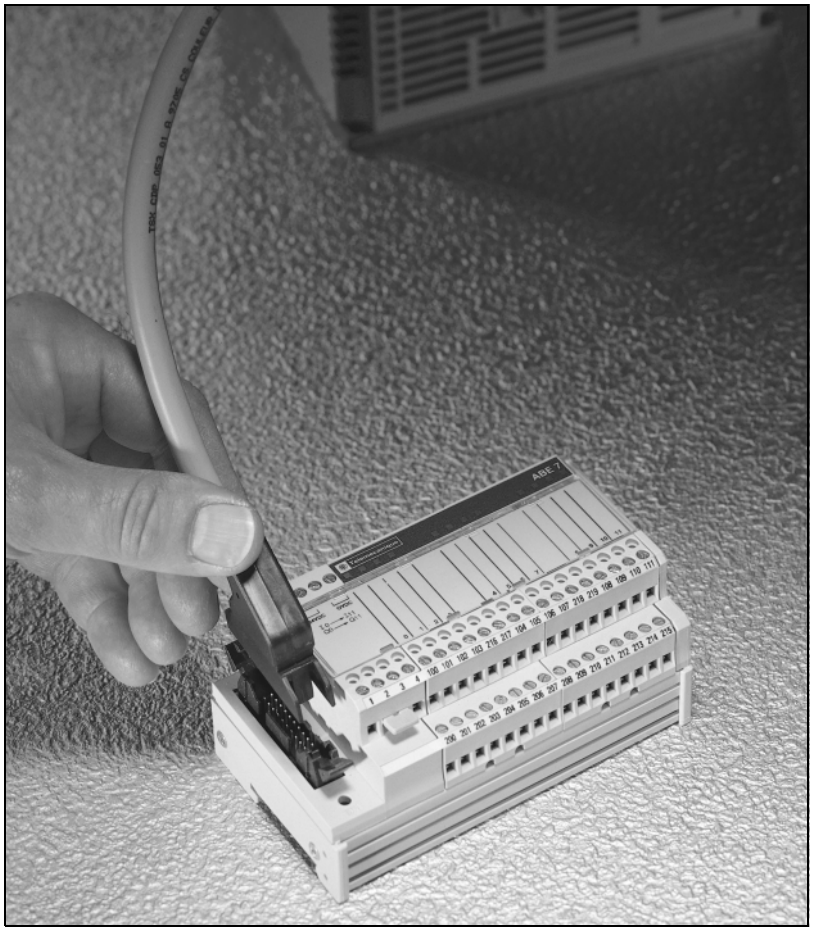
TELEFAST® 2 Prewired System
ABE7

Class 8501



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SQUARE D
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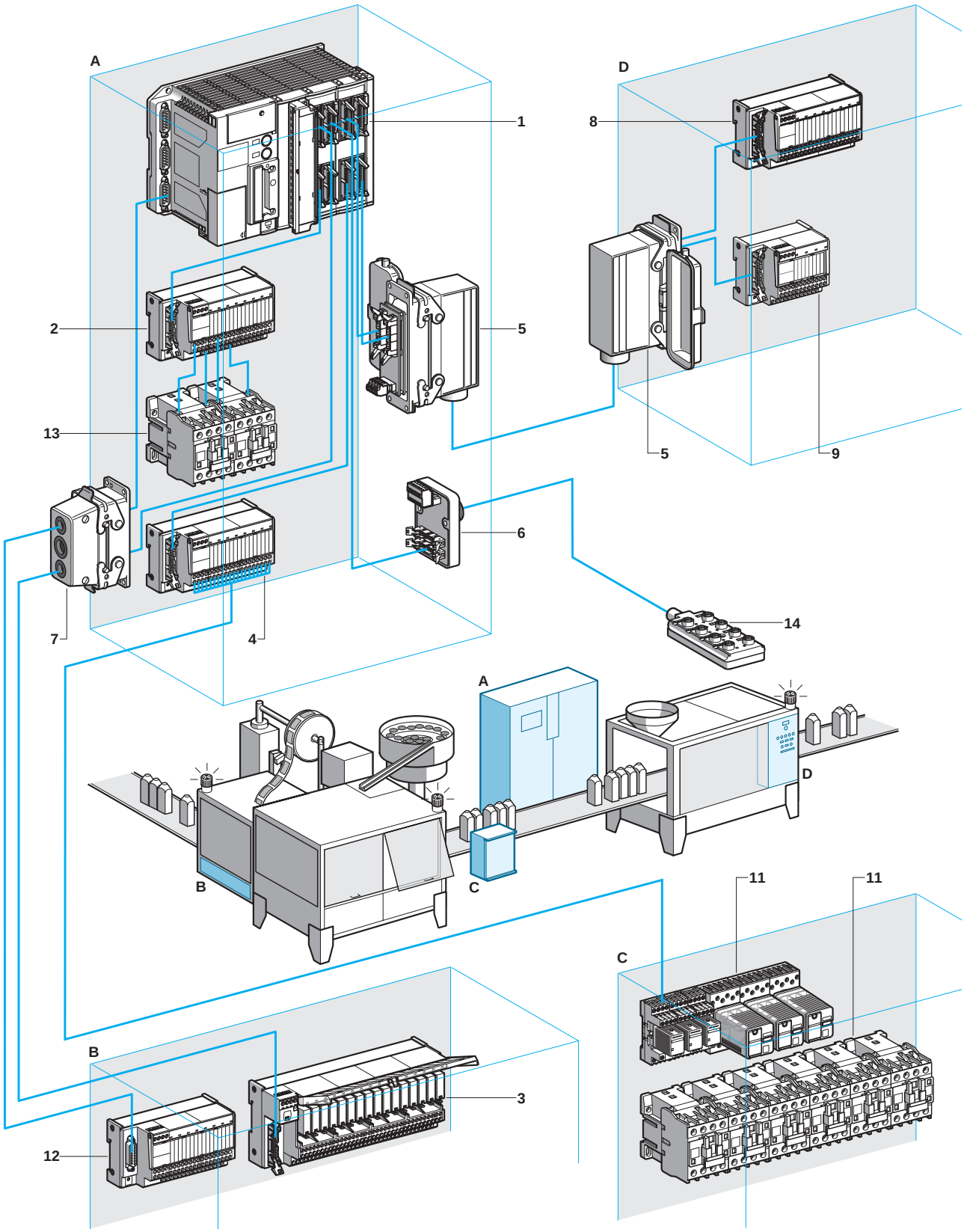
TELEFAST® 2 Prewired System
General Overview



General Presentation

The Telefast 2 system is a set of products for rapid connection of I/O modules (24 Vdc discrete, analog and counter) to operative parts. It acts as a substitute for screw terminal blocks, remotely locating and partly eliminating the single-wire connection.
The Telefast 2 system only connects to channels which have HE 10 and SUB-D connectors or to standard terminal blocks with a cabled connector. It consists of connecting cables and interface modules.
The relay and connection functions, with or without polarity distribution, considerably reduce wiring time and eliminate the risk of error.

Connections Between the PLC and the Operative Part

Connection between the PLC and Telefast 2 modules

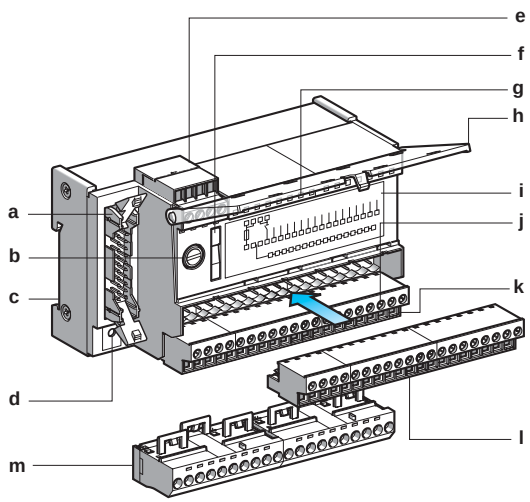
Telefast 2 modules connect directly by cables onto all discrete I/O modules with HE 10 connectors **1**.
I/O modules not supplied with HE 10 connectors are connected to Telefast 2 modules by means of cable connectors. These consist of a cable whose conductors (0.34 mm c.s.a.) are connected to the standard terminal block at one end and to the HE 10 connectors at the other. They are available in 4.92 ft. (1.5 meter) and 9.84 ft. (3-meter) lengths.

Connection between Telefast 2 modules and the operative part

The Telefast 2 range is suitable for all types of connection found in control system devices.
A or nearby **B** are connections of I/O located in the PLC cabinet.
Some modules **2** enable two wires (signal and common) or 3 wires (signal, 24 V, 0 V) to be connected directly from sensors or pre-actuators **13** when the latter are installed in the same enclosure or very close by. They effectively eliminate all intermediate terminal blocks.
Other versions offer the possibility of adapting the voltage or current by removable relay modules **3** or of connecting analog signals **12**.
In cases where size is of prime importance **D**, fixed relay modules ABE7R1 6S111 **8** 4.92" (125 mm long) and passive modules ABE7H16R50 **9** 3.31" (84 mm long) reduce the required surface area by about 50% as compared with standard products.
Connection of I/O located outside the PLC cabinet C.
These modules **4** which connect connector leads from sensors or pre-actuators **11** fulfil the same function as traditional terminal blocks.
IP65 dust and damp-proof connections for enclosures and cabinets
When the operative part has to be separate from the control part, **enclosure feedthroughs** are used to join HE 10 connectors and:
- 40-way, rectangular, industrial connectors for 32-channel versions **5**,
- 19-way, cylindrical, CNOMO M23 connectors, for 8,12 and 16-channel versions **6**. Eight-channel versions offer, in addition, the possibility of directly connecting the XSZ dust and damp-proof splitter blocks **14** for 8 sensors.

In applications where the control cabinet is integral to the operative part, the **cable gland assembly 7** enables the direct output of 3 Telefast 2 cables without additional connections.

Description of a Telefast 2 Modules



All modules in the Telefast 2 family have a standardized design and offer the common functions described below.

★ = Optional functions

a 20-way HE 10 connector
b 24 Vdc power supply circuit fuse
c Can be mounted on 35 mm DIN3 mounting track
d 24 Vdc display LED
e 24 Vdc power supply terminal block
f Isolator switch on 0 Vdc
g Channel indication LED ★
h Customer label-holder/cover
i Wiring diagram
j Test point for 0 2.3 mm plug
k Upper terminal block
l Lower terminal block, offset by 1/2 step ★
m Additional clip-on terminal block with 20 screw terminals ★

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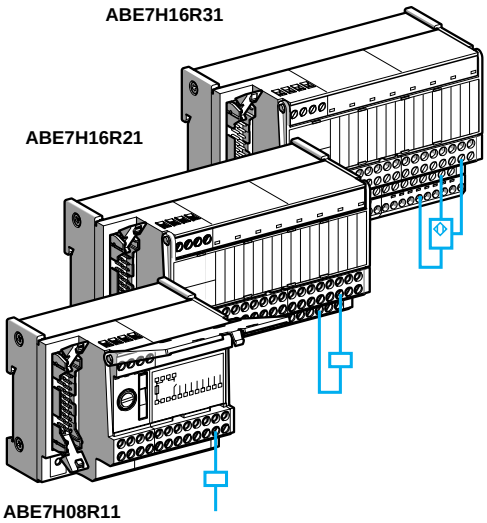
Passive Modules

Designed to simplify I/O connection to a PLC within a control panel, the range of passive modules has the same functions as traditional terminal blocks to which they add, depending on the models, compact size, connection of proximity sensor commons (3-wire and type 2), LED indication, protected and isolated channels.

ABE7H16R31

ABE7H16R21



ABE7H08R11

Terminal block modules

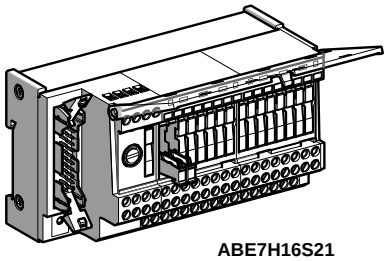
ABE7H●●R11/R10: these products can be used to connect inputs or outputs. The commons are made on the device and brought into the module by a single wire. The output terminals are on a single row.
The signal state for each channel can be indicated by an LED (**R11**) or not (**R10**).
A terminal block module ABE7BV●0 can be added.
ABE7H20E●●/7H32E●●●: these extremely **economical** products are supplied with a direct connection cable for MODICON TSX Micro, Premium or other PLC's using a splitter block **HE20E**, or for SIEMENS S7 PLC's using splitter block **H32E**. The cable is available in various lengths: see page 36 for lengths. The output terminals are on 2 rows.

COMPACT modules

ABE7H●●R50: these products fulfill the same functions as the previous modules, but are about half the size.
The output terminals are in two rows.
ABE7H16C1●/CM11: these are **miniature** products. The signal state for each channel can be indicated by an LED **(C11/CM11**) or not (**C10**). The output terminals are on one row. A terminal block module ABE7BV●0 can be added.

Universal modules

ABE7H●●R21/R20: these modules are used to connect I/O, and all the commons.
The potential (0 V or 24 V), distributed over the row of screw terminals which allow the commons to be connected, is selected by a jumper (see page 54). Both wires of the sensor or actuator can be connected to the module. The output terminals are on two rows. The state of the signal for each channel can be indicated by an LED **(R21)** or not **(R20).**
ABE7H16C21/CM21: these are **miniature** products. The signal state for each channel can be indicated by an LED.
The **ABE7H16CM21** module has two common connections which allows both inputs and outputs to be connected at the same time, with a 0 or 24 V common, according to the customer's wiring. The output terminals are on 2 rows.



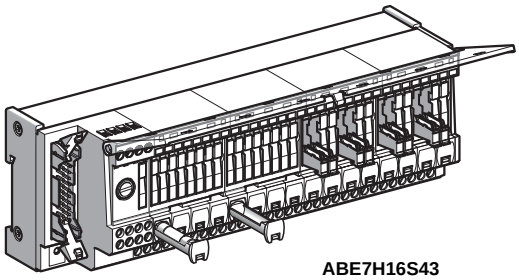
ABE7H16S21

Modules for 2-wire sensors

ABE7H16R23: this product is identical to the ABE7H16R21 module but, in addition, it enables connection of 2-wire type 2 sensors on the MODICON TSX Micro and Premium and Num N.C. The output terminals are on two rows.

Modules for 3-wire detectors

ABE7H16R31/R30: The signals, 24 Vdc and 0 V, are brought into the module for each channel. The output terminals are on three rows. This function can also be achieved by adding a ABE7BV20 add-on terminal block to the ABE7H16R21/R20 modules. The state of the signal for each channel can be indicated by an LED (**R31**) or not **(R30).**
ABE7H16C31: these are **miniature** products**.** They also enable connection of inputs with 3-wire proximity sensors.
The output terminals are on 3 rows.



ABE7H16S43

Modules with isolator for each channel

ABE7H●●S21: this product has the same function as the ABE7H16R21 universal module. In addition, it also has, a circuit isolator for each channel.

Modules with circuit isolator and protection for each channel

ABE7H16S43: this module is used exclusively for connecting 24 Vdc **inputs.**
Both wires are brought to the screw terminals on a single row.
Each channel has 2 circuit isolators, connected together, to isolate the signal and its 24 Vdc supply.
The 24 V supply to each channel is protected by a 5 x 20 mm fuse. A red LED indicates if the fuse has blown.
ABE7H16F43: these products are designed for connecting 24 Vdc **outputs**. Both wires are brought to the screw terminals on a single row. Each channel has 2 circuit isolators, connected together, to isolate the signal and its 0 V common.

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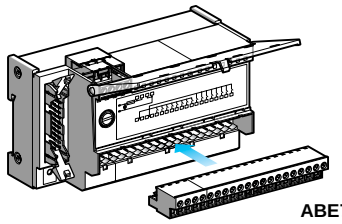
Electromechanical Relay Output Modules

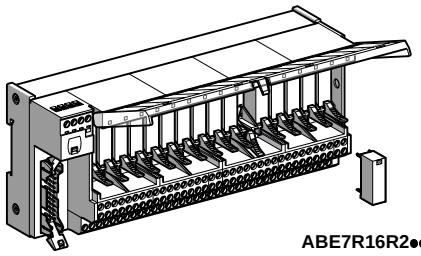
Relay output modules are designed to accept both current and voltage signals.
They also have the following functions, depending on the model: various contact combinations (1 N/O, 1 C/O, 2 C/O), common potentials, channel protection by 5 x 20 mm fuse.
There are 3 ranges of modules: fixed relay, removable relay and high-performance.



ABE7R16S111

Modules with fixed relays and removable terminal blocks

ABE7R●●S21●: these products are supplied with a fixed relay, with a 10 mm wide N/O contact. Their 5A Ith characteristic must be derated according to the duty cycles used and the number of operations required.
They are available in 8 and 16-channel modules. All the terminal blocks are removable.
ABE7R●●S11: almost 50% smaller than the standard modules, these products have a fixed relay, with a 5 mm wide N/O contact. Their 2A Ith characteristic must be derated according to the duty cycles used and the number of operations required. They are available in 8 and 16-channel modules. All the terminal blocks are removable.
ABE7R08S216: these **miniature** products are supplied with latching relays which can withstand a current of 2 A at 230 Vac. They enable 2 output wires to be connected on a removable terminal block. Two PLC outputs are used per channel: one for tripping the relay, the other for resetting it. The relay stays in the de-energized position. The state of the signal for each channel can be indicated by an LED.

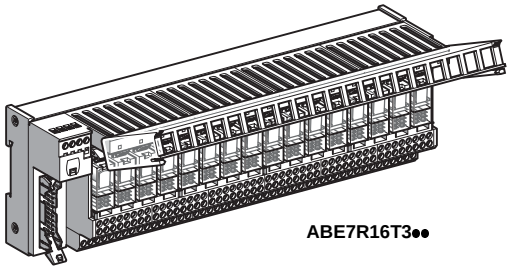


ABE7R16R2●●

Removable relay modules

ABE7P16T2●● and **7R16T2●●**: these products may or may not be supplied with 10 mm wide removable relays with N/O or C/O contacts. Their 5A Ith characteristic must be derated according to the duty cycles used and the number of operations required. They are available in 16-channel modules only.
ABR7S2● electromechanical relays, ABS7S●2● solid state relays and ABE7ACC20 continuity block can all be combined on the same module. Some modules, not supplied with relays, are offered with 5 x 20 mm fuse protection for each channel.

ABE7●16T111/M111: these **miniature** products use 5 mm wide removable relays with N/O contact that is rated up to 5A. These products may be supplied with relays (**R**) or not (**P**). They can use both electromechanical and solid state relays.
ABE7●16M111: this module offers two connection methods which make it possible to connect both inputs and outputs and obtain 8 inputs (passive connection) and 8 outputs (active relay connection). The state of the signal for each channel can be indicated by an LED. The terminals are on one row and the commons in groups of 4. The module is supplied with a relay extractor; this accessory is also available as a spare part.



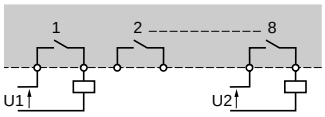
ABE7R16T3●●

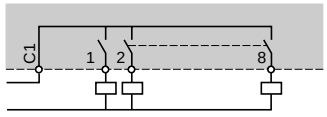
High performance modules with removable relays

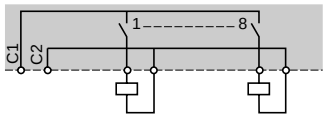
ABE7P●●T3●● and 7R16T3●●: these products may or may not be supplied with 12 mm wide removable relays, with 1 C/O or 2 C/O contacts. Their 8A Ith characteristic must be derated according to the duty cycles used and the number of operations required.
The relays are supplied with reinforced Faston type clips for easy attachment.
They are available in 8 and 16-channel modules.
ABR7S3● electromechanical relays, ABS7S●3● solid state relays and ABE7ACC21 continuity block can all be combined on the same module. Some modules, not supplied with relays, are offered with 5 x 20 mm fuse protection and isolation for each channel.

Connections

These relay modules can be connected in three possible methods: volt-free, contact common and common on both poles.







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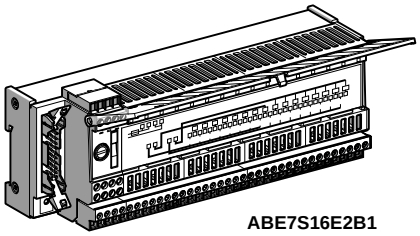
Solid State Input or Output Modules, and Analog Modules

Solid State Input or Output Modules

Solid state input or output modules are designed to accept both current and voltage signals. They can be used to interface either inputs or outputs. Their technology enables high-speed signal switching, while maintaining a high level of electrical durability.

