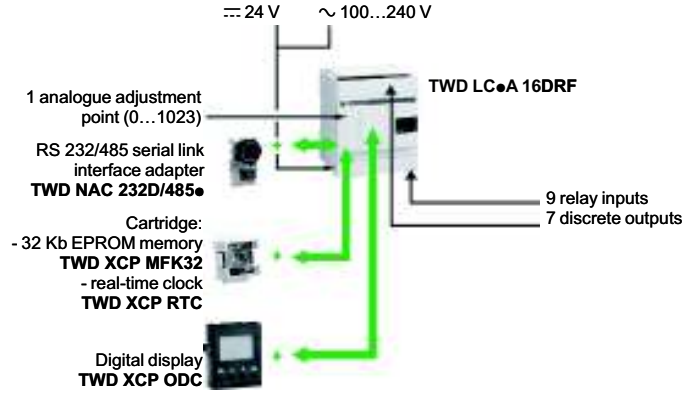
■ The compact controller solution also allows great wiring flexibility. For discrete I/O extension modules (with base controllers **TWD LC●A 24DRF** and **TWD LC●● 40DRF**) several possible types of connection are offered, such as removable screw terminal blocks and spring type connections which allow simple, fast and safe wiring. The Modicon Telefast ABE 7 pre-wired system allows the connection of modules with HE 10 connectors to:
□ pre-formed cables with free wires at one end for direct connection to sensors/preactuators,
□ the Modicon Telefast ABE 7 pre-wired system for Twido controller (connection cable and ABE 7 sub-base assembly).

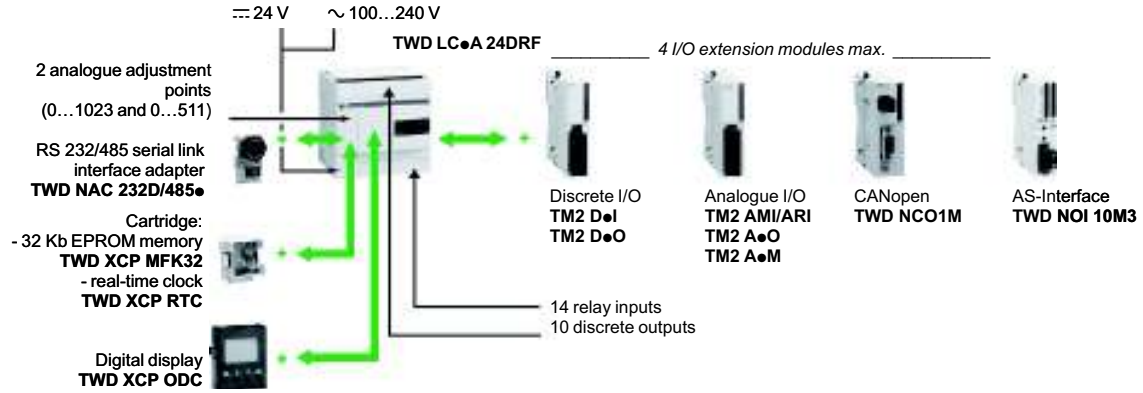
■ The display and plug-in memory options allow easy adjustment, transfer and backup of applications:
□ the digital display can be used as a local display and adjustment tool,
□ the EEPROM technology in the memory cartridges allows backup and transfer of programs to any Twido compact or modular controller.

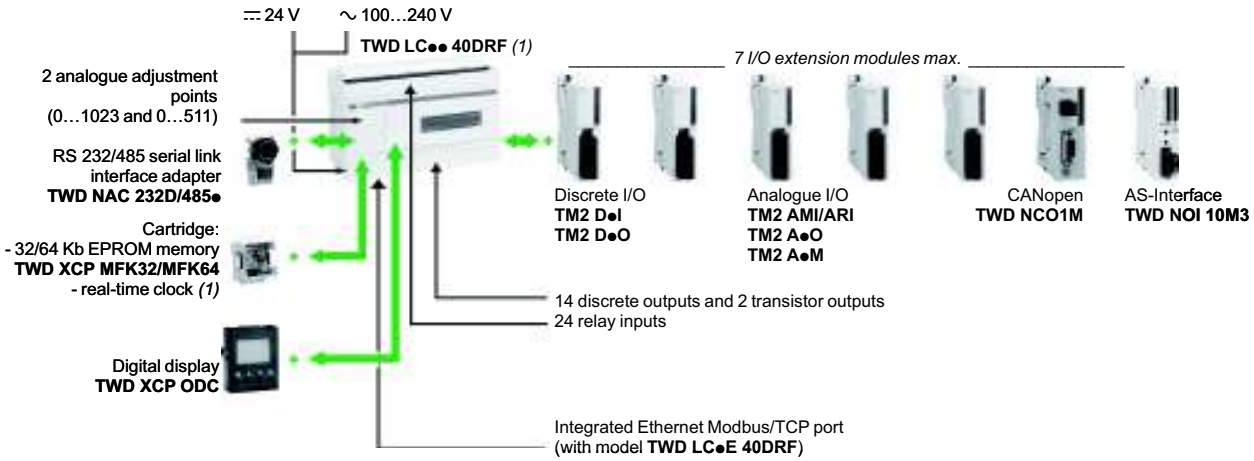
■ TwidoSuite software allows easy programming using instruction list language instructions or ladder language graphic objects.

Configuration of compact base controllers



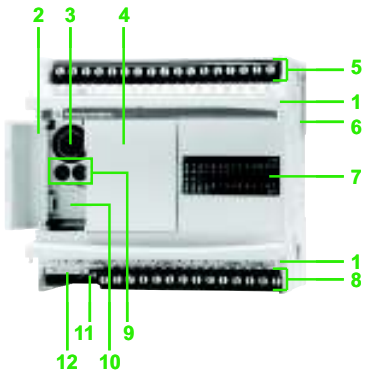






(1) Real-time clock function integrated base controllers **TWD LC•• 40DRF**.

Twido programmable controller
Compact base controllers



Description

Compact base controllers TWD LC●A ●●DRF (without integrated Ethernet port)

Twido **TWD LC●A ●●DRF** compact programmable base controllers comprise :

1 Two hinged connection terminal block covers for access to the terminals.

2 A hinged access door.

3 A mini-DIN type RS 485 serial port connector (allowing connection of the programming terminal).

4 A slot (protected by a removable cover) for digital diagnostic/maintenance display module **TWD XCP ODC**.

5 A screw terminal block for ⎓ 24 V supply to the sensors *(1)* and for connection of the input sensors.

6 A connector for I/O extension modules **TM2 D●●**, **TM2 A●●** and communication modules **TWD NOI 10M3/NCO1M** (maximum of 4 modules on 24 I/O base controllers and 7 modules on 40 I/O base controllers).

7 A display block showing:
- the status of the base controller by means of 3 pilot lights (PWR, RUN, ERR),
- the status of the inputs and outputs (IN● and OUT●),
- a user pilot light (STAT), to be controlled by the application programme according to user requirements.

8 A screw terminal block for connection of the output preactuators.

9 Two analogue adjustment points (one point for 10 and 16 I/O models).

10 An extension connector for the addition of a 2nd RS 232C/RS 485 serial port using adapter **TWD NAC ●●●** (for 16, 24 and 40 I/O models).

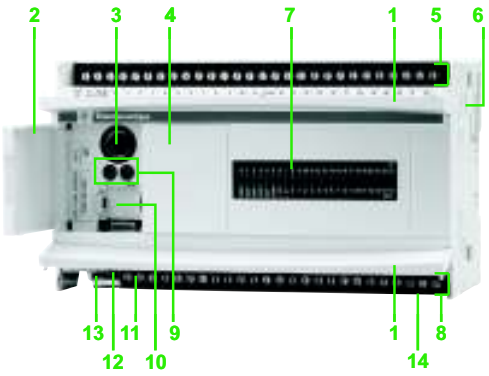
11 A screw terminal block for connection of the ∿ 100...240 V mains or ⎓ 19.2...30 V power supply.