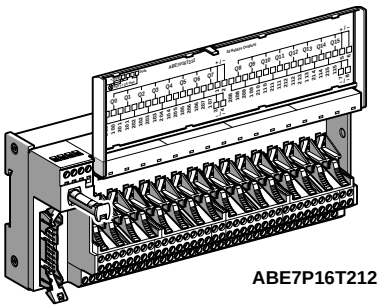


ABE7S16E2B1

Input modules

Modules supplied with solid state relays ABE7S16E●●: these modules enable sensors with different voltages to be connected (24 Vdc to 230 Vac according to module).
These products provide electrical isolation for the various power supply inputs. They are available in 16-channel modules only and the terminal blocks are removable.

Modules supplied with removable solid state relays ABE7P16F●●: these modules enable sensors with different voltages to be connected (24 Vdc to 230 Vac), either on each channel or on each group of 8 channels. They are available in 16-channel modules only. The solid state relays are available separately. It is also possible to supply modules with electromechanical relays.



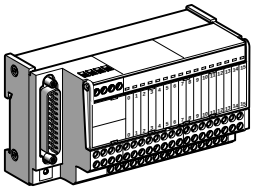
ABE7P16T212

Output modules

Modules supplied with solid state relays ABE7S●●S●●: these modules enable actuators to be connected at 24 Vdc. The outputs are not isolated. The output current is, depending on the products, 0.5 or 2 A per channel. The occurrence of overloads or short-circuits on the outputs can be transmitted to the PLC to be managed by the program. These “fault report” functions can be used with MODICON TSX Micro and Premium PLC’s or with any other PLC’s which have protected outputs. They are available in 8 and 16-channel modules, and the terminal blocks are removable.

Removable solid state relays: ABS-7S removable relays are not available mounted directly on the modules. They must be ordered separately.
These relays are available for two power levels:
from 5 Vdc to 240 Vac /0.5 A, 10 mm wide. These are for mounting on **ABE7P16T2●●** modules,
from 5 Vdc to 240 Vac /1.5 and 2 A, 2mm wide. These are for mounting on **ABE7P16T3●●** or **ABE7P08T330** modules.
It is possible to combine electromechanical relays and solid state relays, as well as continuity blocks, on the same module. They are available in 16-channel modules only.

Analog Modules and Special Functions



ABE7CPA02

Analog signals are connected on the following products:

- **ABE7CPA01** for the counter modules in the MODICON TSX Micro and Premium products. It also communicates with the Altivar 18 variable speed drive.
- **ABE7CPA02** for connection and distribution of 8 channels over the screw terminals while maintaining shielding continuity.
- **ABE7CPA21** with identical functions to the previous module, except it has 4 analog output channels.
- **ABE7CPA03** can also supply 2 or 4-wire sensors, channel by channel, with 24 Vdc protected voltage and current limiting at 25 mA. In addition, it ensures continuity of the current loops when the 25-way SUB-D connector is unplugged.
- **ABE7CPA31** enables distribution and isolation of the 24 Vdc power supply required for the 8 analog input channels while maintaining isolation between channels of the TSX AEY810 module. Limitation for all channels is 25 mA.
- **ABE7CPA11** enables the value from a parallel output absolute encoder to be read (binary or GRAY code). It is connected to a counter or axis control module in the MODICON TSX Premium range.
- **ABE7CPA12** can be used to connect 16 thermocouples and to increase the temperature of the terminal blocks for cold junction compensation, either by a probe integrated in the module, or remotely by an external PT100 probe. In the latter case, only 14 thermocouples can be connected.
- **ABE7CPA13** simplifies connection of safety module TSX PAY2●2 on the MODICON TSX Premium. It allows the connection of 12, double contact emergency stop push buttons.

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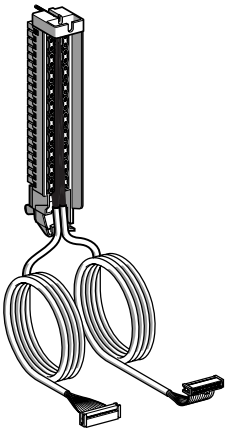
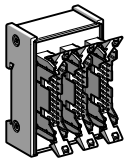
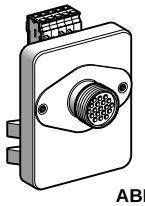
The Telefast 2 pre-wired system offers a range of accessories to simplify the installation of equipment and to enable full use of all features offered by the Telefast 2 modules.



ABFA32H●00



ABE7ACC02



ABE7ACC82

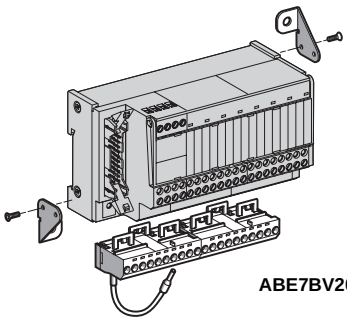
Connection to the PLC: cables and cabled connectors

Cables
Only **ABFH20H●●●** cables, made from rolled ribbon cable and HE 10 insulation piercing connectors are truly universal. Owing to their small size, they can be connected to any I/O modules or terminal blocks supplied with 20-way HE 10 connectors. They are available in lengths of 1.64 to 16.41 ft (0.5 to 5 m), but the user can create custom cables up to a maximum length of 98.43 ft (30 m) using additional cable and HE 10 connectors.
TSXCDP●●3 molded cables are only used with the MODICON TSX Micro and Premium PLCs. They are multicore cables and have a high quality finish.
Custom cables are also available for the ALLEN BRADLEY and SIEMENS PLCs.

Cabled Connectors
When the PLC I/O modules do not have rapid connection features, the cables and terminal blocks are supplied pre-assembled to produce a pre-wired solution. Telefast 2 can therefore offer cabled connectors suitable for the MODICON, April (**ABFA32H●00**) and TELEMECANIQUE PLCs with analog modules.

Splitter Blocks

When module configuration and signal distribution are not compatible, the Telefast 2 system can use **ABE7ACC0●** splitter blocks:
16 channels (2 x 8) for all 16-channel outputs,
24 channels (3 x 8) for DST2472 modules,
32 channels (2 x 16) for NUM inputs,
24 channels (3 x 8) for NUM outputs.
Other modules enable I/O redundancy on 2 input modules in parallel (**ABE7ACC11**) or on 2 output modules in parallel (**ABE7ACC10**).



ABE7ACC01

ABE7BV20

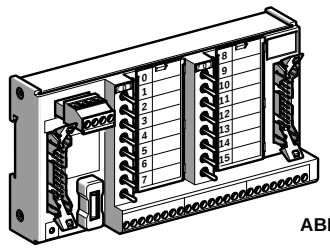
Wiring Accessories

Enclosure feedthroughs:
The IP65 **ABE7ACC8●** product range is comprised of two compact devices, one for 8-12 channel configurations and the other for 16 channel configurations, enabling Telefast 2 modules to be connected to the outside of the enclosure. They provide the connection between HE 10 connectors (inside the enclosure) and the cylindrical CNOMO M23 type connector (outside the enclosure). These products can also be used to connect dust and damp proof splitter blocks with M12 cylindrical connectors for sensors.
Their is a second device which uses a 40-way rectangular industrial connector to connect 2 x 16 channels.

Cable gland assembly:
Using the cable gland assembly enables 3 cables to run outside the enclosure without the addition of a series connection.

ABE7ACC01 mounting kit for panel mounting:
This provides an alternative solution for mounting modules without using an additional 35 mm DIN3 mounting track.

Additional terminal blocks ABE7BV10 and ABE7BV20:
With 8 and 16 channels, these products give wider connection alternatives: common, screening, etc.



ABE7TES160

Other Accessories

Removable continuity blocks:
Available in 10 and 12 mm widths, these blocks are mounted in ABE7P16T●●● relay modules in place of ABR7 and ABS7 relays. They make use of the modules function to connect the channel without the need for a relay.

ABE7TES160 simulation module:
Can be used to force or inhibit the discrete I/O.

5 x 20 mm fuses:
Catalog numbers for all fuses can be found under accessories.

Label marking software:
This produces finished labels for channels, simplifying installation and reducing the risk of error during maintenance by marking the labels according to the module mounting. The program runs under Windows.

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Applications	Discrete Input or Output				
					
Relay Amplification	—				
Supplied with Relay	—				
Control Voltage	24 Vdc				
Output Voltage	24 Vdc				
Output Current per Channel ♦	0.5 A				
No. of Channels	16		8 - 12 - 16		
No. of Terminals per Channel	1	1 to 3	1	2	
Type of Connection Terminals	Signal	Signal, common (configurable 24 Vdc or 0 V)	Signal	Signal, common (configurable 24 Vdc or 0 V)	
Connectors	20-way HE 10 connector				
Terminal Block Removable	No		No		
Terminal Block Type of Terminal	Screw		Screw		
Additional or Optional Function	Low cost version with cable	Miniature module	COMPACT size	Type 2 input (1)	Isolator
Type of Device	ABE7H20E●●● ABE7H32E●●●	ABE7H16C●●	ABE7H●●R1● ABE7H●●R50	ABE7H●●R2●	ABE7H●●S21
Pages	36		37		

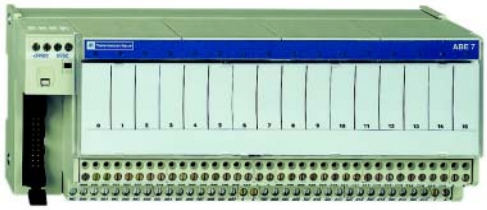
(1) For Micro and Premium PLC's

♦ Also check the maximum current per module on page 27.

Discrete Input or Output

—		Removable electromechanical or solid state	
—		No	Yes
24 Vdc			
24 Vdc		24 Vdc (solid state) 5 - 24 Vdc, 230 Vac (electromechanical)	
0.5 A	0.5 A	5 A (electromechanical (E.M.), 2 A (solid state)	5 A (th)
16		16 (8 passive inputs, 8 relay outputs)	
1	2	1	
Signal, 2 common connections between the inputs and the outputs	Signal, common, 2 common connections between the inputs and the outputs	Contact 1 N/O and common, 4 output channels 2 input connection points	
20-way HE 10 connector			
No			
Screw			
Miniature module Synergy with Micro PLC		Miniature module - Volt-free or common per 4 channels Synergy with Micro PLC	
ABE7H16CM11	ABE7H16CM21	ABE7P16M111	ABE7R16M111
36		40	39

Applications	**Discrete Output**



Relay Amplification	Electromechanical, fixed			Removable electromechanical or solid state		
Supplied with Relay	Yes			Yes	No	No
Control Voltage	24 Vdc					
Output Voltage	5 - 30 Vdc, 230 Vac		5 - 150 Vdc, 230 Vac	24 Vdc (solid state) 5 - 24 Vdc, 230 Vac (E.M.)		5 - 150 Vdc 230 Vac
Output Current per Channel ♦	2 A (th)	3 A (th)	5 A (th)	2 A (solid state) 6 A (electromechanical)		Depends on relay mounted 0.5 to 10 A
Modularity	8	8 - 16		16		8 or 16
No. of Terminals per Channel	2	1	2	1		2 to 3
Type of Connection Terminals	1 N/O contact and common Volt-free	1 N/O contact	1 N/O contact and common	1 N/O contact		Signal, polarities
Connectors	20-way HE 10 connector					
Terminal Block Removable	Yes	Yes	Yes	No		No
Type of Terminal	Screw			Screw		Screw
Additional or Optional Function	Miniature module Bistable relay	Volt-free or common per 8 channels		Miniature modules, common per 4 channels		Isolator and fuse
Type of Device	ABE7R08S216	ABE7R●●S1●●	ABE7R●●S2●●	ABE7R16T111	ABE7P16T11	ABE7P16T2●● ABE7P08T3●●
Pages	38			39	40	

♦ Also check the maximum current per module on page 27.

				Discrete Input			
							
Electromechanical, removable		Solid state, fixed	—	—		Solid state, fixed	Solid state, removable
Yes		Yes	—	—		Yes	No
						From 24 Vdc to 230 Vac	From 5 V TTL to 230 Vac
5 - 150 Vdc, 230 Vac		24 Vdc					
5 A (th)	8 A (th)	From 0.5 to 2 A	125 mA	0.5 A	125 mA	12 mA	
16							
	2 to 6	2		3	2		
1 C/O contact or 1 N/O contact and common	1 C/O contact or 2 C/O contacts and common	Signal and 0 V		Signal 24 Vdc and 0 V	Signal can be isolated, protected common	Signal	Signal and common
No		Yes	No	No		Yes	No
Screw							
Volt-free or common per:		Fault signal	Isolator and fuse (indicator)	3-wire proximity sensor	Isolator and fuse (indicator)	—	
8 channels	4 channels						
ABE7R16T2●●	ABE7R16T3●●	ABE7S●●S2B●	ABE7H16F43	ABE7H16R3●	ABE7H16S43	ABE7S16E2●●	ABE7P16F31●
39		38	37			38	39

Applications	**Analog Signals and Special Functions**

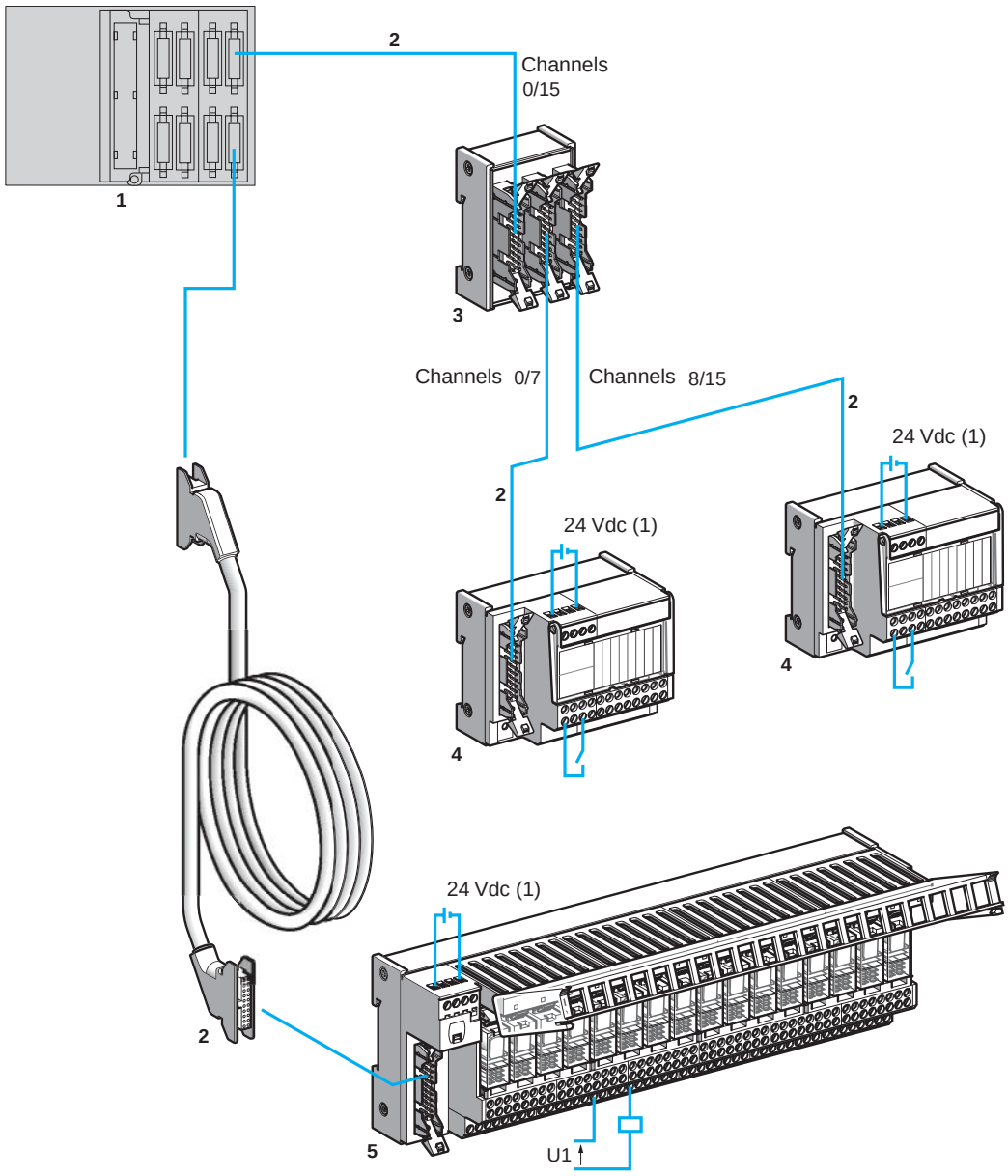
Compatibility	TSX Micro	TSX Premium	Standard	
Type of Signal	Counter inputs and analog I/O	Counter inputs, axis control, position control	Analog inputs, current, voltage, Pt 100	Analog outputs, current, voltage
Functions	Passive connection, point-to-point with shield continuity			
Modularity	1 counter channel or 8 analog inputs + 2 analog outputs		8 channels	4 channels
Control Voltage	24 Vdc			
Output Voltage	24 Vdc			
Output Current per Channel	25 mA			
No. of Terminals per Channel	2		2 or 4	2 or 4
Type of Connector	15-way SUB-D + 9-way SUB-D		25-way SUB-D	
Terminal Block Removable	No		No	
Type of Terminal	Screw		Screw	
Type of Device	ABE7CPA01		ABE7CPA02	ABE7CPA21
Pages	42			

Analog Signals and Special Functions

	TSX Premium TSX AEY810	TSX Premium, TSX CAY●1, TSX CTY2C	TSX Premium TSX AEY1614	TSX Premium TSX PAY2●2
Analog inputs, current, voltage, Pt 100	Isolated analog inputs	Inputs, counting	Inputs for thermocouples	I/O
Distribution of sensor power supplies per limiter (25 mA)	Distribution of isolated sensor power supplies per converter	Acquisition of value from an absolute encoder	Connection of 16 thermocouples with cold junction compensation	Safety module (BG)
8 channels	8 channels	1 channel	16 channels	12 emergency stops

				0.5 A
		—	2 or 4	1
25-way SUB-D	25-way SUB-D	15-way SUB-D	25-way SUB-D	50-way SUB-D
No	No	No	No	No
Screw	Screw	Screw	Screw	Screw
ABE7CPA03	ABE7CPA31	ABE7CPA11	ABE7CPA12	ABE7CPA13

Connection Cables for Micro PLC's — Compatibility



1 I/O modules equipped with HE 10 connectors. Available in modules of 8, 12, 28 and 64 I/O.

2 A single type of cable equipped with 20-way HE 10 connectors irrespective of the 8, 12 or 16-channel modularity. The HE 10 connectors may be moulded (TSX CDP●●●) or self-perforating (ABFH20H●●●).
These cables are available in 1.64, 3.28, 6.56, 9.84, and 16.41 ft. (0.5, 1, 2, 3 and 5 meter) lengths. They use AWG 28 (0.08 mm^2) for connection of inputs and relay modules, and AWG 22 (0.324 mm^2) for direct connection of the 8 and 28 I/O module 0.5 A outputs.

3 16 channels may be split into 2 x 8 channels using splitter block ABE7ACC02.

4-5 8-channel and 16-channel modules respectively.

(1) The 24 Vdc power supply is connected using Telefast 2 modules only. The 0 Vdc connections must be of equal potential.