With access through the bottom of the controller:

12 A connector for:
- 32 Kb memory cartridge **TWD XCP MFK32** or real-time clock cartridge **TWD XCP RTC** for base controllers **TWD LC●A** 10/16/24DRF,
- 64 Kb memory cartridge **TWD XCP MFK64** for base controllers **TWD LC●A 40DRF**.

Compact base controllers can be mounted as standard on a symmetrical ⊔ rail, mounting plate or panel (2 x 4.3 Ø holes).

(1) ⎓ 24 V sensor supply only with base controller **TWD LCAA ●●DRF** *(∿ 100…240 V mains supply)*



Description

Compact base controllers TWD LCAE / LCDE 40 DRF (with integrated Ethernet port)

Twido **TWD LCAE 40DRF** and **TWD LCDE 40DRF** compact programmable base controllers with integrated Ethernet Modbus/TCP port comprise:

1 Two hinged connection terminal block covers for access to the terminals 5.

2 A hinged access door.

3 A mini-DIN type RS 485 serial port connector (allowing connection of the programming terminal).

4 A slot (protected by a removable cover) for digital diagnostic/maintenance display module **TWD XCP ODC**.

5 A screw terminal block for ⎓ 24 V *(1)* supply to the sensors and for connection of the input sensors.

6 A connector for I/O extension module **TM2 D●●**, **TM2 A●●** and communication module **TWD NOI10M3/NCO1M** (maximum 7 modules).

7 A display block showing:
- the status of the base controller by means of 7 pilot lights (PWR, RUN, ERR, BAT, COM, LACT and L ST),
- the status of the inputs and outputs (IN● and OUT●),
- a user pilot light (STAT), to be controlled by the application programme according to user requirements.

8 A screw terminal block for connection of the output preactuators.

9 Two analogue adjustment points.

10 An extension connector for the addition of a 2nd RS 232C/RS 485 serial port using adapter **TWD NAC ●●●**.

11 A screw terminal block for connection of the ∿ 100...240 V mains or ⎓ 19.2...30 V supply.

With access through the bottom of the controller:

12 A connector for 32/64 Kb memory card **TWD XCP MFK32/MFK64**.

13 An RJ45 connector (accessed through the bottom of the controller) for connection to the Ethernet Modbus/TCP network.

14 A slot to take the optional backup battery for the base controller's internal RAM.

Compact base controllers can be mounted as standard on a symmetrical ⊔ rail, mounting plate or panel (2 x 4.3 Ø holes).

(1) ⎓ 24 V sensor supply only with base controller **TWD LCAE 40DRF** *(model with ∿ 100…240 V mains supply)*

Twido programmable controller
Compact base controllers

Environment

Base controller type			TWD LC•A 10DRF	TWD LC•A 16DRF	TWD LC•A 24DRF	TWD LCA• 40DRF
Temperature	Operation	**°C**	0…+ 55			
	Storage	**°C**	- 25…+ 70			
Relative humidity			30 to 95 %, without condensation			
Degree of protection			IP 20			
Altitude	Operation	**m**	0…2000			
	Storage	**m**	0…3000			
Vibration resistance	Mounted on 15 mm ⊔ rail	**mm**	Amplitude 3.5 at 5…8.4 Hz			
		m/s²	Acceleration 9.8 (1 gn) at 8.4…150 Hz			
	Plate or panel mounted (using fixing kit TWD XMT5)	**mm**	Amplitude 1.6 at 2…25 Hz			
		m/s²	Acceleration 39.2 (4 gn) at 25…100 Hz			
Shock resistance		**m/s²**	147 (15 gn) for 11 ms			

Characteristics of compact base controllers

Inputs/outputs	Number of inputs		6 ⎓ 24 V inputs	9 ⎓ 24 V inputs	14 ⎓ 24 V inputs	24 ⎓ 24 V inputs
	Number and type of outputs		4 relay	7 relay	10 relay	14 relay + 2 transistor
	Connection of I/O		Non-removable screw terminal block			
Voltages available supplied by the base *(1)*	⎓ 5 V for I/O extension modules	**mA**	–		450	450
	Max. ⎓ 5 V for relay		–		42 relay (base + extensions)	110 relay (base + extensions)
I/O extension modules	Max. number of modules		–		4	7
	Max. number of I/O – Screw terminal		–		88	152
	Max. number of I/O – Spring terminal		–		120	208
	Max. number of I/O – HE10 connector		–		152	248 *(2)*
	AS-Interface bus		–		Management of slave devices: 62 discrete devices, 7 analogue devices	
	CANopen bus		–		16 slave devices (max. 16 TPDO and 16 RPDO)	
Backup battery	Data backed up		Internal RAM: internal variables, internal bits and words, timers, counters, shift registers...			
	Type – Internal battery		Lithium battery, not interchangeable			
	Type – Optional battery		–			TSX PLP 01 lithium thionyl chloride
	Autonomy – Internal battery	**day**	Approximately 30 at 25 °C with fully charged battery			
	Autonomy – Optional battery	**year**	–			3 *(3)*
	Charging time – Internal battery	**h**	Approximately 15 to charge from 0...90% of the full charge			
	Life – Internal battery	**year**	3 to 10 depends on temperature			
Application memory capacity			700 instructions	2000 instructions	3000 instructions	3000 and 6000 instructions with memory extension
Cycle time	Processing time	**ms**	1 for 1000 logic instructions			
	System overhead	**ms**	0.5			
Data memory	Internal bits		128		256	
	Internal words *(4)*		3000			
	Timers *(4)*		64		128	
	Counters *(4)*		128			
	Double words		–	Yes		
	Floating, trigonometrical		–			Yes

(1) In case of important configuration (I/O extensions or relay modules), it is necessary to create a power consumption table on the ⎓ 5 V voltage (max. 450 mA) and/or to verify the max. number of used relay (42 for 24 I/O base, 110 for 40 I/O base).
(2) With 6 extension modules (32 inputs) and one extension module (16 inputs or 16 outputs).
(3) 2 weeks from when the BAT light comes on.
(4) The maximum values cannot be cumulated.

Supply

⎓ compact base controller type				TWD LCDA 10DRF	TWD LCDA 16DRF	TWD LCDA 24DRF	TWD LCDA 40DRF TWD LCDE 40DRF
Voltage	Nominal		**V**	⎓ 24			
	Limit (including ripple)		**V**	⎓ 20.4...28.8			
⎓ 24 V output for sensors				–			
Max. inrush current at ⎓ 24 V			**A**	35		40	35
Duration of microbreaks			**ms**	10 max			
Recommanded protection by external fuse				1 A type T	1 A type T	1 A type T	2 A type T
Max. consumption			**W**	3.9	4.6	8.7	17.2
Dielectric strength	Between supply and earth terminals		**V rms**	500 for 1 min			
	Between I/O and earth terminals		**V rms**	1500 for 1 min			
Insulation resistance	Between supply and earth terminals		**MΩ**	> 10 (⎓ 500 V)			
	Between I/O and earth terminals		**MΩ**	> 10 (⎓ 500 V)			

∿ compact base controller type				TWD LCAA 10DRF	TWD LCAA 16DRF	TWD LCAA 24DRF	TWD LCAA 40DRF TWD LCAE 40DRF
Voltage	Nominal		**V**	∿ 100...240			
	Limit (including ripple)		**V**	∿ 85...264			
Frequencies	Nominal/limit		**Hz**	50-60/47-63			
⎓ 24 V output for sensors			**mA**	250	250	250	400
Current	Nominal input I rms at ∿ 85 V		**A**	0.25	0.30	0.45	0.79
	Max. inrush		**A**	35	35	40	35
Duration of microbreaks			**ms**	10 max			
Recommanded protection by external fuse				1 A type T	1 A type T	1 A type T	2 A type T
Maximum consumption		at ∿ 100 V	**VA**	20	22	33	65
		at ∿ 264 V	**VA**	30	31	40	77
Dielectric strength	Between supply and earth terminals		**V rms**	1500 - 50/60 Hz for 1 min			
	Between I/O and earth terminals		**V rms**	1500 - 50/60 Hz for 1 min			
Insulation resistance	Between supply and earth terminals		**MΩ**	> 10 (⎓ 500 V)			
	Between I/O and earth terminals		**MΩ**	> 10 (⎓ 500 V)			