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Micro PLC I/O Modules and Interface Modules — Compatibility

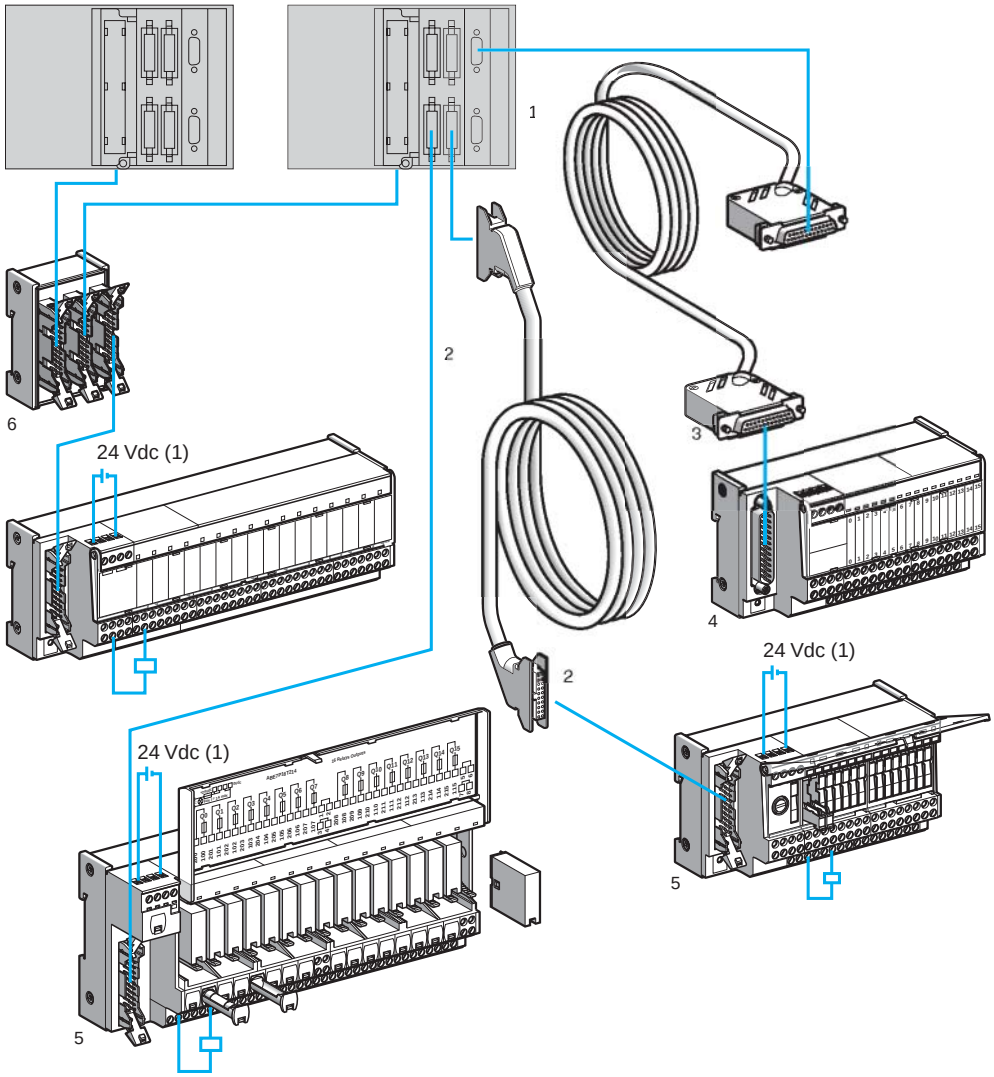
I/O Modules for TSX Micro PLC's

		24 Vdc Discrete							Counter		Analog and Counter
		I/O					Inputs	Outputs	Auxiliary Inputs	Counter	
		8 I + 8 O	1 x 16 I	1 x 12 O	2 x 16 I	2 x 16 O	1 x 12 I	1 x 8 O	–	–	–
Integrated in the PLC's	**TSX**	–	37 10 128DTK1		37 10 164DTK1		–	–	–	–	37 22 001
	TSX	–	–		–		–	–	–	–	37 22 101
With Modules	**TSX**	DMZ 16DTK	DMZ 28DTK		DMZ 64DTK		DEZ 12D2K	DSZ 08T2K	CTZ 1A	CTZ 1A	–
	TSX	–	–		–		–	–	CTZ 2A	CTZ 2A	–
Connection Modules											
8 channels	**ABE7H08R●●**		(1) ▲		(1) ▲	(1) ▲		▲	ABE (2) 7H08R10		
	ABE7H08S21		(1) ▲		(1)	(1)	▲	▲			
12 Channels	**ABE7H12R●●**			▲			▲				
	ABE7H12S21			▲							
16 Channels	**ABE7H16R●●** **ABE7H16C●●** **ABE7H20E●●●**		▲		▲	▲			ABE (3) 7H16R20		
	ABE7H16S21		▲		▲	▲					
	ABE7H16R23				▲						
	ABE7H16F43					▲					
	ABE7H16S43		▲		▲						
Input Modules											
16 Channels	**ABE7S16E2●●**		▲		▲		(5) ▲				
	ABE7P16F3●●		▲		▲		(5) ▲				
Input and Output Modules											
16 Channels 8I + 8 Q	**ABE7H16CM●1**	▲									
	ABE7●16M111	▲									
Output Modules											
8 Channels	**ABE7S08S2●●**					(1) ▲		▲			
	ABE7R08S●●●					(1) ▲		▲			
	ABE7P08T330					(1) ▲		▲			
16 Channels	**ABE7S16S●●●**					▲					
	ABE7R16S●●●			(4) ▲		▲					
	ABE7R16T●●●			(4) ▲		▲					
	ABE7P16T●●●			(4) ▲		▲					
Modules for Analog Counter I/O											
	ABE7CPA01									▲	▲
	ABE7CPA11										
	ABE7CPA02										
	ABE7CPA03										

Technical Overview pages: 26 - 35 Module Selection pages: 36 - 40, 42 Cable Selection page: 44 Accessory Selection pages: 41, 43 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

(1) Via splitter block ABE7ACC02, which allows 16 channels to be split into 2 x 8 channels.
(2) With module TSX CTZ 1A, to be used with modules with no LED.
(3) With module TSX CTZ 2A, to be used with modules with no LED.
(4) The last four channels are not used and remain at 1.
(5) The last four channels are not used.
▲ Pre-wired cables are available.

Connection Cables for TSX Premium — Compatibility



1 Input and output modules with HE 10 connectors are available for 16, 32 and 64 I/O.

2 A single type of cable with 20-way HE 10 connectors, whether the modularity is 8, 12 or 16 channels. The HE 10 connectors can be molded, TSX CDP●●● (AWG 22) or self-perforating, ABFH20H●●● (AWG 28).
These cables are available in 1.64, 3.28, 6.56, 9.84, and 16.41 ft. (0.5, 1, 2, 3 and 5 meter) lengths (the same as those used with the MODICON TSX Micro). AWG 28 gauge (0.08 mm^2) enables 100 mA input and output modules to be connected directly, as well as modules with relays.
The ABE7ACC02 adaptor is used to connect 8-channel modules.

3 All analog signal connections are made using a TSX CAP030 pre-wired cable fitted with a 25-way SUB-D connector, which ensure the continuity of the shielding.

4 There are several types of module with counter and analog channels:
- ABE7CPA02 for connecting current, voltage or PT100 inputs to screw terminals
- ABE7CPA03 with 4-20 mA sensor circuit supply and 25 mA limiter for each channel
- ABE7CPA21 for connecting 4-channel analog output modules to screw terminals
- ABE7CPA31 with isolated 4-20 mA sensor circuit supply for 8 individually isolated channels
- ABE7CPA11 for connecting an absolute encoder with parallel outputs
- ABE7CPA12 for connecting 16 thermocouple probes

5 16-channel Telefast modules.

6 Splitter blocks for the parallel connection of discrete I/O from a Telefast 2 module to 2 different PLC's:
- ABE7ACC10 for output redundancy
- ABE7ACC11 for input redundancy

(1) The 24 Vdc power supply is connected using Telefast modules only. The 0 Vdc connections must be equipotential.

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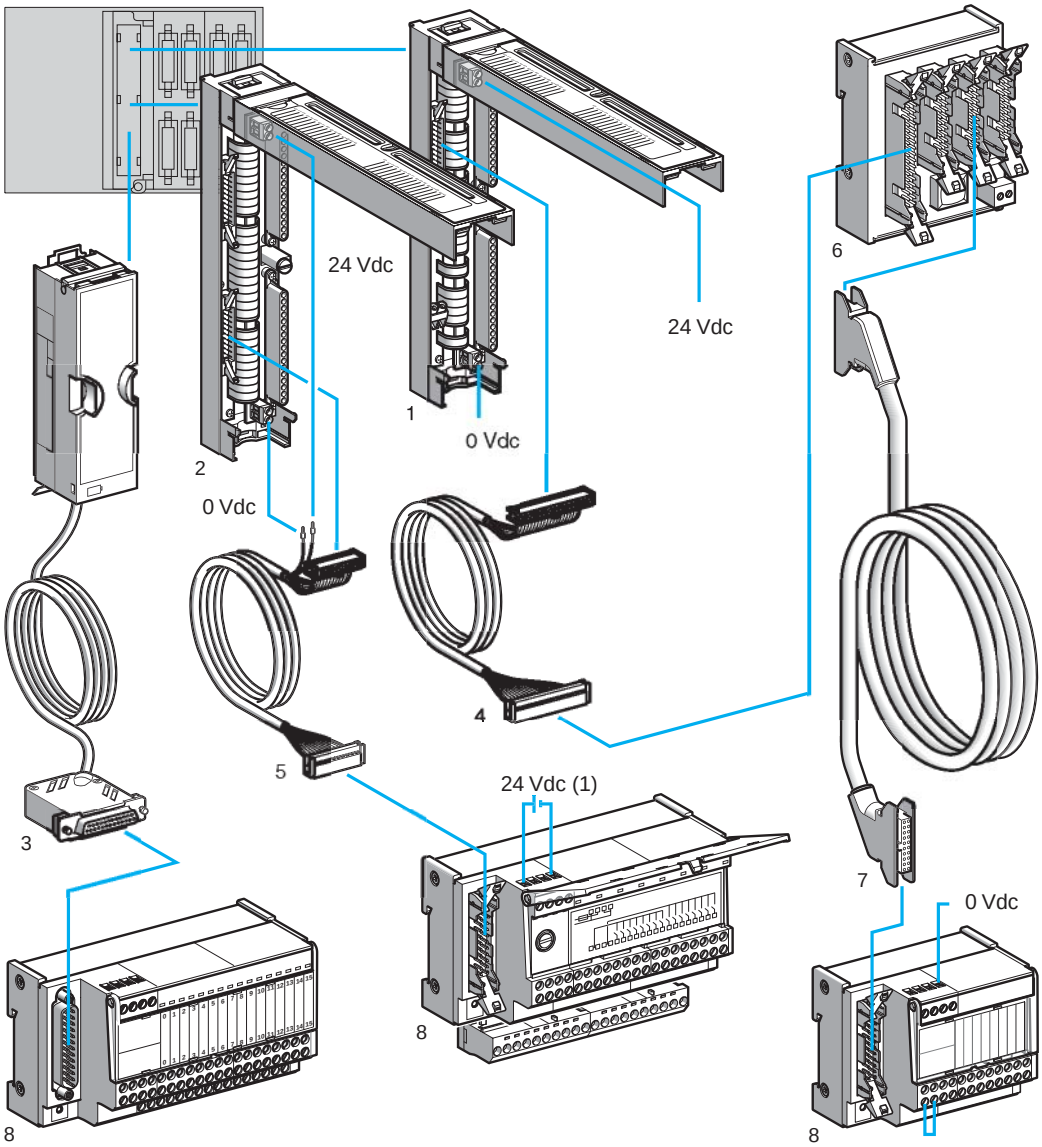
MODICON TSX Premium PLC I/O Modules and Interface Modules — Compatibility

Premium PLC I/O Modules																							
		24 Vdc Discrete						Analog							Axis Control		Counting		Fast Counting		Safety
		Inputs			Outputs	Inputs/ Outputs		Inputs				Outputs		Thermo couple Inputs	Speed Reference	Auxiliary Input	Auxiliary Input	Counter	Auxiliary Input	Counter	–
		4x16 I 2x16 I	2x16 I	1x16 I	4x16 O 2x16 O	1x16 I	1x12 O	2x8 I	8 I		4 I	4 O	8 O	2x8 I	–	–	–	–	–	–	–
With Modules	**TSX**	DEY 64D2K 32D2K	DEY 32D3K	DEY 16FK	DSY 64T2K 32T2K	DMY 28 FK 28 RFK		AEY 1600	AEY 800	AEY 810	AEY 420	ASY 410	ASY 800	AEY 1614	CAY●1/CFY● A		CTY● A		CTY2C		PAY 2●2
With Cable Connectors		TSX CDP●● 3 or ABFH20H●●0						TSX CAP030				–	TSX CAP030			TSX CDP●●3		TSX CAP 030	TSX CDP ●●3	TSX CAP 030	–
Cabled Conn. with PLC Term. Block Supplied		–										(4)	–								–
Connection Modules																							
8 Channels	**ABE7H08R●●**	(1) ▲		(1) ▲	(1) ▲	(1) ▲											H08R10 (2) ▲		▲		
	ABE7H08S21	(1) ▲		(1) ▲	(1) ▲	(1) ▲															
12 Channels	**ABE7H12R●● ABE7H12S21**						▲														
16 Channels	**ABE7H16R●● ABE7H16C●● ABE7H20E●●●**	▲	H16 R20 ▲	▲		▲										H16 R20 ▲	H16R20 (3) ▲		H16R20 (3) ▲		
	ABE7H16S21	▲		▲	▲	▲															
	ABE7H16R23	▲		▲		▲															
	ABE7H16F43				▲																
	ABE7H16S43	▲		▲		▲															
Input Modules																					
16 Channels	**ABE7S16E2●● ABE7P16F3●●**	▲		▲																	
Output Modules																					
8 Channels	**ABE7S08S2●● ABE7R08S●●●**				(1) ▲																
	ABE7P08T330				(1) ▲																
16 Channels	**ABE7S16S●●● ABE7R16S●●●**				(1) ▲																
	ABE7R16T●●● ABE7P16T●●●				(1) ▲																
Modules for Analog Counter Inputs																					
	ABE7CPA01														▲			▲		▲	
	ABE7CPA11														(5) ▲					▲	
	ABE7CPA02							▲	▲	▲			▲								
	ABE7CPA21										(4) ▲	▲									
	ABE7CPA03							▲	▲		(6) ▲										
	ABE7CPA31									▲											
	ABE7CPA12													▲							
	ABE7CPA13																				▲

Technical Overview pages: 26 - 35 Module Selection pages: 36 - 40, 42 Cable Selection page: 44 Accessory Selection pages: 41, 43 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

(1) Via splitter block ABE7ACC02, which allows 16 channels to be split into 2 x 8 channels.
(2) 1-channel connection.
(3) 2-channel connection.
(4) ABFY25S200 cabled connector fitted with a TSX BLY terminal block.
(5) Can only be used with the **CAY●1** module.
(6) Only the first 4 channels are used.
▲ Pre-wired cables are available.

Connection Cables for TELEMECANIQUE TSX 47 to 107 PLC's — Compatibility



1 TSX BLK 81 terminal block connected to TSX DST 24 modules. Outputs are connected using a 34-way HE 10 connector, integrating all 24 channels. The 24 Vdc power can only be supplied via the screw terminals of the terminal block.

2 TSX BLK 71/91 terminal blocks connected respectively to TSX DET 32●● and TSX DST 3292 modules. I/O are connected using two 20-way HE 10 connectors, each integrating 16 channels.

3 ABFB25S●●0 cabled connector, for TSX AEM8●● analog counters, comprising a standard TSX BLK 4 terminal block, a screened multicore cable (AWG 22) and a 25-way SUB-D connector, providing continuity of shielding.
An ABFB50S●●0 cabled terminal block, with two SUB-D connectors, enables connection to TSX AEM 160● modules.

4 ABFH34H●00 cables (AWG 28) with 34-way HE 10 connectors, supplied in 3.28, 6.56 and 9.8 ft. (1, 2 and 3 meter) lengths.

5 ABFH20H●●1 connection cable with 20-way HE 10 connectors and a rolled ribbon cable (AWG 28). This cable is used specifically to carry power supplies so that they may be connected to the TSX BLK 71 and TSX BLK 91 terminal blocks. If these cables are used, it is essential that both polarities are connected to the Telefast 2 modules.

6 ABE7ACC03 splitter block enabling 24 channels to be connected to Telefast 2 modules with 8-channel modularity. In this case, it is essential to connect the 0 Vdc to the Telefast 2 modules.

7 TSX CDP●●● or AB-H20H●●● cables.

8 ABE7CPA02, ABE7R16S111 modules with ABE7BV20 and ABE7H08R11 terminal blocks. The ABE7CPA02 modules enables the current, voltage or PT 100 inputs to be connected while maintaining continuity of shielding.

(1) The 24 Vdc power supply is connected using Telefast 2 modules only. The 0 Vdc connection must be equipotential.

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I/O Modules for TELEMECANIQUE TSX 47 to 107 PLC's, April Series 1000 and Interface Modules

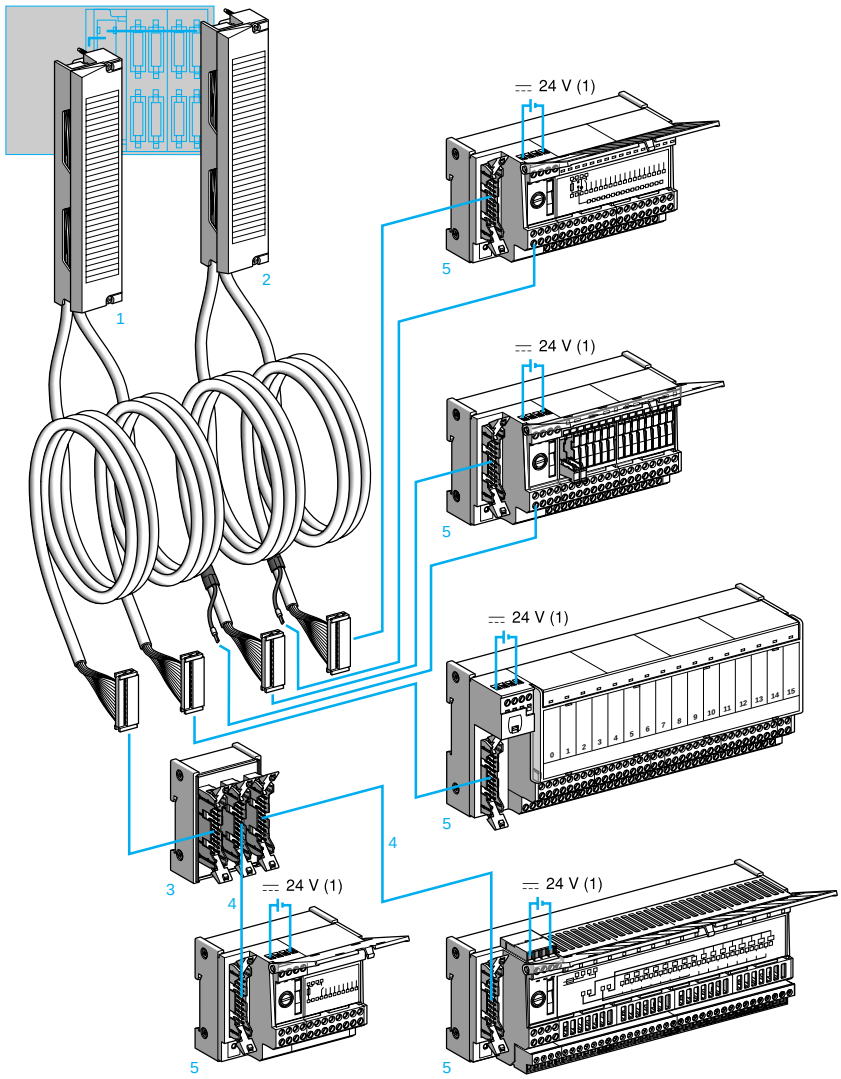
I/O Modules (Series 7 and Series 1000)

		TELEMECANIQUE TSX 47 to 107 Modules						APRIL Series 1000 PLC Modules		
		Discrete			Analog			Discrete		Analog
		Inputs	Outputs		Inputs			Inputs, Outputs < 0.5 A	Outputs = 0.5 A	Inputs
		32 Channels	32 Channels	24 Channels	16 Channels	16 Channels	8 Channels	32 Channels	32 Channels	16 Channels
Integrated in PLC's	**TSX**	DET 32 32	DST 32 92	DST 24 72	AME 16 13	AME 16 0●	AME 8 ●●	QDB 32 05	QDB 32 05	IXA 16 00
	TSX	DET 32 42	–	DCT 24 82	–	–	–	QPA 3205	QPA 3205	IRA 1600
	TSX	DET 32 52	–	–	–	–	–	IDB 32 24	–	–
Connection Terminal Blocks	**TSX**	BLK 71	BLK 91	BLK 81	None	Included	Included	Included	Included	None
Connection Cables	**ABF**	H20H●●1		H34 H●00	S25S301	B50S●01	B25S●01	A32H●00	A32H●●1	S25S302
Connection Modules										
8 Channels	**ABE7H08R●●** **ABE7H08S21**	(1) ▲	(1) ▲	(2) ▲				(1) ▲		
12 Channels	**ABE7H12R●●** **ABE7H12S21**									
16 Channels	**ABE7H16R●●** **ABE7H16S21** **ABE7H16C●●** **ABE7H20E●●●**	▲	▲					▲	▲	
	ABE7H16R23							▲		
	ABE7H16F43		▲						▲	
	ABE7H16S43	(4) ▲						(5) ▲		
Input Modules										
16 Channels	**ABE7S16E2●●** **ABE7P16F3●●**	▲						▲		
Output Modules										
8 Channels	**ABE7S08S2●●**			(2) ▲				(1) ▲		
	ABE7R08S●●● **ABE7P08T330**		(1) ▲	(2) ▲				(1) ▲		
16 Channels	**ABE7S16S●●●**		(3) ▲					▲		
	ABE7R16S●●●		▲					▲		
	ABE7R16T●●● **ABE7P16T●●●**		▲					▲		
Modules for Analog Counter I/O										
	ABE7CPA01									
	ABE7CPA02				▲	▲	▲			▲
	ABE7CPA03					▲	▲			▲

Technical Overview pages: 26 - 35 Module Selection pages: 36 - 40, 42 Cable Selection page: 45, 47 Accessory Selection pages: 41, 43 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

(1) Via splitter blocks ABE7ACC02 which enables 16 channels to be split into 2 x 8 channels.
(2) Via splitter blocks ABE7ACC03 which enables 24 channels to be split into 3 x 8 channels.
(3) With module ABE7S16S2B2 only.
(4) Except DET 32 52.
(5) Input only.
▲ Pre-wired cables are available.