Communication

Base controller type			TWD	LC●A 10DRF	LC●A 16DRF	LC●A 24DRF	LC●A 40DRF	LC●E 40DRF
Integrated connections	Serial link	Type		1 x RS 485 serial link, not isolated, 38.4 Kbit/s				
		Protocol		- Half-duplex terminal port - Modbus master/slave RTU/ASCII or character mode - "Remote link" decentralised I/O (Twido base controllers used as I/O extension or as local "reflex" controller) see page 81				
		Connection		8-way mini-DIN connector				
	Ethernet Modbus/TCP	Type		–				10BASE-T/ 100BASE-TX
		Connection		–				RJ45 connect.
Connections via adapter or communication modules	Serial link	Type		–	One RS 232C or RS 485 adapter, 1.2…38.4 Kbit/s			
		Connection		–	Mini-DIN or terminal block (RS 485 only)			
	AS-Interface	Type		–		One or 2 master modules (standard and extended addressing), 62 slaves		
		Connection		–		Removable screw terminal block		
	CANopen	Type		–		One master module (class M10), 125...500 Kbit/s, 16 slaves max.		
		Connection		–		9-way SUB-D male connector		
	Ethernet Modbus/TCP	Type		One TwidoPort 10BASE-T/100BASE-TX interface module				
		Connection		RJ45 connector. Supply to the module via integrated RS 485 link connector				

Integrated functions

Counting	Number of channels		4 and 6 for TWD LCA● 40DRF
	Frequency		3 channels at 5 kHz (function FCi), 1 channel at 20 kHz (function VFCi) 4 channels at 5 kHz (function FCi), 2 channels at 20 kHz (function VFCi) for TWD LCA● 40DRF
	Capacity		16 bits FC (function FCi), 32 bits (function VFCi)
Positioning (for base controllers TWD LCA● 40DRF)	Number of channels		2
	Frequency	**kHz**	7
	Functions		PWM, pulse width modulation output; PLS, pulse generator output
PID	24 I/O and 40 I/O base controllers		Yes
Event processing	24 I/O and 40 I/O base controllers		Yes
Analogue adjustment points	10 I/O and 16 I/O base controllers		1 point adjustable from 0…1023 points
	24 I/O and 40 I/O base controllers		1 point adjustable from 0…1023 points + 1 point adjustable from 0…511 points

⎓ input characteristics

Base controller type			TWD LC•A 10DRF	TWD LC•A 16DRF	TWD LC•A 24DRF	TWD LC•A 40DRF	TWD LC•E 40DRF
Number of input channels			6	9	14	24	
Nominal input voltage		**V**	⎓ 24 sink/source (positive or negative logic)				
Commons			1			2	
Input voltage range		**V**	⎓ 20.4...28.8			⎓ 20.4...26.4	
Nominal input current			11 mA for I0.0 and I0.1, 7 mA for other inputs I0.i			11 mA for I0.0, I0.1, I0.6 and I0.7, 7 mA for I0.2 to I0.5 and I0.8 to I0.23	
Input impedance			2.1 kΩ for I0.0 and I0.1, 3.4 kΩ for other inputs I0.i			2.1 kΩ for I0.0, I0.1, I0.6 and I0.7, 3.4 kΩ for I0.2 to I0.5 and I0.8 to I0.23	
Filter time	At state 1		35 µs + programmed filter time for I0.0…I0.5, 40 µs + programmed filter time for other inputs I0.i				
	At state 0		45 µs + programmed filter time for I0.0…I0.5, 150 µs + programmed filter time for other inputs I0.i			40 µs + programmed filter time for I0.0…I0.5, 150 µs + programmed filter time for other inputs I0.i	
Isolation	Between channels		None				
	Between channels and internal logic	**V rms**	∿ 500 for 1 min				