Connector Cables for MODICON PLC's — Compatibility



1- 2 Cabled connectors combine a standard terminal block equipped with screw terminals, two multicore (AWG 22) cables and two 20-way HE 10 connectors. Two cabled connectors are available for the QUANTUM range and two others for the 984-A120-COMPACT range.
The 4 products have the following functions:
- ABFM32H●●0 **1** for QUANTUM relay inputs or outputs, with 2 x HE 10 connectors each integrating 16 channels.
- ABFM32H●●1 **2** for outputs directly connected to the QUANTUM, with 2 x HE 10 connectors each integrating 16 channels and an external power supply with a direct connection to the output terminal marked 1.
- ABFM16H●●0 for 984-A120-COMPACT inputs or relay outputs, with 1 x HE 10 connector each integrating 16 channels.
- ABFM16H 1 for 984-A120-COMPACT directly connected outputs, with 2 x HE 10 connectors each integrating 8 channels.

3 The splitter block ABE7ACC02 may be used to connect modules with 8-channel modularity.

4 A single type of cable equipped with 20-way HE 10 connectors irrespective of the 8, 12 or 16-channel modularity. The HE 10 connectors may be molded (TSX-CDP●●●) or self-perforating (ABFH20H●●●).

5 8 and 16-channel modules from Telefast 2 family.

The 24 Vdc power supply is connected using Telefast 2 modules only. The 0 Vdc connections must be of equal potential.

Technical Overview pages: 26 - 35 | Module Selection pages: 36 - 40, 42 | Cable Selection page: 48 - 49 | Accessory Selection pages: 41, 43 | Approximate Dimensions, and Wiring Diagram pages: 52 - 63

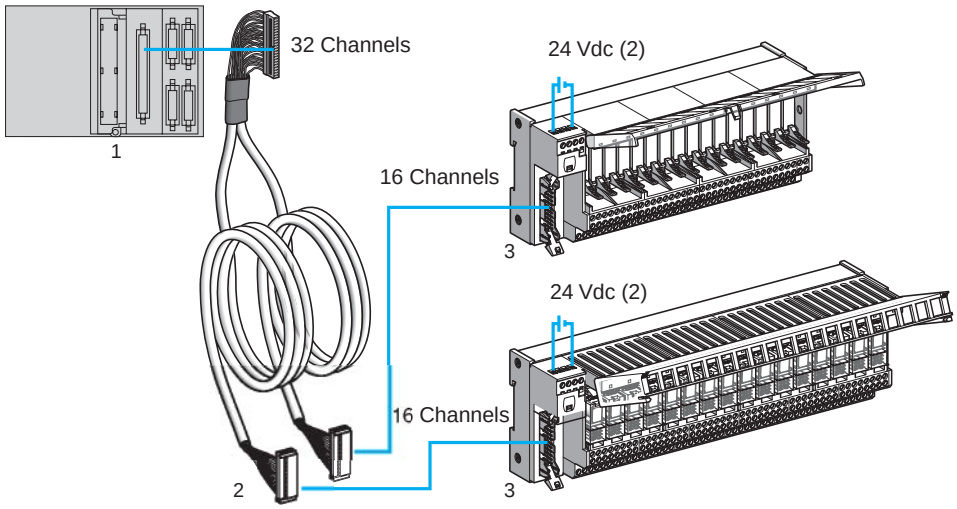
MODICON PLC and NUM Numeric Control I/O Modules with Interface Modules — Compatibility

		MODICON PLC's														NUM Numerical Controllers			
		984-A120-COMPACT					QUANTUM									NUM 1050/ 1060		NUM 1020	
		Inputs		Outputs			TOR		TOR		Analog					Input/Output		Input/Output	
							Input	Output	Input	Output	Input		Output						
		16 E		16 S			32 E	32 S	96 E	96 S	8 E	16 E	4 S		8 S	64 E + 48 S		32 E + 24 S	
		DEP 220 DEO 216 DEP 216	DEP 217	DAO 216 DAP 216	DAO 216 DAP 216	DAP 217	DDI 353 DDI 853	DDO 353	DDI 364	DDO 364	140 AVI 03000 140 ACI 03000	140 ACI 04000	140 AVO 02000	140 ACO 02000	140 ACO 13000	641	48 O	32 I	24 O
Connection Terminal Blocks		Included														NUM Cables Not Supplied			
Cabled Connectors	ABF	M16H●●0			M16H●●1		M32H●●0	M32H ●●1	–		M08S 201	M16S 201	M04S 200	M04S 201	M08S 202	–	–	–	–
Splitter Block	ABE7	–			–		–	–	CDP●●●3		–					ACC04	ACC05	ACC04	ACC05
Connection Modules																			
8 Channels	**ABE7H08R●●**	(5) ▲	(1)(5) ▲		▲	(1) ▲	(2) ▲			(2) ▲						(2) ▲	▲	(2) ▲	▲
	ABE7H08S21	(5) ▲			▲		▲			(2) ▲						(2) ▲	▲	(2) ▲	▲
12 Channels	**ABE7H12R●●**																		
	ABE7H12S21																		
16 Channels	**ABE7H16R●● ABE7H16C●●**	▲	(1) ▲				▲		▲	▲						▲		▲	
	ABE7H16S21	▲					▲		▲	▲						▲		▲	
	ABE7H16R23						(4) ▲			▲						▲		▲	
	ABE7H16F43																		
	ABE7H16S43	▲					(3) ▲			▲						▲		▲	
Input Modules																			
16 Channels	**ABE7S16E2●● ABE7P16F3●●**	▲					▲			▲						▲		▲	
	ABE7P08T330				▲			(2) ▲									▲		▲
Output Modules																			
8 Channels	**ABE7S08S2●●**										(2) ▲						▲		▲
	ABE7R08S●●● ABE7P08T330				▲			(2) ▲			(2) ▲						▲		▲
16 Channels	**ABE7R16S●●●**			▲				▲			▲								
	ABE7R16T●●● ABE7P16T●●●			▲				▲			▲								
	ABE7S16S●●●																		
Modules for Analog Counter I/O																			
	ABE7CPA01																		
	ABE7CPA02										▲	(6) ▲			▲				
	ABE7CPA03										▲	(6) ▲							
	ABE7CPA21												▲	▲					
	ABE7CPA31										▲	(6) ▲							

Technical Overview pages: 26 - 35 Module Selection pages: 36 - 40, 42 Cable Selection page: 48 - 49 Accessory Selection pages: 41, 43 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

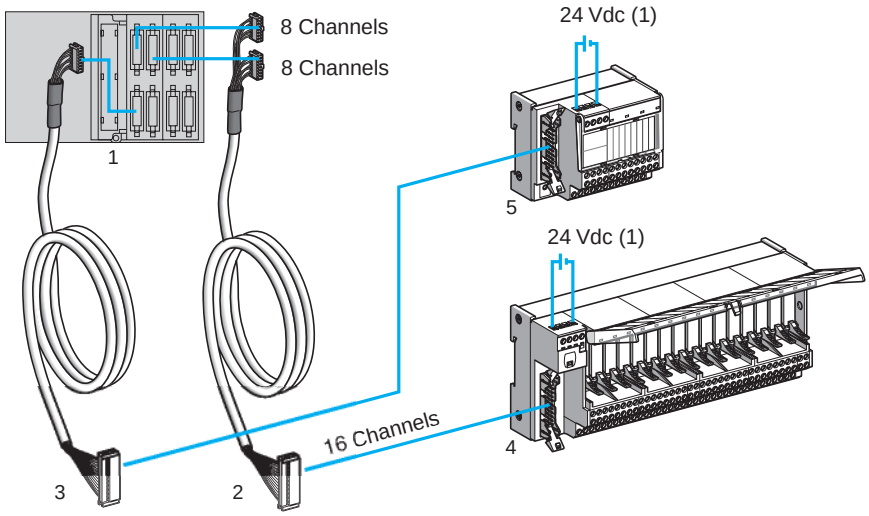
(1) With Telefast 2 modules with no channel LED.
(2) With the splitter block ABE7ACC02.
(3) Only with module DDI 853.
(4) Only with module DDI 353.
(5) With the splitter block ABE7ACC02 or with a cabled connector ABFM16H●●1 directly.
(6) 2 modules are required.
▲ Pre-wired cables are available.

Connection Cables for ALLEN BRADLEY SLC500 PLC's — Compatibility



1 For the SLC500 range, the specially designed cables connect to the I/O modules which are equipped with 40-way HE 10 connectors, integrating 32 channels.
2 Cables ABFH40H●●● to connect 16-channel modules. They are supplied with one 40-way HE 10 connector, at the PLC end and 2 x 20-way HE 10 connectors, at the Telefast end. Available in 1.5 and 3 meter lengths, AWG 22, there are 2 types of "Y" form cables: one exclusively for inputs and one for outputs.
3 16-channel modules. It is possible to use 8-channel modules by inserting splitter block ABE7ACC02.

Connection Cables for SIEMENS S5 PLC's — Compatibility



1 The 24 Vdc power supply may be provided via 6EP5-●●● terminal blocks connected to the PLC modules.
For the 95U/100U/115U/135U/155U ranges, manufacturers cables are connected to terminal blocks via 14-way HE 10 connectors (6EP5-●●●-1AA00). Each connector integrates 8 channels.
2 Cables ABFH28H●●● to connect 16-channel modules. They are supplied with 2 x 14-way HE 10 connectors, at the S5 PLC end and one 20-way HE 10 connector, at the Telefast end. Available in 4.92 and 9.8 ft. (1.5 and 3 meter) lengths, AWG 26, these "Y" form cables only connect the I/O controlling the relay modules.
3 Cables ABFH14H●●● to connect 16-channel modules. They are supplied with one 14-way HE 10 connector, at the S5 PLC end and one 20-way HE 10 connector, at the Telefast end. Available in 4.92 and 9.8 ft. (1.5 and 3 meter) lengths, AWG 26, these cables are used to connect the I/O directly to the modules.

(1) The 24 Vdc power supply is connected using Telefast modules only. The 0 Vdc connections must be of equal potential.
(2) The power may be supplied via the PLC terminal block or the Telefast module.

Technical Overview pages: 26 - 35 | Module Selection pages: 36 - 40, 42 | Cable Selection page: 50 - 51 | Accessory Selection pages: 41, 43 | Approximate Dimensions, and Wiring Diagram pages: 52 - 63

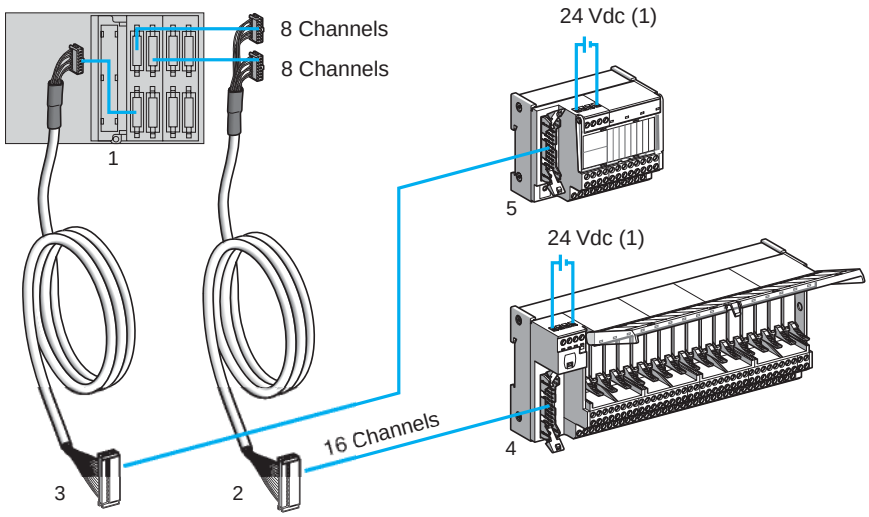
ALLEN BRADLEY and SIEMENS S5 PLC I/O Modules — Compatibility

			ALLEN BRADLEY					SIEMENS										
			SLC500					S5-95U/100U					S5-115U		S5-135U/155U			
			Input	Output				I/O	Input	Input	Output	Analog Input	Input	Output	Input	Output	Analog Input	Analog Output
			32 I	16 I	16 O	32 O		16 I + 16 O	16 I	8 I	8 O	4 I	32 I	32 O	32 I	32 O	8 I	8 O
Integral to the PLC's			1746 IB32	1746 IB16	1746 OB16	1746 OB32	1746 OV32	6ES5-095 8MA03 6ES-5-482 8MA13	6ES5-422 8MA11	6ES5-421 8MA12 6ES5-431 8MA11	6ES5-441 8MA11 6ES5-454 8MA11	6ES5-464 8ME11	6ES5-430 7LA12 6ES5-420 7LA11	6ES5-441 7LA12 6ES5- 451 7LA11 6ES5-451 7LA21	6ES5-430 4UA14 6ES5-420 4UA14	6ES5-441 4UA14 6ES5-451 4UA14	6ES5-460 4UA13	6ES5-470 4UA12
Connection Terminal Blocks			None					6EP5-100-1AA00	6EP5-100-1AA00	Included	Included	6ES5-700-8MA11	6EP5-115-1AA00	6EP5-115-1AA00	6EP5-135-1AA00	6EP5-135-1AA00	6ES5-497-4UB12	6ES5-497-4UB12
Connection Modularity	Cables: 16 Channels	ABF	H40 H●●0	R16 H201	R16 H200	H40H●●1		H28H●●0	H28 H●●0				H28 H●●0		H28 H●●0			
	8 Channels	ABF						H14H●●0	H14 H●●0	S16 H●●0	S16 H●●0		H14 H●●0	H14 H●●0	H14 H●●0	H14 H●●0		
		(7) ABF										F25 S200					F25 S200	F25 S200
Connection Modules																		
8 Channels	**ABE7H08R●●**		(2) ▲	(2) ▲		(2) ▲	(1) (2) ▲	▲	▲	▲	▲	▲		▲	▲	▲	▲		
	ABE7H08S21		(2) ▲	(2) ▲		(2) ▲		▲	▲	▲	▲	▲		▲	▲	▲	▲		
12 Channels	**ABE7H12R●● ABE7H12S21**																	
16 Channels	**ABE7H16R●● ABE7H16C●●**		▲	▲	(5) ▲	▲	(1) ▲	(4) ▲		▲				▲		▲			
	ABE7H16S21		▲	▲	▲	▲		(4) ▲		▲				▲		▲			
	ABE7H16R23																		
	ABE7H16F43					▲													
	ABE7H16S43		▲	▲				▲		▲				▲		▲			
Input Modules																		
16 Channels	**ABE7S16E2●● ABE7P16F3●●**		▲	▲				▲		▲				▲		▲			
Output Modules																		
8 Channels	**ABE7S08S2●●**																		
	ABE7R08S●●●					(2) ▲			▲			▲			▲		▲		
	ABE7P08T330					(2) ▲			▲			▲			(2) ▲		(2) ▲		
16 Channel	**ABE7R16S●●● ABE7R16T●●●**				▲	▲			▲						▲		▲		
	ABE7P16T●●● (6)					▲			▲						▲		▲		
	ABE7S16S●●●					(3) ▲			(3) ▲						(3) ▲		(3) ▲		
Modules for Analog Counter I/O																		
	ABE7CPA01											▲						
	ABE7CPA02																▲	▲
	ABE7CPA03																▲	
	ABE7CPA21											▲						

Technical Overview pages: 26 - 35 Module Selection pages: 36 - 40, 42 Cable Selection page: 50 - 51 Accessory Selection pages: 41, 43 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

(1) With Telefast 2 modules with no channel LED.
(2) With splitter block ABE7ACC02.
(3) ABES16S2B2 module only.
(4) Input only.
(5) Power supply 24 Vdc without cable.
(6) Do not use with ABE7ACC21/20.
(7) Cable with 25-way SUB-D connector at Telefast end. Labelled bare wires at PLC end.
▲ Pre-wired cables are available.

Connection Cables for SIEMENS S7 PLC's — Compatibility



1 The 24 Vdc power supply may be provided via 6EP5-●●● terminal blocks connected to the PLC modules.
For the S7200/300/400 ranges, manufacturers cables are connected to terminal blocks via 16-way HE 10 connectors (6EP5-●●●-1AA00). Each connector integrates 8 channels.

2 Cables ABFH28H●●● to connect 16-channel modules. They are supplied with 2 x 16-way HE 10 connectors, at the S7 PLC end and one 20-way HE 10 connector, at the Telefast end. Available in 4.92 and 9.84 ft. (1.5 and 3 meter) lengths, AWG 26, these "Y" form cables only connect the I/O controlling the relay modules.

3 Cables ABFH14H●●● to connect 8-channel modules. They are supplied with one 14-way HE 10 connector, at the S7 PLC end and one 20-way HE 10 connector, at the Telefast end. Available in 4.92 and 9.84 ft. (1.5 and 3 meter) lengths, AWG 26, these cables are used to connect the I/O directly to the modules.

(1) The power may be supplied via the PLC terminal block or the Telefast module.