Output characteristics

Number of output channels			4 relay	7 relay	10 relay	16 (14 relay + 2 transistor)	
Output currents	Nominal	**A**	2 per channel, 8 per common			2 (relay) 1 (transistor)	
	Surge per channel		5 max.			–	
Commons	Common 0		3 N/O contacts	4 N/O contacts	4 N/O contacts	–	
	Common 1		1 N/O contact	2 N/O contacts	4 N/O contacts	–	
	Common 2		–	1 N/O contact	1 N/O contact	4 N/O contacts	
	Common 3		–	–	1 N/O contact	4 N/O contacts	
	Common 4		–	–	–	4 N/O contacts	
	Common 5		–	–	–	1 N/O contact	
	Common 6		–	–	–	1 N/O contact	
Minimum switching load		**mA**	0.1 per ⎓ 0.1 V (reference value)				
Contact resistance	When new	**mΩ**	30 max				
Loads on relay outputs	Resistive (e.g.: heating element)	**A**	2 at ∿ 240 V or 2 at ⎓ 30 V (with 1800 operations/hour max.): - minimum electrical life: 1 x 10^5 operations - minimum mechanical life: 20 x 10^6 operations				
	inductive with protection device *(1)* (e.g.: relay, solenoid valve)						
	Inductive without protection device		Use of relay outputs not guaranteed (reduction of life). For this type of application, **it is advisable to use the transistor outputs** of compact base controllers TWD LC•• 40DRF or of extension modules TM2 DDO ●●●●				
	Capacitive (e.g.: TeSys U starters, Festo solenoid valves)						
Insulation voltage	Between channels and internal logic	**V rms**	∿ 500 for 1 min				
Consumption for all the outputs	At state 0 ⎓ 5 V	**mA**	5	5	5	70	170
	At state 0 ⎓ 24 V	**mA**	–	–	–	5	5
	At state 1 ⎓ 5 V	**mA**	24	30	36	90	190
	At state 1 ⎓ 24 V	**mA**	26	40	55	128	128
	At state 1 + inputs ON ⎓ 5 V	**mA**	–	–	–	140	240
	At state 1 + inputs ON ⎓ 24 V	**mA**	–	–	–	128	128

Real-time clock cartridge (optional) *(2) (3)*

Precision	**s/mth.**	+ 30 at 25 °C
Autonomy	**days**	approximately 30 at 25 °C with fully charged battery
Backup battery		See page 10

Memory cartridge (optional) *(2)*

Cartridge type		TWD XCP MFK32	TWD XCP MFK64
Memory type		EEPROM	
Memory capacity	**Kb**	32	64
Save/transfer program and internal words		Yes	
Program size increase		No	6000 instructions with compact base controllers TWD LC•• 40DRF

(1) Inductive load fitted with a protection device such as an RC peak limiter or flywheel diode.
(2) Compact base controllers **TWD LC•A 10DRF/16DRF/24DRF** *have only one cartridge slot, therefore only one type of cartridge (real-time clock or memory) can be used.*
(3) Integrated real-time clock function for compact base controllers **TWD LC•• 40DRF**.

Twido programmable controller
Compact base controllers

TWD LC●A 10DRF/16DRF

References

Number of I/O	Inputs sink/source	Outputs	No. of I/O extension modules	No. of program memory instructions	Integrated Ethernet port	Reference	Weight kg
Compact base controllers, ∼ supply							
10 I/O	6 ⎓ 24 V inputs	4 relay outputs	–	700	–	**TWD LCAA 10DRF**	0.230
16 I/O	9 ⎓ 24 V inputs	7 relay outputs	–	2000	–	**TWD LCAA 16DRF**	0.250
24 I/O	14 ⎓ 24 V inputs	10 relay outputs	4	3000	–	**TWD LCAA 24DRF**	0.305
40 I/O	24 ⎓ 24 V inputs	14 relay outputs and 2 transistor outputs	7	3000 *(1)*	–	**TWD LCAA 40DRF**	0.525
					Yes	**TWD LCAE 40DRF**	0.525
Compact base controllers, ⎓ supply							
10 I/O	6 ⎓ 24 V inputs	4 relay outputs	–	700	–	**TWD LCDA 10DRF**	0.230
16 I/O	9 ⎓ 24 V inputs	7 relay outputs	–	2000	–	**TWD LCDA 16DRF**	0.250
24 I/O	14 ⎓ 24 V inputs	10 relay outputs	4	3000	–	**TWD LCDA 24DRF**	0.305
40 I/O	24 ⎓ 24 V inputs	14 relay outputs and 2 transistor outputs	7	3000 *(1)*	–	**TWD LCDA 40DRF**	0.525
					Yes	**TWD LCDE 40DRF**	0.525

TWD XCP MFK32/MFK64

TWD XCP RTC

TWD NAC ●●●●

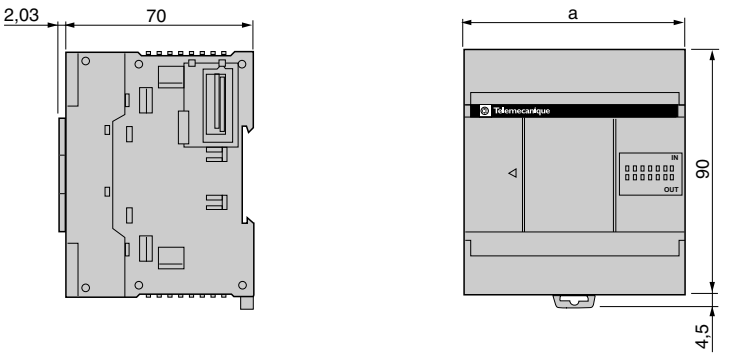
TWD XCP ODC

Description		Application	Type	Reference	Weight kg
Separate components					
Cartridges	32 Kb memory	For all compact base controllers: - Application backup - Program transfer	EEPROM	**TWD XCP MFK32**	0.005
	64 Kb memory	For compact base controllers TWD LC●● 40DRF: - Memory extension - Application backup - Program transfer	EEPROM	**TWD XCP MFK64**	0.005
	Real-time clock	For base controllers TWD LC●A 10/16/24DRF Date-stamping RTC based programming	–	**TWD XCP RTC**	0.005
Serial interface adapters		Mini-DIN connector	RS 232C	**TWD NAC 232D**	0.010
			RS 485	**TWD NAC 485D**	0.010
		Screw terminals	RS 485	**TWD NAC 485T**	0.010
Digital display		Data display and modification	–	**TWD XCP ODC**	0.020
Input simulators		6 inputs	–	**TWD XSM 6**	–
		9 inputs	–	**TWD XSM 9**	–
		14 inputs	–	**TWD XSM 14**	–
Optional backup batteries		For compact base controllers TWD LC●● 40DRF	Sold individually	**TSX PLP 01**	–
			Sold in lots of 10	**TSX PLP 101**	–

(1) 6000 instructions with memory extension cartridge **TWD XCP MFK64**.

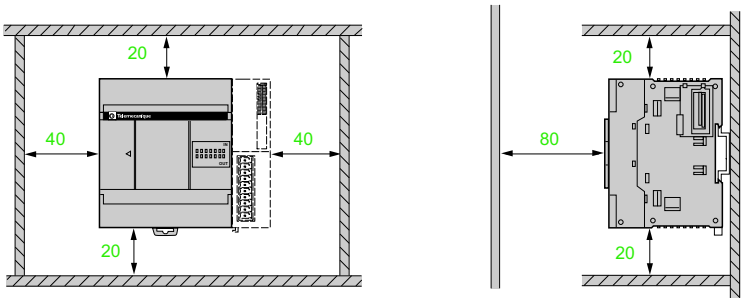
Dimensions

TWD LC●A 10DRF/16DRF/24DRF and TWD LCA● 40DRF



	a
TWD LC●A 10DRF	80
TWD LC●A 16DRF	80
TWD LC●A 24DRF	95
TWD LC●A 40DRF	157
TWD LC●E 40DRF	157

Installation rules



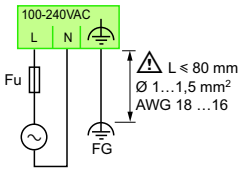
Important:
- Vertical mounting: not permissible for temperatures ≥ 40° C;
- "Upside down" flat mounting: not permissible.
- Avoid placing devices which generate heat (transformers, power supplies, power contactors...) beneath the controller.