Technical Overview pages: 26 - 35 | Module Selection pages: 36 - 40, 42 | Cable Selection page: 51 | Accessory Selection pages: 41, 43 | Approximate Dimensions, and Wiring Diagram pages: 52 - 63

SIEMENS S7 PLC I/O Modules — Compatibility

			SIEMENS												
			S7-200				S7-300					S7-400			
			Input/Output		Input	Output	Input	Input	Output	Output	Analog Output	Input	Output	Analog Input	Analog Output
			14 I + 10 O		8 I	8 O	16 I	32 I	16 O	32 O	4 O	32 I	32 O	8 I	8 O
Integral to the PLC's		6ES7-	214-1ACO1 0XB0		221-1BF00-0XA0	222-1BF00-0XA0	321-1BH01-0AA0	321-1BL00-0AA0	322-1BH01-0AA0	322-1BL00-0AA0	332-5HD01-0AA0	421-1BL00-0AA0	442-1BL00-0AA0	431-1KF00-0AB0	432-1HF00-0AB0
Connection Terminal Blocks		6ES7-	Included		Included	Included	921-3AB00-0AA0	921-3AA20-0AA0	921-3AB00-0AA0	921-3AA20-0AA0	392-1AJ00-0AA0	921-4AB00-0AA0	921-4AB00-0AA0	492-1AL00-0AA0	492-1AL00-0AA0
Connection Modularity	Cables: 16 Channels	ABF	–		–	–	H32H●●0	H32H●●0	H32H●●0	H32H●●0	–	H32H●●0	H32H●●0	–	–
	8 Channels	ABF	–		S08H●●2	S08H●●3	H16H●●0	H16H●●0	H16H●●0	H16H●●0	–	H16H●●0	H16H●●0	–	–
	Others	ABF	S24H200	–	–	–	–	–	–	–	F25S200 (7)	–	–	F25S200 (7)	F25S200 (7)
Connection Modules															
8 Channels	**ABE7H08R●● ABE7H08S21**				▲	▲	▲	▲	▲	▲		▲	▲		
12 Channels	**ABE7H12R●●**			▲											
	ABE7H12S21			▲											
16 Channels	**ABE7H16R●● ABE7H32E●●● ABE7H16C●●**		▲				▲	▲				▲			
	ABE7H16S21		▲				▲	▲				▲			
	ABE7H16R23 ABE7H16F43														
	ABE7H16S43						▲	▲				▲			
Input Adaptation Modules															
16 Channels	**ABE7S16E2●● ABE7P16F3●●**						▲	▲				▲			
Output Adaptation Modules															
8 Channels	**ABE7S08S2●●**														
	ABE7R08S●●●					▲			▲	▲			▲		
	ABE7P08T330					▲			▲	(2) ▲			(2) ▲		
16 Channels	**ABE7R16S●●●**								▲	▲			▲		
	ABE7R16T●●●			▲					▲	▲			▲		
	ABE7P16T●●● (6)								▲	▲			▲		
	ABE7S16S●●●			▲					(3) ▲	(3) ▲			(3) ▲		
Modules for Analog Counter I/O															
	ABE7CPA01										▲				
	ABE7CPA02													▲	▲
	ABE7CPA03													▲	
	ABE7CPA21										▲				

Technical Overview pages: 26 - 35 Module Selection pages: 36 - 40, 42 Cable Selection page: 51 Accessory Selection pages: 41, 43 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

(1) With Telefast 2 modules with no channel LED.
(2) With splitter block ABE7ACC02.
(3) ABE7S16S2B2 module only.
(4) Input only.
(5) Power supply 24 Vdc without cable.
(6) Do not use with ABE7ACC21 and ABE7ACC20.
(7) Cable with 25-way SUB-D connector at Telefast end. Labelled bare wires at PLC end (see diagram on page 62).
▲ Pre-wired cables are available.

Modules with Removable Output Relays

Relay for Modules ABE7●16T♦♦♦	Relay width 10 mm					Relay width 5 mm	
Relay	ABR7S21	ABR7S23	ABS7SA2M	ABS7SC2E	ABE7ACC20	ABR7S11	ABS7SC1B
Function	Relay 1 N/O	Relay 1 C/O	Output 230 Vac - 0.5 A	Output 48 Vdc - 0.5 A	Continuity 0.5 A	Relay 1 N/O	Output 24 Vdc - 2 A
Modules							
ABE7●16T210	▲	▲	▲	▲	▲		
ABE7●16T111/M111						▲	▲
ABE7●16T212	▲	▲	▲	▲	▲		
ABE7●16T214	▲	▲	▲	▲	▲		
ABE7●16T215	▲	▲	▲	▲	▲		
ABE7●16T230		▲	▲	▲	▲		
ABE7●16T231		▲					
12.5 mm Wide Relays for Modules ABE7●16T3♦♦							
Relay	ABR7S33	ABR7S37	ABS7SA3M	ABS7SC3E	ABS7SC3BA	ABE7ACC21 (1)	
Function	Relay 1 C/O	Relay 2 C/O	Output 230 Vac-1.5 A	Output 48 Vdc-1.5 A	Output 24 Vdc-2A Protected	Continuity 0.5 A	
Modules							
ABE7●16T318	▲		▲	▲		▲	
ABE7●16T330	▲		▲	▲	▲	▲	
ABE7●16T332	▲		▲	▲	▲	▲	
ABE7●16T334	▲		▲	▲		▲	
ABE7●16T370		▲					
ABE7P08T330	▲		▲	▲	▲	▲	

(1) Product mounted on removable input modules ABE7P16F3♦♦

● Can be replaced by a P or R

▲ Compatible

General System Environment

Approvals	UL File: E164866 CCN: NRAQ CSA: File LR89150 Class 3211 07		Entire range of modules	
	LROS, BV, GL, DNV		Modules with fixed screw terminal block only.	
Degree of Protection	Conforming to IEC 60529 (against direct contact)		IP 2X	
Protective Treatment			"TC"	
Resistance to Incandescent Wire	Conforming to IEC 60695-2-1	**°C**	750: extinguish time < 30 s	
Shock Resistance	Conforming to IEC 60068-2-27	**ms**	11 (half sine wave), 15 g (acceleration)	
Vibration Resistance	Conforming to IEC 60068-2-6	**Hz**	10 to 150, 2 g (acceleration)	
Resistance to Electrostatic Discharge	Conforming to IEC 61000-4-2		Level 3	
Resistance to Radiated Fields	Conforming to IEC 61000-4-3	**MHz** **V/m**	26 to 1000-Level 3 10	
Resistance to Fast Transients	Conforming to IEC 61000-4-4		Level 3	
Resistance to Shockwaves	Conforming to IEC 61000-4-5	**µs**	1.2/50 - 8/20	
Ambient Air Temperature	For operation, conforming to IEC 61131-2 For storage, conforming to IEC 61131-2	**°F (°C)** **°F (°C)**	23 to 140 (- 5 to + 60) -40 to +176 (- 40 to + 80)	
Insulation Voltage (for 1 minute)	Terminal/mounting rails	**kV**	2	
Installation Category	Conforming to IEC 60664		II	
Degree of Pollution	Conforming to IEC 60664		2	
Mounting	Standard rail		15 mm high ⎓ rail or solid plate with ABE7ACC01	
Cable c.s.a. Screw terminals			1 conductor	2 conductors
	Stranded wire without cable end	**mm²** **AWG**	0.14 to 2.5 26 to 14	– –
	Stranded wire with cable end	**mm²** **AWG**	0.09 to 1.5 28 to 16	0.09 to 0.75 28 to 20
	Solid wire	**mm²** **AWG**	0.14 to 2.5 26 to 12	0.2 to 2.5 24 to14
Tightening Torque	Using 3.5 mm screwdriver blade	**lb-in** **(N●m)**	5.4 (0.6)	

Compatibility pages: 14 - 25 Module Selection pages: 36 - 40, 42 Cable and Accessary Selection page: 41, 43 - 51 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

Passive Connection Modules for Discrete Signals and Removable Relay Modules, With and Without Relays

General Characteristics													
Type of Module			**Passive connection module for discrete signal**							**Removable relay modules**			
ABE7			**H20E●●● H32E●●● **	**H16C●● H16CM**	**H16R●● H16S21 H16C31**	**H16R23**	**H16F43 H16S43**	**H12R●● H12S21**	**H08R●● H08S21**	**R16T2●● P16T2●● ●16T111 ●16M111**	**R16T3●● P08T330 P16T3●●**	**R16T370**	**P16F31●**
Number of Channels			16	16	16	16	16	12	8	16/8	16/8	16	16
Function	Input		●	H16C	●	Type 2 (1)	H16S43	●	●	–	–	–	●
	Output		●	H16C	●	–	H16F43	●	●	R16T2●● P16T2●● ●16T111	●	●	–
	Input and Output		–	H16CM●1	–	–	–	–	–	●16M111	–	–	–
Channel and Power Supply Indication			Via green LED (for products equipped with indication)										
Blown Fuse Indication			–				Via red LED	–					
Power Supply Characteristics (PLC end)													
Supply Voltage	**DC**	V	19 to 30 conforming to DIN 19240, IEC 1131 (Un = 24)										
Maximum Permissible Supply Current to Each Module	**DC**	A	1.8					6.1	4.1	1			
Voltage Drop on Power Supply Fuse	**DC**	V	0.3					0.2		0.3			
Protection Against Power Supply Overloads and Short-circuits require quick-blow fuse (supplied)		A	2				F43:2 S43:1	6.3		1			
Output Circuit Characteristics													
Maximum Voltage Drop per Channel	**DC**	V	–				F43:2 S43:0.1	–		See relay characteristics on page 29.			
Maximum Permissible Current per Channel	**DC**	mA	500				125	500		See temperature derating curves on page 32.			
Maximum Permissible Current per Output Common	**DC**	A	1.8					6.1	4.1	16		–	
Current Drawn by Channel LED at Un	**DC**	mA	3.2			10	3.2						
Permissible Leakage Current without Illuminating Channel LED (PLC I/O connected)	**DC**	mA	1.5			4	1.5						
Opening of Circuit Isolators			Under no load										
Channel Fuse Protection (supplied with product)		A	–				0.125	–		0.5 (2)	2 (2)	–	
Rated Insulation Voltage Conforming to IEC 947-1 Coil Circuit / Contact Circuit		V	–							300			
Rated Impulse Withstand Voltage (1.2/50)		kV	–							2.5			

Compatibility pages: 14 - 25 Module Selection pages: 36 - 40, 43 Cable and Accessory Selection pages: 41, 43 - 51 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

(1) Compatible with MODICON TSX Micro and Premium PLC inputs only, for connection of 2-wire sensors, d.c.
(2) If the modules are supplied with fuses (depending on model).

Solid State Input Modules with Soldered or Removable Input Relays

Type of Module and Relay			Modules with soldered solid state input relays					Removable input relays						
								Solid state						E.M. (1)
			ABE7S16					ABS7						ABR7
			E2B1	E2E1	E2E0	E2F0	E2M0	EC3AL	EC3B2	EC3E2	EA3E5	EA3F5	EA3M5	S33E
			–					For mounting in ABE7P16F31● modules.						
Control Circuit Characteristics for 1 Channel (sensor end)														
Rated Voltage Us	**DC**	V	24	48	–	–	–	5 (TTL)	24	48	–	–	–	48
50/60 Hz	**AC**	V	–	–	48	110/130	230/240	–	–	–	48	110/130	230/240	–
Max. Voltage (IEC 1131-2)	**DC**	V	30	60	–	–	–	6	30	60	–	–	–	60
(including ripple)	**AC**	V	–	–	53	143	264	–	–	–	53	143	264	–
Maximum Current (Ie) at Us	**DC**	mA	12	13	–	–	–	15	15	15	–	–	–	13
	AC	mA	–	–	12	8.3	8	–	–	–	12	8.3	8	–
State 1 Guaranteed	**DC**	V/mA	15/2	30/6	–	–	–	3.75/4.5	11/6	30/6	–	–	–	34/8.2
U ≥ .../I ≥ ...	**AC**	V/mA	–	–	32/5	79/5	164/4.5	–	–	–	32/5	79/5	164/4.5	–
State 0 Guaranteed	**DC**	V/mA	5/2	10/2	–	–	–	2/0.09	5/2	10/2	–	–	–	3.6/0.8
U ≤ .../I ≤ ...	**AC**	V/mA	–	–	10/1.5	30/2	40/2	–	–	–	10/1.5	30/2	40/2	–
Conforming to IEC 1131			Type 1	Type 2	Type 1	Type 1	Type 1	–	Type 2	Type 2	Type 1	Type 1	Type 1	–
External Protection		Quick-blow fuse (sized according to sensors)												
Removable Terminal Block		Yes						No						
Output Circuit Characteristics (PLC end)														
Rated Operational Voltage Ue	**DC**	V	24											
Minimum/maximum Voltage (IEC 1131-2)	**DC**	V	19/30											
Minimum/maximum Switching Current	**DC**	mA	1/15											
Maximum Residual Current at State 0	**DC**	mA	0.1											–
Maximum Voltage Drop at State 1	**DC**	V	1											–
Internal Protection			Against short-circuits					–						
Power Supply Protection			5 x 20 quick-blow fuse, 1 A											
Other Characteristics														
Maximum Response Time	**0 ➜1** **1 ➜0**	ms ms	0.05 0.4		20 20			0.05 0.4		20 20				13 (2) 13 (2)
Maximum Switching Rate Duty cycle 50%		Hz	1000		25			1000		25				5 (no load) 0.5 (at Ie)
Dielectric Strength To IEC 947-1 Between Input/output		V	2000 (50/60 Hz) - 1 mm											
Rated Impulse Withstand Voltage (1.2/50) To IEC 947-1 Input/output		kV	2.5											
Mechanical Durability In millions of operating cycles			–											20

Compatibility pages: 14 - 25 Module Selection pages: 36 - 40, 43 Cable and Accessory Selection pages: 41, 43 - 51 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

(1) Electromechanical
(2) Including bounce (max. 1.6 ms)

Solid State Output Modules with Soldered or Removable Output Relays

Type of Module and Relay			Solid state output modules soldered			Removable solid state output relays					
			ABE7S			ABS7					
			●●S2B0 (1)	16S1B2	08S2B1 (1)	SC1B	SC2E	SA2M	SC3BA	SC3E	SA3M
			–			–	For module ABE7●16T21●		For mounting on module ABE7●16T3●●		
Control Circuit Characteristics for 1 Channel (PLC end)											
Number of Channels			8 or 16	16	8	–	–	–	–	–	–
Rated Voltage Us	**DC**	V	24								
Min/max Voltage (IEC 1131-2)	**DC**	V	19/30								
Current per Channel at Us (Channel + LED)	**DC**	mA	4.5 (including LED)			7 + 3.2	4 + 3.2	9 + 3.2	4 + 3.2	4 + 3.2	9 + 3.2
State 1 Guaranteed (2)	**DC**	V	16.9			16	18.6				
		mA	3.1			5.5	2.9	6.5	2.9	2.9	6.5
State 0 Guaranteed	**DC**	V	3.4			10	3.8	2.8	3.8	3.8	2.8
		mA	0.4								
Compatible with PLC Output (1)	**DC**	mA	≤ 100	–	≤ 500	All types of output					
Power supply protection			2 A quick-blow fuse			See module characteristics page 27.					
Output Circuit Characteristics (pre-actuator end)											
Maximum Current per Common Screw		A	8 dc	9 dc	10 dc	12	16 dc	16 ac	16 dc	16 dc	16 ac
Switching Current per Channel (5)		A	0.5 dc	0.7 dc	2 dc	2 dc	0.5 dc	0.5 ac	2 dc	1.5 dc	1.5 ac
Rated Operational Voltage Ue		V	24			24 dc	5-48 dc	24/240 ac	24 dc	5 to 48 dc	24 to 240 ac
Maximum Voltage (IEC 1131-2)		V	30			30 dc	57.6 dc	264 ac	30 dc	60 dc	264 ac
Maximum Residual Voltage at In		V	0.6	0.3	0.5	0.12 dc	1 dc	1.1 ac	0.3	1.3 dc	1.3 ac
Rated Operational Current Ie ≤ 140 ° F (60 °C) Maximum per Channel	**DC12**	A	0.5	0.7	2	2	0.5	–	2	1.5	–
	DC13	A	0.5	0.7	1 (3)	2	0.5	–	2	1.5	–
	AC12	A	–	–	–	–	–	0.5	–	–	1.5
	AC14	A	–	–	–	–	–	0.5	–	–	0.7
	DC6	W	10		–	–	10	–	10	–	–
Minimum Current per Channel		mA	1			1 dc	1 dc	10 ac	10 dc	1 dc	10 ac
Maximum Residual Current		mA	0.3	0.5		0.1	0.5 dc	2 ac	2 dc	0.3 dc	2 ac
Faults Detected			Auto-protected Overload and short-circuit			–	–	–	Auto-protected Overload & short-circuit	–	–
Report of Fault Detected (4)			Yes	No	Yes	No					
Switchable Inductive Energy L/R (without additional discharge device)		ms	≤ 400/(U.I)		≤ 1700/(U.I)	2 (U.I)	–	– (U.I)	≤ 1700/	–	–
Circuit-breaker Threshold		A	≥ 0.75		≥ 2.6	–	–	–	2.5	–	–
External Protection			By adjustable quick-blow fuse								
Removable Terminal Block			Yes			No					
Other Characteristics											
Rated Insulation Voltage Conforming to IEC 947-1		V	Not insulated			300					
Maximum Response Time on Resistive Loads	**0 ➜1**	ms	0.1	0.2	0.1	0.01	0.1	10	0.2	0.1	10
	1 ➜0	ms	0.02	0.1	0.02	0.4	0.6	10	0.1	0.6	10
Switching Frequency on Inductive Loads		Hz	< 0.6/ LI²		< 0.5/ LI²	300					
Rated Impulse Withstand Voltage		V	–			2.5			–		

Compatibility pages: 14 - 25 Module Selection pages: 36 - 40, 42 Cable and Accessory Selection pages: 41, 43 - 51 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

(1) Only for use on PLC modules (output interfaces) with integral protection (auto-protected outputs).
(2) On versions with LED indication.
(3) With free-wheel diode on load, the DC13 value is equal to the value of DC12 x 0.9.
(4) 940A fault on a module output Qn will set PLC output Qn to safety mode, which will be detected by the PLC.
(5) See derating curves page 32.

Electromechanical Output Relay Modules with Soldered or Removable Electromechanical Output Relays

Type of Module and Relay				E.M. output relay modules with soldered relays			Removable electromechanical output relays				
				ABE7			ABR7				
				R●●S111	R●●S21●	R08S216	S21	S23	S33	S37	S11
				–		–	For mounting on ABE7 modules				
							P16T21● R16T21●	P16T23●	P16T3●● R16T3●●	R16T370	●16T111 ●16M111
Control Circuit Characteristics for 1 Channel (PLC end)											
Rated Voltage Us			Vdc	24							
Tripping Threshold at 104 °F (40 °C)			Vdc	19.2	19.7	19.2 (1)	19.7		16.8		16.8
Drop-out Voltage at 69 °F (20 °C)			Vdc	2.4		–	2.4		3.6		2
Maximum Operational Voltage			Vdc	30							
Maximum Current at Us per Channel	Coil + LED		mA	9 + 3.2	15 + 3.2	12.5 + 3.2	15 + 3.2		25 + 3.2		7 + 3.2
Drop-out Current at 68 °F (20 °C)			mA	0.5	1	–	1		3.5		0.5
Maximum Dissipated Power at Us			W	0.22	0.36	0.3	0.36		0.6		0.170
Loss of Voltage	Max. time not affecting the hold		ms	5		3	5				1
Power Supply Protection				1A quick-blow fuse							
Contact Characteristics (pre-actuator side, at ambient temperature of 68 °F (20 °C)											
Contact Composition				1N/O	1N/O	1N/O	1N/O	1C/O	1C/O	2C/O	1N/O
Maximum Switching Voltage	To IEC 60947-5-1		Vac Vdc	250 30		380 220	250 130		264 130		250 30
Frequency of Operational Current			Hz	50/60							
Number of Channels per Common				4 (08S111) 8 (16S111)	8	Volt-free	8		4		4
Maximum Current per Channel (limited by module)	Volt-free With common		A A	– 2	5 4	2 A –	5 4	5 4	5 5	5 –	5 3
Maximum Current per Common Screw			A	12	10	–	16	16	12		12
Relay Maximum Current (Ith)			A	2	5	5	5	5	10	8	6
Current for 500, 000 Operating Cycles	24 V	DC 12	A	0.6	1.5	2	1.5	1.2	3	2.5	3
	24 V L/R = 10 ms	DC 13	A	0.2	0.6	1.5	0.6	0.45	1.4	1	0.5
	230 V	AC 12	A	0.6	1.5	2	1.5	1.2	3	2.5	2
	230 V	AC 15	A	0.4	0.9	1	0.9	0.7	1.7	1.3	0.4
Minimum Switching Current	At 5 V minimum voltage		mA	1	10	2	10		100		100
Short-circuit Protection	For Ik < 1 kA (AC) and < 100 A (DC)			High breaking capacity fuse							
Fuse Fitted as Standard/channel			A	–		–	0.5		2		–
Low Level Contact Reliability Number of Faults	(1/n million operating cycles)			17 V/5 mA 1/100		**10 V/2 m**A 1/2	17 V/10 mA 1/100		1/100		Not available
Removable Terminal Block				Yes			No				
Other Characteristics (at ambient temperature of 68 °F (20 °C)											
Maximum Operating Time at Us (including bounce)	Between energizing the coil and closing of the N/O contact		ms	10		5	10		13	15	5
	Between de-energizing the coil and opening of the N/O contact		ms	6	5	4	5		13	20	2.5
Maximum Bounce Time	N/O contact		ms	5		2	5		1.6	4	1.5
	N/C contact		ms	–		–	–	7.5	5.5	7.5	–
Maximum Operating Rate	No load			10 Hz		180/min	10 Hz		5 Hz		1200/min
	At Ie			0.5 Hz		30/min	0.5 Hz				6/min
Mechanical Durability	In millions of operating cycles			20		20	20				20
Dielectric Strength Coil circuit/contact circuit	Conforming to IEC 60947-1		V	2000 (50/60 Hz) - 1 mm							4
Rated Impulse Withstand Voltage (1.2/50)	Conforming to IEC 60947-1		kV	2.5		5	2.5				6