Connections

Connection of power supplies

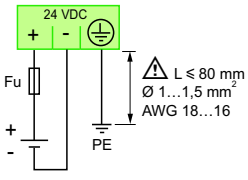
TWD LCA● ●●DRF

~ 100…240 V supply



TWD LCA● ●●DRF

⎓ 24 V supply



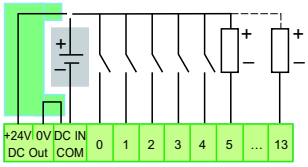
Fu : *Type T fuse, see page 11*

Connections (continued)

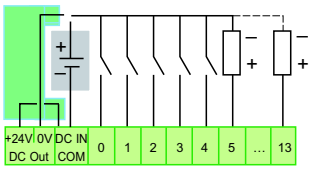
Connection of ⎓ 24 V inputs

TWD LC•A 10DRF/16DRF/24DRF

Connection to sink inputs (positive logic)

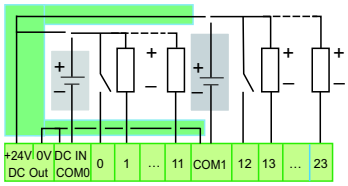


Connection to source inputs (negative logic)

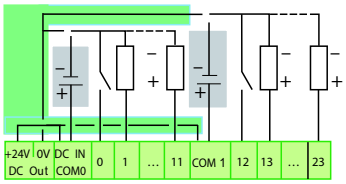


TWD LC•A 40DRF

Connection to sink inputs (positive logic)

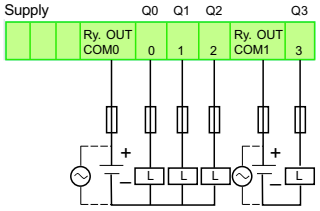


Connection to source inputs (negative logic)

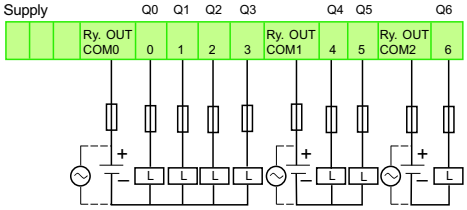


Connection of outputs

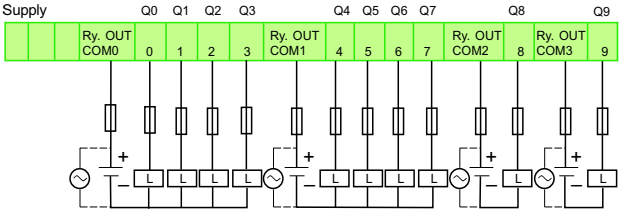
TWD LC•A 10DRF



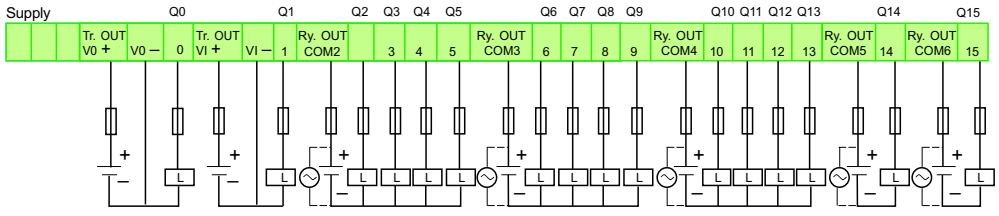
TWD LC•A 16DRF



TWD LC•A 24DRF



TWD LC•A 40DRF/TWD LC•E 40DRF



Sensors powered via ⎓ 24 V internal supply provided by base controllers **TWD LCA• ••DRF** *(supplied with ∿ 100…240V): max. 250 mA (except 400 mA with 40 I/O base controller).*

Sensors powered by external ⎓ 24 V supply.