Compatibility pages: 14 - 25 Module Selection pages: 36 - 40, 42 Cable and Accessory Selection pages: 41, 43 - 51 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

(1) Latching
EM = Electromechanical

Accessories, Analog Modules

General Characteristics

Type of Accessory ABE7		ACC02	ACC20 (1)	ACC21 (1)	ACC80	ACC81	ACC82	ACC83	BV10	BV20
Description		Splitter module	Removable continuity blocks with internal fuse		Enclosure feedthrough				Additional clip-in terminal block	
Number of Channels		16/2 x 8	1	1	32/2 x 16	32/2 x 16	16	8 or 12	8	16
Type of Connector Number of ways at PLC end		1 x HE 10 20-way	–	–	2 x HE 10 20-way	–	1 x HE 10 20-way	1 x HE 10 20-way	–	
Type of Connector Number of ways at Operative part end		2 x HE 10-way	–	–	Industrial 40-way		Cylind. M23 CNOMO 19-way, female		–	
					Male	Female				
Min/max Connectable c.s.a.	mm^2	–	–	–	0.75/2.5	0.5/1.5	0.75/2.5		0.14/2.5	
Min/max Cable Diameter	mm	–	–	–	–	10 to 19	–		–	
Type of Terminal Block		–	–	–	Spring or screw	Spring or screw	Spring or screw	Spring or screw	Screw	Screw
Protection Index		IP20	IP 20	IP 20	IP 65	IP 65	IP 65	IP 65	IP 65	IP 65
Rated Voltage Us	V	24	24	24	24	24	24	24	24	24
Maximum Current at Us per Channel	A	0.5	–	–	0.5	0.5	0.5	0.5	0.5	0.5
Maximum Supply Current at Us	A	2	–	–	4 (2 X HE10)	4	2	6	16	16
Switching Capacity	A	–	0.5		–					
Circuit-breaker Threshold	V	–	0.5		–					

General Characteristics (continued)

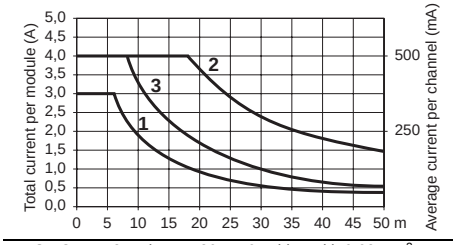
Type of Module ABE7		CPA01	CPA11	CPA12	CPA02	CPA21	CPA03	CPA31	CPA13	TES 160
Description		Analog counter	Counter/ motion	Thermo-couple	Analog signal connection module				Safety	Simulation and forcing module
Number of Channels		(2)	1	16 (Telefast CJC made) (3) 14 (external CJC made)	8 passive connection point to point	4 passive connection point to point	8 sensor supply distribution	8 isolated, Isolated sensor supply distribution	12 double contact emergency stops	16
Protection Index		IP 20								
Power Supply	V	–	11 to30 5	–	–	–	24 IEC	24 IEC isolated dc/dc	24 IEC -20 + 25%	–
Automatic Limitation Per Channel	mA	–	–	–	–	–	25		–	–
Maximum Consumption	mA	–	130	–	–	–	300		–	–
Operating Temperature	°F (°C)	0° to 140° (0 to 60)	–						14° to 140° (-10 to + 60)	–
Dielectric Strength, Channel/ground	V	–	1000	–	–	–	1000		700	–
Isolation Between Channels	V	–	–	–	–	–	1000		–	–
Logic		Positive or negative (4)		–	–	–	–	–	–	–
Compatibility with Encoder Output		Totem-pole 10 to 30 V 5 Vdc RS422	Totem-pole 11 to 30 V TTL 5 V transistors open collectors 11 to 30 V	–	–	–	–	–	–	–
Low Input Voltage (VIL)	V	–	0< VIL < 24	–	–	–	–	–	–	–
High Input Voltage (VIH)	V	–	3.9 < VIH < 30	–	–	–	–	–	–	–
Connection, Process Side		Fixed screw terminal block						Removable screw term.	Fixed screw term.	–
Connection, PLC Side		SUB D 15-way female	SUB D 15-way male	2 x SUB D 25-way male	1 x SUB D, 25-way male				1 x SUB D 50-way	1 x HE 10 20-way and screw term.
Overvoltage Protection on Current Inputs		–	–	–	–	–	Zener 8.5 V		–	–
Current Loop Continuity		–	–	–	–	–	Zener 8.5 V		–	–
Maximum Overvoltage on Inputs	V	–	–	–	–	–	± 30		–	–
Maximum Current on Inputs	mA	–	–	–	–	–	± 30		–	–
Standards		–	–	–	–	–	IEC 61131, CSA22 2, UL 508 (5)			
Permissible Common Mode Voltage Between Channels	V	–	–	250	–	–	–	–	–	–
Permissible Common Mode Voltage Between Channel and Ground	V	–	–	250	–	–	–	–	–	–
Maximum Current on Integrated Commons	A	–	–	–	–	–	–	–	–	2
Rated Voltage Us	V	–	–	–	–	–	–	–	–	24

Compatibility pages: 14 - 25 Module Selection pages: 36 - 40, 42 Cable and Accessory Selection pages: 41, 43 - 51 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

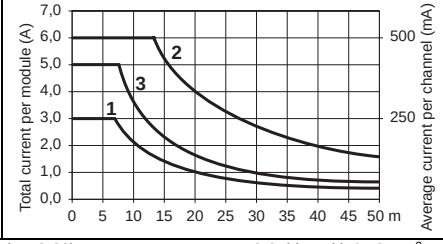
(1) See module compatibility, page 26.
(2) 1 channel for TSX CTZ1A, 2 for TSX CTZ2A●, 8 for TSX 37 22
(3) CJC: Cold Junction Compensation
(4) Positive: U < 2.4 V 0L, U > 3.9 V 1L; Negative: U < 2.4 V 1L, U > 3.9 V 0L
(5) Add BG standard for ABE7CPA13

Calculation Curves to Determine the Cable and its Length According to the Current (1)

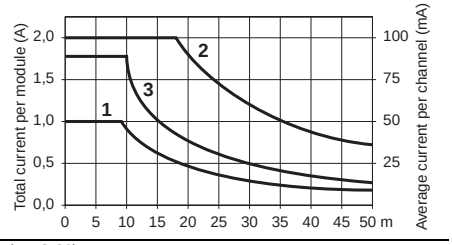
8-channel module



12-channel module



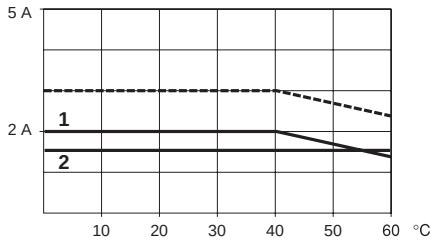
16-channel module



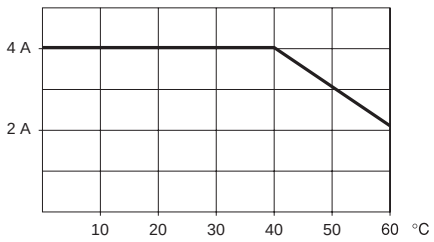
1 TSX CDP●●2 and ABFH20H●●0 cables with 0.08 mm² c.s.a. (AWG 28)
2 TSX CDP●●3 cables with 0.34 mm² c.s.a. (AWG 22)
3 Cables with 0.13 mm² c.s.a. (AWG 26)

Temperature Derating Curves for Modules and Removable Relays (2)

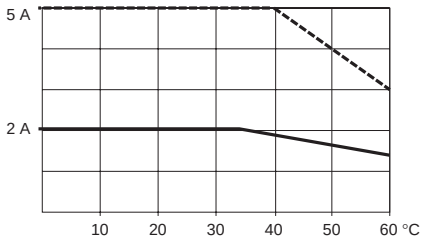
ABE7R●●S111 Curve 1
ABE7R1●●S212 Curve 2



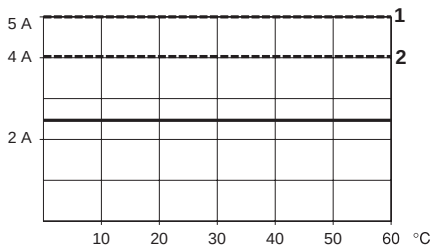
ABE7P16T214



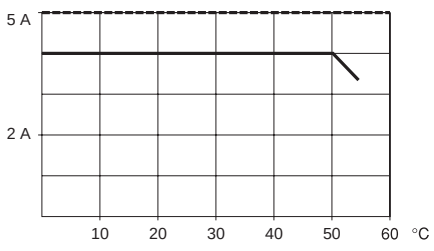
ABE7P16T215, ABE7P16T23●



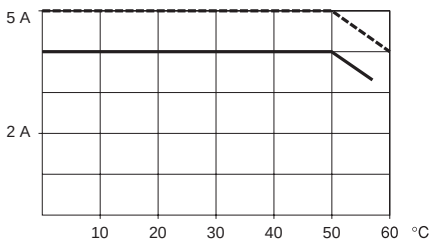
ABE7●16T21● Curve 1
ABE7P16T334 Curve 2



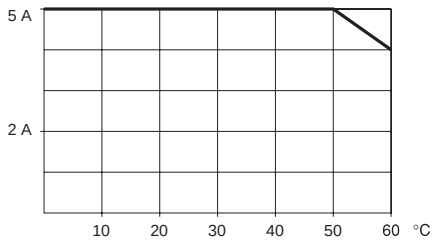
ABE7●16T332, ABE7P16T318



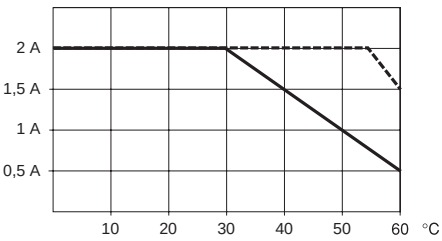
ABE7●16T330



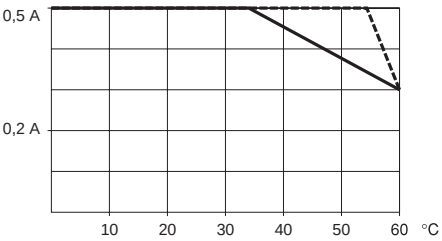
ABE7R16T370



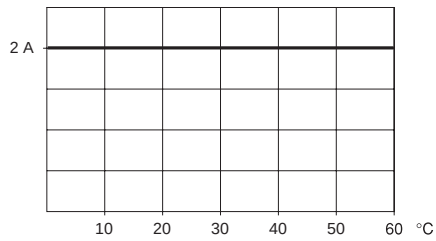
ABS7SC1B



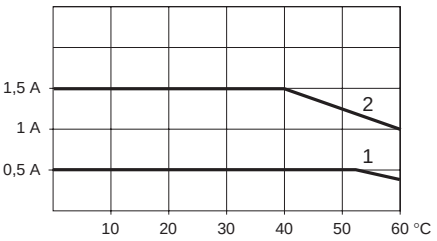
ABE7SA2M



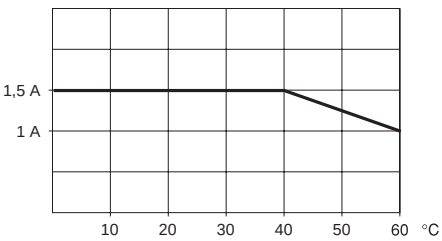
ABS7SC3BA



ABS7SC2E Curve 1 +
ABS-7SC3E Curve 22



ABS7SA3M



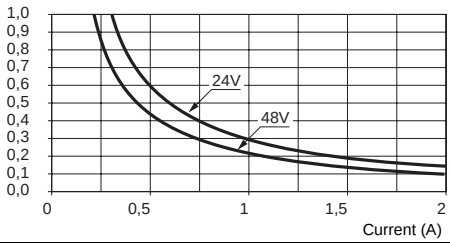
——— 100% of channels uses
- - - - - 50% of channels

Compatibility pages: 14 - 25 Module and Relay Selection pages: 36, 42 Cable Selection pages: 43 - 51 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

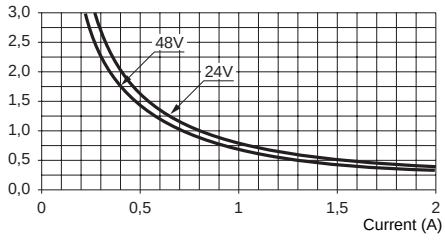
(1) The curves are given for a voltage drop of 1 V in the cable. For n volts tolerance, multiply the length determined from the graph by n.
(2) There is no derating for ABE7S08S2B1, ABE7S●●S2B0, ABE7S16S2B2 output modules, or for ABS7EC●●● and ABE7EA●●● solid state input relays

Electrical Durability (in millions of operating cycles) (conforming to IEC 60947-5-1)

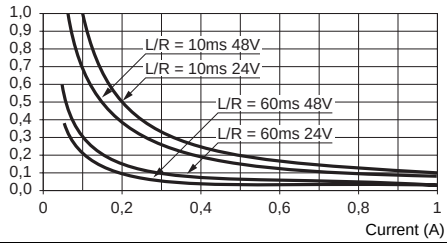
ABE7R●●S111
d.c. loads
DC12 curves (1)

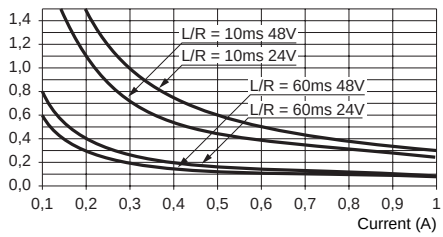


ABE7R●●S2●●, ABR7S2● (6), ABE7R16T2●●

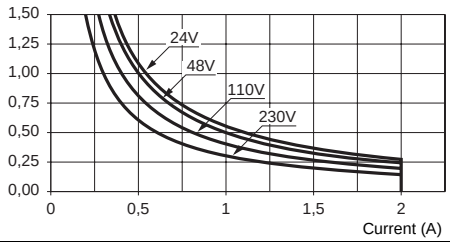


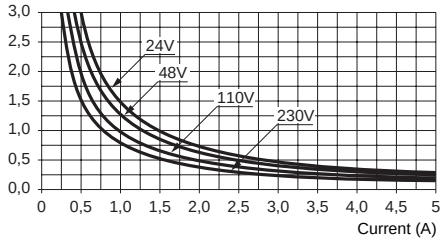
DC 13 curves (2)



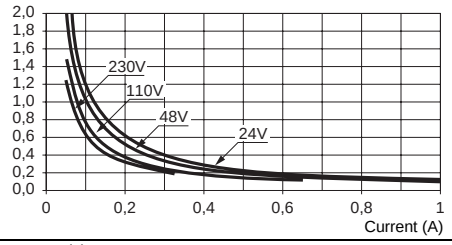


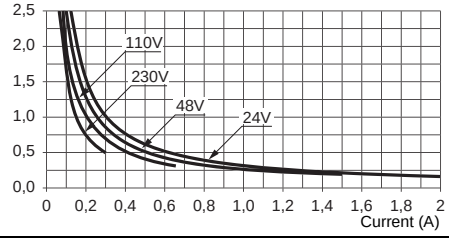
a.c. loads
AC 12 curves (3)



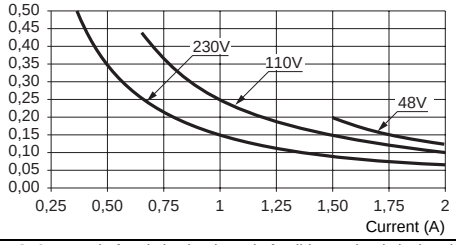


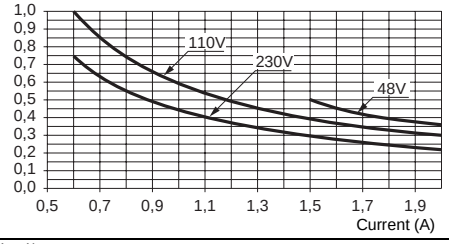
AC 14 curves (4)





AC 15 curves (5)





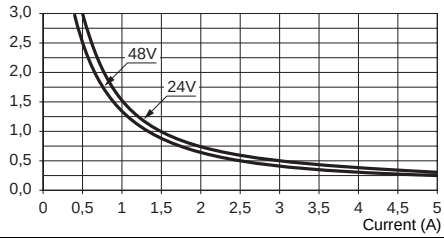
Note:
The products durability on this page are based on average usage and normal operating conditions. Actual life will vary with conditions. The above statements are not intended to, nor shall they create any expressed or implied warranties as to product operation or life. For information on the listed warranty offered on this product, refer to the Square D terms and conditions of sale found in the Square D Digest.

(1) DC12: control of resistive loads and of solid state loads isolated by optocoupler, I/R ≤ 1 ms
(2) DC13: control of electromagnets, L/R ≤ 2 x (Ue x Ie) in ms, Ue: rated operational voltage, Ie: rated operational current (with a protective diode on the load, DC12 curves must be used with a coefficient of 0.9 applied to the number in millions of operating cycles).
(3) AC12: control of resistive loads and of solid state loads isolated by optocoupler, cos φ ≥ 0.9
(4) AC14: control of small electromagnetic loads ≤ 72 VA, make: cos φ = 0.3, break: cos φ = 0.3
(5) AC15: control of electromagnetic loads > 72 VA, make: cos φ = 0.7, break: cos = 0.4
(6) Multiply all durability values by 0.75 for ABS7S23 and for ABR7S37

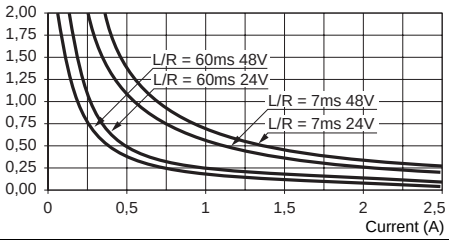
Compatibility pages: 14 - 25 Module and Relay Selection pages: 36 - 42 Cable and Accessory Selection pages: 41, 43 - 51 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

Electrical Durability (in millions of operating cycles) (conforming to IEC 60947-5-1)

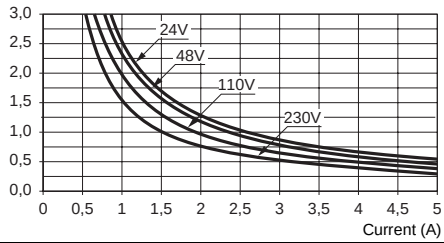
ABR7S3● (1), ABE7P16T3●● and ABE7R16T3●●
d.c. loads
DC12 curves (2)



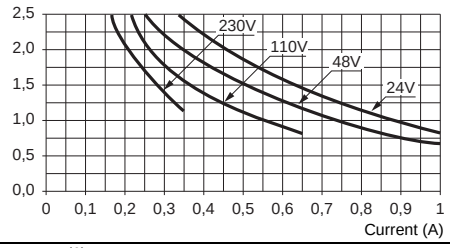
DC 13 curves (3)



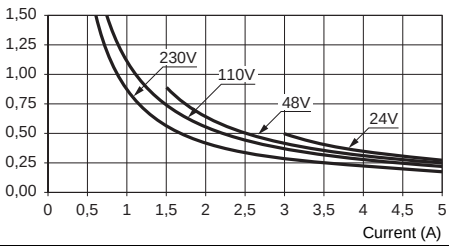
a.c. loads
AC 12 curves (4)



AC 14 curves (5)



AC 15 curves (6)



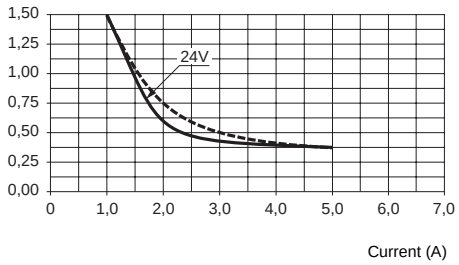
Note:
The products durability on this page are based on average usage and normal operating conditions. Actual life will vary with conditions. The above statements are not intended to, nor shall they create any expressed or implied warranties as to product operation or life. For information on the listed warranty offered on this product, refer to the Square D terms and conditions of sale found in the Square D Digest.

(1) Multiply all the durability values by 0.75 for ABS7S23 and for ABR7S37
(2) DC12: control of resistive loads and of solid state loads isolated by optocoupler, $l/R \leq 1$ ms
(3) DC13: control of electromagnets, $L/R \leq 2 \times (Ue \times Ie)$ in ms, Ue: rated operational voltage, Ie: rated operational current (with a protective diode on the load, DC12 curves must be used with a coefficient of 0.9 applied to the number in millions of operating cycles).
(4) AC12: control of resistive loads and of solid state loads isolated by optocoupler, $\cos \varphi \geq 0.9$
(5) AC14: control of small electromagnetic loads ≤ 72 VA, make: $\cos \varphi = 0.3$, break: $\cos \varphi = 0.3$
(6) AC15: control of electromagnetic loads > 72 VA, make: $\cos \varphi = 0.7$, break: $\cos \varphi = 0.4$

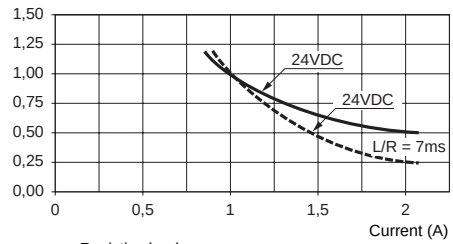
Compatibility pages: 14 - 25 Module and Relay Selection pages: 36 - 42 Cable and Accessory Selection pages: 41, 43 - 51 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

Electrical Durability (in millions of operating cycles) (conforming to IEC 60947-5-1)

ABE7R16 111
d.c. loads
DC12 curves (1)

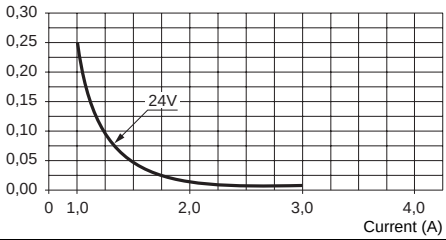


ABE7R08S216

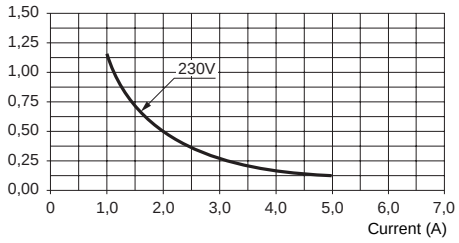


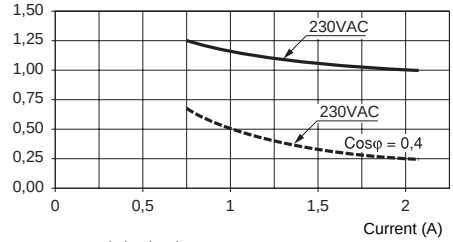
Resistive loads
Inductive loads

DC 13 curves (2)



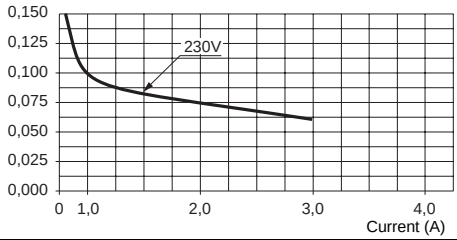
a.c. loads
AC 12 curves (3)





Resistive loads
Inductive loads

AC 15 curves x(4)



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(1) DC12: control of resistive loads and of solid state loads isolated by optocoupler, I/R ≤ 1 ms
(2) DC13: control of electromagnets, L/R ≤ 2 x (Ue x Ie) in ms, Ue: rated operational voltage, Ie: rated operational current (with a protective diode on the load, DC12 curves must be used with a coefficient of 0.9 applied to the number in millions of operating cycles).
(3) AC12: control of resistive loads and of solid state loads isolated by optocoupler, cos φ ≥ 0.9
(4) AC15: Control of electromagnetic loads > 72 VA, make: cos = φ 0.7, break: cos φ = 0.4

Compatibility pages: 14 - 25 Module Selection pages: 36 - 40, 42 Cable and Accessory Selection pages: 41, 43 - 51 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

Passive Connection Modules for Discrete Signals

"Low Cost" Modules

ABE-7H20E●●●

Function	No. of Channels	No. of Terminals		For PLC's	Length of PLC Connection Cable Ft. (Meters)	Type of Connection	Catalog Number	Weight lb (kg)
		per channel	on row number					
Input or Output	16	1	2	MODICON TSX Micro/Premium	3.28 (1)	Screw	**ABE7H20E100**	0.73 (0.330)
					6.56 (2)	Screw	**ABE7H20E200**	0.90 (0.410)
					9.84 (3)	Screw	**ABE7H20E300**	1.06 (0.480)
				SIEMENS S7	4.92 (1.5)	Screw	**ABE7H32E150**	0.79 (0.360)
					9.84 (3)	Screw	**ABE7H32E300**	1.01 (0.460)

"Miniature" Modules

ABE7H16C21

Function	No. of Channels	No. of Terminals		LED per Channel	Polarity Distribution	Type of Connection	Catalog Number	Weight lb (kg)
		per channel	on row number					
Input or Output	16	1	1	No	No	Screw	**ABE7H16C10**	0.35 (0.160)
				Yes	No	Screw	**ABE7H16C11**	0.35 (0.160)
		2	2	Yes	0 or 24 V	Screw	**ABE7H16C21**	0.45 (0.205)
		3	3	Yes	0 or 24 V	Screw	**ABE7H16C31**	0.57 (0.260)
Input or Output	16	1	1	Yes	No	Screw	**ABE7H16CM11**	0.35 (0.160)
		2	2	Yes	0 or 24 V	Screw	**ABE7H16CM21**	0.44 (0.200)

Compatibility pages: 14 - 25 Technical Overview pages: 26 - 35 Cable and Accessory Selection pages: 43 - 51 Approximate Dimension page: 52
Wiring Diagram page: 55

(1) 8 I + 8 Q: these products have 2 common connections which enable inputs and outputs to be connected to the same module at the same time.

Passive Connection Modules for Discrete Signals (continued)

	Function	No. of Channels	No. of Terminals		LED per Channel	Polarity Distribution	Isolator (I) Fuse (F) per Channel	Type of Connection	Catalog Number	Weight lb (kg)
			per channel	on row number						
 **ABE7H16R50**	Input or Output	8	1	1	No	No	–	Screw	**ABE7H08R10**	0.41 (0.187)
					Yes	No	–	Screw	**ABE7H08R11**	0.41 (0.187)
			2	2	Yes	0 or 24 V	–	Screw	**ABE7H08R21**	0.48 (0.218)
							I	Screw	**ABE7H08S21**	0.54 (0.245)
		12	1	1	No	No	–	Screw	**ABE7H12R10**	0.60 (0.274)
					Yes	No	–	Screw	**ABE7H12R11**	0.60 (0.274)
				2	No	No	–	Screw	**ABE7H12R50**	0.43 (0.196)
			2	2	No	0 or 24 V	–	Screw	**ABE7H12R20**	0.66 (0.300)
					Yes	o or 24 V	–	Screw	**ABE7H12R21**	0.66 (0.300)
							I	Screw	**ABE7H12S21**	0.83 (0.375)
 **ABE7H16R31**		16	1	1	No	No	–	Screw	**ABE7H16R10**	0.60 (0.274)
					Yes	No	–	Screw	**ABE7H16R11**	0.60 (0.274)
				2	No	No	–	Screw	**ABE7H16R50**	0.43 (0.196)
			2	2	No	0 or 24 V	–	Screw	**ABE7H16R20**	0.66 (0.300)
					Yes	0 or 24 V	–	Screw	**ABE7H16R21**	0.66 (0.300)
							I	Screw	**ABE7H16S21**	0.83 (0.375)
			3	3	No	0 and 24 V	–	Screw	**ABE7H16R30**	0.76 (0.346)
					Yes	0 and 24 V	–	Screw	**ABE7H16R31**	0.76 (0.346)
 **ABE7H16●43**	Type 2 Input (1)	16	2	2	Yes	0 and 24 V	–	Screw	**ABE7H16R23**	0.71 (0.320)
	Input	16	2	1	Yes	24 V	I, F (2)	Screw	**ABE7H16S43**	1.41 (0.640)
	Output	16	2	1	Yes	0 V	I, F (2)	Screw	**ABE7H16F43**	1.41 (0.640)

Compatibility pages: 14 - 25 Technical Overview pages: 26 - 35 Cable and Accessory Selection pages: 41, 43 - 51 Approximate Dimension page: 52
Wiring Diagram page: 54 - 55

(1) For MODICON TSX Micro, Premium and Numerical Controller NUM 1020/1060.
(2) With LED to indicate blown fuse.

Connection Modules with Soldered Relays and Plug-in Terminal Blocks

Modules with Soldered Solid State Input Relays, Plug-in Terminal Blocks

ABE7S16E2●●

Number of Channels	No. of Terminals per Channel	Isolation PLC / Application	Voltage V	Type of Connection	Catalog Number	Weight lb (kg)
16	2	Yes	24 Vdc	Screw	**ABE7S16E2B1**	0.82 (0.370)
			48 Vdc	Screw	**ABE7S16E2E1**	0.82 (0.370)
			48 Vac	Screw	**ABE7S16E2E0**	0.85 (0.386)
			110 Vac	Screw	**ABE7S16E2F0**	0.88 (0.397)
			230 Vac	Screw	**ABE7S16E2M0**	0.90 (0.407)

Modules with Soldered Solid State Output Relays, Plug-in Terminal Blocks

Number of Channels	Isolation PLC / Application	Output Voltage V	Output Current A	Fault Detection Signal (1)	Type of Connection	Catalog Number	Weight lb (kg)
8	No	24 Vdc	0.5	Yes (2)	Screw	**ABE7S08S2B0**	0.56 (0.252)
			2	Yes (2)	Screw	**ABE7S08S2B1**	0.99 (0.448)
16	No	24 Vdc	0.5	Yes (2)	Screw	**ABE7S16S2B0**	0.89 (0.405)
				No	Screw	**ABE7S16S1B2**	0.88 (0.400)

Modules with Soldered Electromechanical Output Relays, Plug-in Terminal Blocks

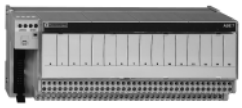
ABE7R08S216

Number of Channels	Relays Width mm	No. of Contacts	Output Current A	Polarity Distribution	Type of Connection	Catalog Number	Weight lb (kg)
8	5	1 “N/O”	2	Contact common per group of 4 channels	Screw	**ABE7R08S111**	0.54 (0.244)
		Bistable	2	Volt-free	Screw	**ABE7R08S216**	0.55 (0.250)
	10	1 “N/O”	5	Volt-free	Screw	**ABE7R08S210**	0.78 (0.352)
16	5	1 “N/O”	2	Contact common per group of 8 channels	Screw	**ABE7R16S111**	0.78 (0.352)
	10	1 “N/O”	5	Volt-free	Screw	**ABE7R16S210**	1.21 (0.547)
				Common per group of 8 channels on both poles	Screw	**ABE7R16S212**	1.21 (0.547)

Compatibility pages: 14 - 25 Technical Overview pages: 26 - 35 Cable and Accessory Selection pages: 41, 43 - 51 Approximate Dimension page 52
Wiring Diagram pages: 56, 59, 60

(1) A fault on a module output Qn will set PLC output Qn to safety mode which will be detected by the PLC.
(2) Can only be used with modules with protected outputs.

Plug-in Relay Modules



ABE7R16T210

Modules for Plug-in Solid State Input Relays (1)

No. of Channels	Terminals / Channel	For Relay Type	Isolation PLC / Application	Input Connection	Type of Connection	Catalog Number	Weight lb (kg)
16	2	ABS7E ABR7	Yes	Volt-free	Screw	**ABE7P16F310**	1.87 (0.850)
				Polarity Distribution	Screw	**ABE7P16F312**	1.87 (0.850)

ABE7R16M111

Output Modules Supplied with Plug-in Electromechanical Relays (2)

No. of Channels	Relay Width mm	Type of Relay	No. and Type of Contacts	Polarity Distribution / Application	Catalog Number	Weight lb (kg)
16	5	ABR7S11	1 N/O	Contact Common per Group of 4 Channels	**ABE7R16T111**	1.32 (0.600)
				Contact Common per Group of 4 Output Channels + 2 Input Common Terminals	**ABE7R16M111 (3)**	1.32 (0.600)
	10	ABR7S21	1 N/O	Volt-free	**ABE7R16T210**	1.62 (0.735)
				Common on Both Poles (4)	**ABE7R16T212**	1.61 (0.730)
		ABR7S23	1 C/O	Contact Common (4)	**ABE7R16T231**	1.61 (0.730)
				Volt-free	**ABE7R16T230**	1.71 (0.775)
	12	ABR7S33	1 C/O	Volt-free	**ABE7R16T330**	2.87 (1.300)
				Common on Both Poles (5)	**ABE7R16T332**	2.65 (1.200)
		ABR7S37	2 C/O	Volt-free	**ABE7R16T370**	2.87 (1.300)

Compatibility pages: 14 - 25 Technical Overview pages: 26 - 35 Cable and Accessory Selection pages: 41, 43 - 51 Approximate Dimension page 52
Wiring Diagram pages: 57 - 59

(1) Not supplied with relays
(2) Both technologies (electromechanical and solid state) may be combined on the same module.
(3) 2 connection methods are available, enabling inputs and outputs to be connected to the same module at the same time.
(4) Per group of 8 channels.
(5) Per group of 4 channels.

Plug-in Relay Modules - Without Relays

Modules for Solid State and/or Electromechanical Output Relays, Plug-in (1)

ABE7P16T2●●

No. of Channels	Relay Width mm	For Relay Type	Isolator per Channel	Fuse per Channel	Polarity Distribution / Application	Type of Connection	Catalog Number	Weight lb (kg)
16	5	ABR7S11 ABS7SC1B	No	No	Contact Common per Group of 4 Channels	Screw	**ABE7P16T111**	1.21 (0.550)
					Contact Common per Group of 4 Output Channels and 2 Common Input Terminals	Screw	**ABE7P16M111 (2)**	1.21 (0.550)
	10	ABR7S2● ABS7SA2● ABS7SC2● ABE7ACC20	No	No	Volt-free	Screw	**ABE7P16T210 (3)**	1.36 (0.615)
							ABE7P16T230 (3)	1.44 (0.655)
				Yes	Volt-free	Screw	**ABE7P16T214**	1.49 (0.675)
				No	Common on Both Poles (4)	Screw	**ABE7P16T212**	1.36 (0.615)
				Yes	Common on Both Poles (4)	Screw	**ABE7P16T215**	1.48 (0.670)
8	12	ABR7S33 ABS7SA3● ABS7SC3●● ABE7ACC21	No	No	Volt-free	Screw	**ABE7P08T330**	0.99 (0.450)
16	12	ABR7S33 ABS7SA3● ABS7SC3●● ABE7ACC21	No	No	Volt-free	Screw	**ABE7P16T330**	1.98 (0/900)
					Common on Both Poles (5)	Screw	**ABE7P16T332**	1.98 (0.900)
		ABR7S33 ABS7SA3M ABS7SC3E ABE7ACC21	No	Yes	Volt-free	Screw	**ABE7P16T334**	1.98 (0.900)
			Yes	Yes	Common on Both Poles (5)	Screw	**ABE7P16T318**	2.21 (1.000)

Compatibility pages: 14 - 25 Technical Overview pages: 26 - 35 Cable and Accessory Selection pages: 41, 43 - 51 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

(1) Not supplied with relays
(2) 2 connection methods are available, enabling inputs and outputs to be connected to the same module at the same time.
(3) With relay ABR7S21 for ABE7P16T210 module, with relay ABR7S23 for module ABE7P16T230● module.
(4) Per group of 8 channels.
(5) Per group of 4 channels.

Plug-in Relays and Accessary

Plug-in Solid State Relays

ABS7SC1B

Relay Width mm	Functions	Input Circuit		Output Circuit		Order in Multiples of:	Catalog Number	Weight lb (kg)
		Current	Nominal Voltage V	Current A (1)	Nominal Voltage V			
5	Output	Vdc	24	2	24 Vdc	4	**ABS7SC1B**	0.02 (0.010)
10	Output	Vdc	24	0.5	5 to 48 Vdc	4	**ABS7SC2E**	0.04 (0.016)
					24 to 240 Vac	4	**ABS7SA2M**	0.04 (0.016)
12	Input	Vdc	5 TTL	–	24 Vdc	4	**ABS7EC3AL**	0.03 (0.014)
			24 Type 2	–	24 Vdc	4	**ABS7EC3B2**	0.03 (0.014)
			48 Type 2	–	24 Vdc	4	**ABS7EC3E2**	0.03 (0.014)
		Vac 50 Hz	48	–	24 Vdc	4	**ABS7EA3E5**	0.03 (0.014)
		Vac 60 Hz	110 to 130	–	24 Vdc	4	**ABS7EA3F5**	0.03 (0.014)
			230 to 240	–	24 Vdc	4	**ABS7EA3M5**	0.03 (0.014)
	Output	Vdc	24	2 Self-protected	24 Vdc	4	**ABS7SC3BA**	0.04 (0.016)
				1.5	5 to 48 Vdc	4	**ABS7SC3E**	0.04 (0.016)
				1.5	24 to 240 Vac	4	**ABS7SA3M**	0.04 (0.016)

Plug-in Electromechanical Relays

ABR7S2●

Relay Width mm	Control Voltage V	Output Current (1)	No. of Contacts	Order in Multiples of:	Catalog Number	Weight lb (kg)
5	24 Vdc	5	1 N/O	4	**ABR7S11**	0.01 (0.005)
10	24 Vdc	5	1 N/O	4	**ABR7S21**	0.02 (0.008)
			1 C/O	4	**ABR7S23**	0.02 (0.008)
12	24 Vdc	10	1 C/O	4	**ABR7S33**	0.04 (0.017)
		8	2 C/O	4	**ABR7S37**	0.04 (0.017)
	48 Vdc	8	1 C/O	4	**ABR7S33E**	0.04 (0.017)

ABR7S3●

Accessory

Description	Order in Multiples of:	Catalog Number	Weight lb (kg)
Extractor for 5 mm Miniature Relays	4	**ABE7ACC12**	0.02 (0.010)

Compatibility pages: 14 - 25 Technical Overview pages: 26 - 35 Module Selection pages: 36 - 40

(1) See characteristics table for specifications of relays in the modules on page 28 - 30.

Connection Modules for Analog and Counter Channels (1)

ABE7CPA02

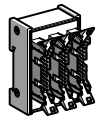
Functions	For PLC's	Compatible Modules	Type of Connection Telefast 2 Side	Type of Connection	Catalog Number	Weight lb (kg)
Counting and Analog	MODICON TSX Micro (1)	Integrated Analog and Counter TSX 37 .22 TSX CTZ●A	15-way SUB-D	Screw	**ABE7CPA01 (2)**	0.66 (0.300)
Counting Axis Control Position Control	MODICON TSX Premium (1)	TSX CTY●A TSX CAY●1	15-way SUB-D	Screw	**ABE7CPA01**	0.66 (0.300)
Parallel Output Absolute Encoder Connection	MODICON TSX Premium	TSX CTY●A TSX CAY●1	15-way SUB-D	Screw	**ABE7CPA11**	0.73 (0.330)
Distribution of 16 Thermocouples	MODICON TSX Premium	TSX AEY 614	25-way SUB-D	Screw	**ABE7CPA12**	0.66 (0.300)
Passive Distribution of 8 Channels on Screw Terminal Block with Shielding Continuity	TSX 47/107 MODICON TSX Premium (1)	TSX AEM8●1 TSX AEM16●● TSX ASY810 TSX AEY1600 TSX A●Y800	25-way SUB-D	Screw	**ABE7CPA02**	0.64 (0.290)
Distribution of 4 Analog Output Channels	MODICON TSX Premium (1)	TSX ASY410 TSX AEY420	24-way SUB-D	Screw	**ABE7CPA21**	0.46 (0.210)
Distribution and Supply of 8 Analog Channels with Limitation of Each Current Loop	TSX 47/107 MODICON TSX Premium (1)	TSX AEM8●1 TSX AEM16●● TSX AEY800 TSX AEY1600	25-way SUB-D	Screw	**ABE7CPA03**	0.73 (0.330)
Distribution and Supply of 8 Analog Input Channels Isolated from Each Other with 25 mA/ Channel Limiter	MODICON TSX Premium (1)	TSX AEY810	25-way SUB-D	Screw	**ABE7CPA31**	0.90 (0.410)
Safety	MODICON TSX Premium	TSX PAY2●2	25-way SUB-D	Screw	**ABE7CPA13**	0.64 (0.290)

Compatibility pages: 14 - 25 Technical Overview pages: 26 - 35 Cable and Accessory Selection pages: 41, 43 - 51 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

(1) For other PLC's, see compatibility tables on pages 14 - 25.
(2) See installation procedure in TSX 37E manual

Accessories for Modules

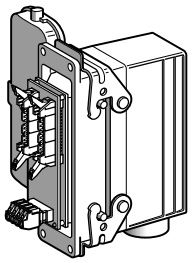
Software



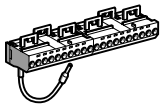
ABE7ACC02

Description	Operating System	Catalog Number	Weight lb (kg)
Software for Customer Label Marking	Under Windows Version 3.1 or 95	**ABE7LOGV10**	0.77 (0.350)
Pack of 25 Pre-cut Label Sheets (160 labels)	–	**ABE7LOGF25**	0.44 (0.200)

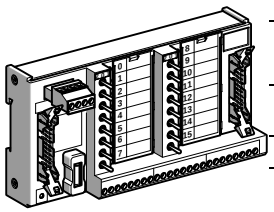
Accessories



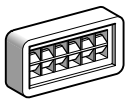
ABE7ACC80 + ABE7ACC81



ABE7BV20



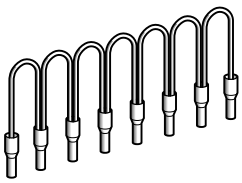
ABE7TES160



AR1SB3

Description	No. of Channels	Characteristics	Order in Multiples of:	Catalog Number	Weight lb (kg)
Kit for Mounting Modules Directly to a Panel	–	–	10	**ABE7ACC01**	0.02 (0.008)
Splitter Block	–	16 as 2 x 8 Channels	1	**ABE7ACC02**	0.17 (0.075)
Redundant Output Block	–	16 as 2 x 16 Channels	1	**ABE7ACC10**	0.17 (0.075)
Redundant Input Block	–	16 as 2 x 16 Channels	1	**ABE7ACC11**	0.17 (0.075)
Removable Continuity Blocks	–	10 mm Wide	4	**ABE7ACC20**	0.02 (0.007)
	–	12 mm Wide	4	**ABE7ACC21**	0.02 (0.010)
Locating Device for Removable Terminal Block	–	–	100	**ABE7ACC30**	0.02 (0.100)
Enclosure Feedthrough With Industrial Connector	32	40-way	1	**ABE7ACC80**	0.66 (0.300)
Plug-in 40-way Male Connector	32	For Mounting on ABE7ACC80	1	**ABE7ACC81**	0.82 (0.370)
Enclosure Feedthrough with CNOMO M23 Connector (1 x 20-way HE 10 connector, PLC end)	16	19-way	1	**ABE7ACC82**	0.33 (0.150)
	8 and 12	19-way	1	**ABE7ACC83**	0.33 (0.150)
Impedance Adaptor for Type 2 Compatibility	–	Used with ABE7ACC82 and ABE7ACC83	1	**ABE7ACC85**	0.03 (0.012)
IP 65 Cable Gland	–	For 3 Cables	1	**ABE7ACC84**	0.66 (0.300)
Additional Snap-on Terminal Blocks (shunted terminals)	8	10 Screw Terminals	5	**ABE7BV10**	0.07 (0.030)
	16	20 Screw Terminals	5	**ABE7BV20**	0.13 (0.060)
I/O Simulator	16	Display, Forcing Inhibition, Continuity	1	**ABE7TES160**	0.77 (0.350)
Adhesive Label Holder	–	For 6 Characters	50	**AR1SB3**	0.002 (0.001)
Fast Blow Fuses 5 x 20 mm, 250 V, UL	–	0.125 A	10	**ABE7FU012**	0.02 (0.010)
		0.5 A	10	**ABE7FU050**	0.02 (0.010)
		1 A	10	**ABE7FU100**	0.02 (0.010)
		2 A	10	**ABE7FU200**	0.02 (0.010)
		4 A	10	**ABE7FU400**	0.02 (0.010)
		6.3 A	10	**ABE7FU630**	0.02 (0.010)

"Flexible Jumpers" Accessories



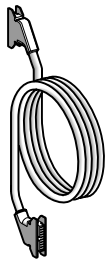
ABFC08R●●●

Description	For:	Color	Distance Between Cable Ends cm	Catalog Number	Weight lb (kg)
Flexible Jumpers Modularity 8 x 1 mm²	Coil	White	12	**ABFC08R12W**	0.04 (0.020)
			2	**ABFC08R02W**	0.02 (0.010)
	Vac	Red	12	**ABFC08R12R**	0.04 (0.020)
			2	**ABFC08R02R**	0.02 (0.010)
	Vdc	Blue	12	**ABFC08R12B**	0.04 (0.020)
			2	**ABFC08R02B**	0.02 (0.010)

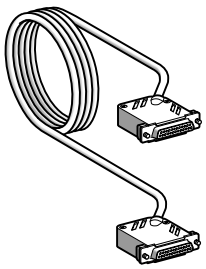
Compatibility pages: 14 - 25 Technical Overview pages: 26 - 35 Module Selection pages: 36 - 40, 42 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

Connection Cables for MODICON TSX Micro and Premium PLC's

ABFH20H200



TSXCDP●●3



TSXCCPS15

ABC6HE20F

Functions	Compatible TSX Modules	Type of Connection		Gage AWG	Cross-section mm²	Length Ft. (Meters)	Catalog Number	Weight lb (kg)
		PLC End	Telefast 2 End					
Discrete I/O	DMZ●DTK DEZ●●D2K DSZ●●T2K DEY●●D2K DSY●●T2K DEY●●16FK	20-way HE 10	20-way HE 10	28	0.080	3.28 (1)	**ABFH20H100**	0.18 (0.080)
						6.56 (2)	**ABFH20H200**	0.31 (0.140)
						9.84 (3)	**ABFH20H300**	0.46 (0.210)
				22	0.324	1.64 (0.5)	**TSXCDP053**	0.19 (0.085)
						3.28 (1)	**TSXCDP103**	0.33 (0.150)
						6.56 (2)	**TSXCDP203**	0.62 (0.280)
						9.84 (3)	**TSXCDP303**	0.90 (0.410)
						16.41 (5)	**TSXCDP503**	1.48 (0.670)
	Universal	Bare Wires	20-way HE 10	22	0.324	9.84 (3)	**TSXCDP301**	0.88 (0.400)
						16.41 (5)	**TSXCDP501**	1.46 (0.660)
Analog	AEY●●	25-way SUB-D	25-way SUB-D	24	0.205	9.84 (3)	**TSXCAP030**	1.48 (0.670)
	Universal	Bare Wires	25-way SUB-D	24	0.205	6.56 (2)	**ABFF25S200 (2)**	0.66 (0.300)
	ASY410	TSXBLY01	25-way SUB-D	24	0.205	6.56 (2)	**ABFY25S200**	0.83 (0.375)
Analog and Counter / Counter	3722●● CTY●A	15-way SUB-D	15-way SUB-D	24	0.205	8.20 (2.5)	**TSXCCPS15**	0.49 (0.220)
Counter	CTZ●A	15-way SUB-D (1)	15-way SUB-D	24	0.205	8.20 (2.5)	**TSXCCPH15**	0.49 (0.220)
Axis Control	CAY●1	9-way SUB-D	9-WAY SUB-D	24	0.205	6.56 (2)	**TSXCXP213**	0.60 (0.270)
						19.69 (6)	**TSXCXP613**	1.28 (0.580)

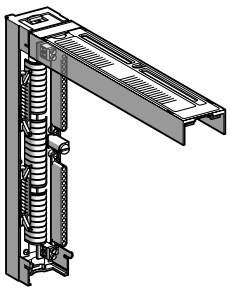
Accessories

Description	Gauge AWG	Cross-section mm²	Length ft. (m)	Sold in Lots of:	Catalog Number	Weight lb (kg)
Rolled Ribbon Cable	28	0.08	65.6 ft (20)	1	**ABFC20R200**	2.89 (1.310)
20-way HE 10 Connector	–	–	–	2	**ABC6HE20F**	0.02 (0.008)

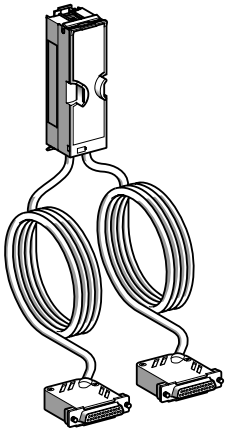
Compatibility pages: 14 - 25 Technical Overview pages: 26 - 35 Module Selection pages: 36 - 40, 42

(1) High density.
(2) See color coded marking on page 62.

Terminal Blocks, Cabled Connectors and Connection Cables for TSX 47 to 107 PLC's



TSXBLK●1



ABFB50S●01

ABFH20H●●1

Connection Terminal Blocks (with LED display of I/O)

Number of Channels	Type of Discrete Interface	Type of Connection	Catalog Number	Weight lb (kg)
32	TSXDET32●2 Inputs	2 x 20-way Male HE 10 Connectors	**TSXBLK71**	0.04 (0.200)
	TSXDST32●2 Outputs	2 x 20-way Male HE 10 Connectors	**TSXBLK91**	0.04 (0.200)
24	TSXDST24●2 Outputs	1 x 34-way Male HE 10 Connectors	**TSXBLK81 (1)**	0.04 (0.200)

Cabled Connectors for TSXAEM●● and TSXDST16●● Modules

Type of Signal	Type of Connection		Gauge AWG	Cross-section mm²	Length ft. (m)	Modularity	Catalog Number	Weight lb (kg)
	PLC End	Telefast End						
Analog	Terminal Block BLK 4 Included	2 x 25-way SUB-D	24	0.22	6.56 (2)	16	**ABFB50S201**	1.12 (0.510)
					9.84 (3)	16	**ABFB50S301**	1.68 (0.760)
		1 X 25-way SUB-D	24	0.22	6.56 (2)	8	**ABFB25S201**	1.10 (0.500)
					9.84 (3)	8	**ABFB25S301**	1.48 (0.670)

Connector Cables

Type of Signal	Type of Connection		Gauge AWG	Cross-section mm²	Length ft. (m)	Modularity	Catalog Number	Weight lb (kg)
	PLC End	Telefast End						
Discrete I/O	1 x 34-way HE 10 on BLK 81	1 x 34-way HE 10	28	0.08	3.28 (1)	24	**ABFH34H100 (1)**	0.12 (0.055)
					6.56 (2)	24	**ABFH34H200 (1)**	0.22 (0.100)
					9.84 (3)	24	**ABFH34H300 (1)**	0.32 (0.145)
	1 x 20-way HE 10 with Power on BLK 71/91	1 X 20-way HE 10	28	0.08	4.92 (1.5)	16	**ABFH20H151**	0.24 (0.110)
					6.56 (2)	16	**ABFH20H201**	0.31 (0.140)
					9.84 (3)	16	**ABFH20H301**	0.46 (0.210)
					16.4 (5)	16	**ABFH20H501**	0.77 (0.350)
Analog	1 x 25-way SUB-D on TSX AEM 1613	1 X 25-way SUB-D	24	0.22	9.84 (3)	16	**ABFS25S301**	1.37 (0.620)

Splitter Block for TSXDST24●2

Splitter Block, 24 Channels, 3 x 8 Channels	**ABE7ACC03**	0.25 (0.115)

Correspondence Tables

ABFS25S30●

Male SUB-D Pins	No. of Cable Pairs	Female SUB-D Pins
1-2	1	1-2
3-14	2	3-14
15-16	3	15-16
4-5	4	4-5
6-17	5	6-17
18-19	6	18-19
7-8	7	7-8
9-20	8	9-20
21-22	9	21-22
10-11	10	10-11
12-23	11	12-23
24-25	12	24-25
13	13	13

ABFB25S●01

25-way SUB-D		TSXBLK4		25-way SUB-D	
Term. No.	Channels	Term. Blk.		Channels	Term. No.
		A	C		
1-2	V0+	8	1	V4+	7-8
14	V0-	7	2	V4-	20
	Ground	6	3	Ground	
15-16	V1+	5	4	V5+	21-22
3	V1-	4	5	V5-	9
	Ground	3	6	Ground	
4-5	V2+	2	7	V6+	10-11
17	V2-	1	8	V6-	23
		B	D		
	Ground	8	1	Ground	
18-19	V3+	7	2	V7+	24-25
6	V3-	6	3	V7-	12-13
	Ground	5	4	Ground	
		4	5		
		3	6		
		2	7		
		1	8		

ABFB50S●01

25-way SUB-D (1)	TSXBLK4		25-way SUB-D (2)
Term No.	Term. Blk.		Term. No.
	A	C	
1-2	8	1	1-2
14	7	2	14
15-16	6	3	15-16
3	5	4	3
4-5	4	5	4-5
17	3	6	17
18-19	2	7	18-19
6	1	8	6
	B	D	
7-8	8	1	7-8
20	7	2	20
21-22	6	3	21-22
9	5	4	9
10-11	4	5	10-11
23	3	6	23
24-25	2	7	24-25
12-13	1	8	12-13

(1) Splitter block ABE7ACC03 must be used.

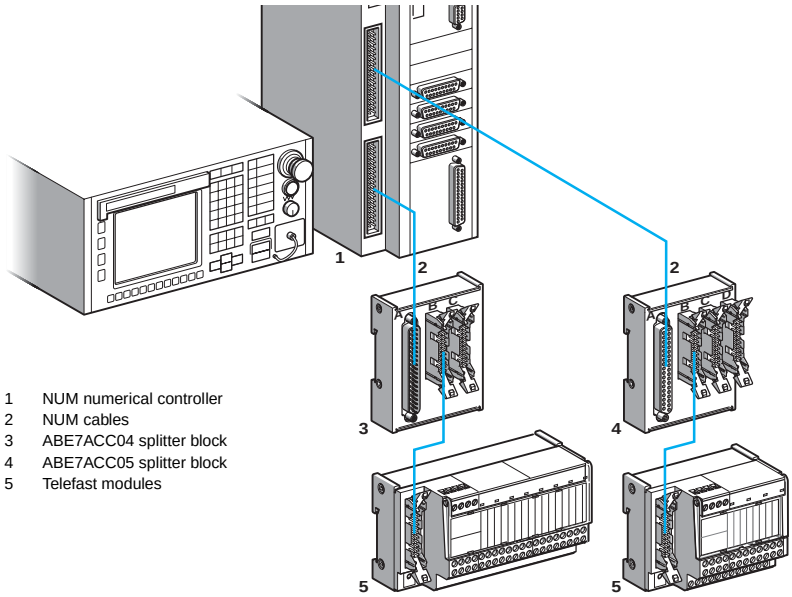
Compatibility pages: 14 - 25 Technical Overview pages: 26 - 35 Module Selection pages: 36 - 40, 42

Cables and Splitter Blocks for NUM Numerical Control

ABE7ACC04

Description	For NUM Processor Unit	Type of Signal	Type of Connection		Catalog Number	Weight lb (kg)
			Processor Unit End	Telefast End		
Splitter Blocks	1020 1050 1060	32 Channel (input)	37-way Male SUB-D	2 x 20-way HE 10	**ABE7ACC04**	0.22 (0.100)
		24 Channels (output)	37-way Female SUB-D	3 x 20-way HE 10	**ABE7ACC05**	0.23 (0.105)

Example of Connection



1 NUM numerical controller
2 NUM cables
3 ABE7ACC04 splitter block
4 ABE7ACC05 splitter block
5 Telefast modules

ABE7ACC04

20-way HE 10 B		SUB-D A		20-way HE 10 C	
Term. No.	Channels	Term.	Blk.	Channels	Term. No.
1	0	1	29	16	1
2	1	20	11	17	2
3	2	2	30	18	3
4	3	21	12	19	4
5	4	3	31	20	5
6	5	22	13	21	6
7	6	4	32	22	7
8	7	23	14	23	8
9	8	24	15	24	9
10	9	6	34	25	10
11	10	25	16	26	11
12	11	7	35	27	12
13	12	26	17	28	13
14	13	8	36	29	14
15	14	27	18	30	15
16	15	9	37	31	16
17	24 Vdc	10	10	24 Vdc	17
18	0 Vdc	5	28	0 Vdc	18
19	NC			NC	19
20	0 Vdc	19	33	0 Vdc	20

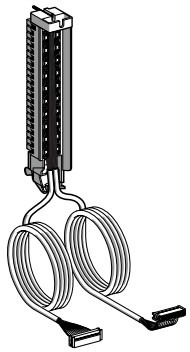
ABE7ACC05

25-way HE 10 B		SUB-D A		20-way HE 10 C	
Term. No.	Channels	Term.	Blk.	Channels	Term. No.
1	0	4	13	8	1
2	1	25	31	9	2
3	2	24	12	10	3
4	3	20	30	11	4
5	4	21	28	12	5
6	5	22	8	13	6
7	6	23	5	14	7
8	7	1	7	15	8
13 to 17-19	24 Vdc	2-10-15-19		24 Vdc	13 to 17-19
18 to 20	0 Vdc	3-9-14-34		0 Vdc	18-20
9 to 12	NC			NC	9 to 12

20-way HE 10 D		
Terminal no.	Channels	Terminal blk.
1	16	37
2	17	18
3	18	36
4	19	17
5	20	35
6	21	16
7	22	33
8	23	32
13 to 17-19	24 Vdc	2-10-15-19
18 to 20	0 Vdc	3-9-14-34
9 to 12	NC	

Compatibility pages: 14 - 25 Technical Overview pages: 26 - 35 Module Selection pages: 36 - 40, 42 Approximate Dimensions, and Wiring Diagram pages: 52 - 63

Cabled Connectors and Connection Cables for APRIL Series 1000 PLC's



ABFA32H●00

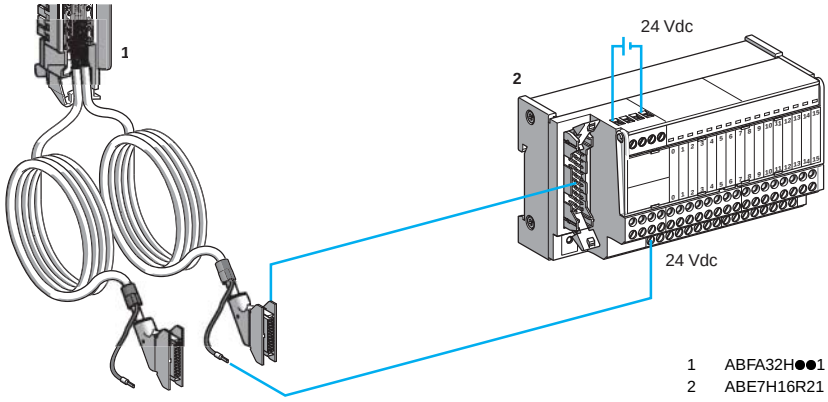
Cabled Connectors for APRIL Series 1000 PLC's

Type of Signal	Type of Connection		Gauge AWG	Cross-section mm²	Length ft. (m)	Modularity	Catalog Number	Weight lb (kg)
	PLC End	Telefast End						
Inputs and Relay Outputs	PIN 0100 Term. Block Included	2 x 20-way HE 10	26	0.13	6.56 (2)	2 x 16	**ABFA32H200**	0.99 (0.450)
					9.84 (3)	2 X 16	**ABFA32H300**	1.37 (0.620)
0.5 A Output	PIN 0100 Term. Block with External Power Supply	2 x 20-way HE 10	22	0.324	4.92 (1.5)	2 x 16	**ABFA32H151**	1.43 (0.650)
					9.84 (3)	2 X 16	**ABFA32H301**	2.54 (1.150)

Connection Cable for APRIL IXA/IRA 1600 Module

Type of Signal	Type of Connection		Gauge AWG	Cross-section mm²	Length Meter	Modularity	Catalog Number	Weight lb (kg)
	PLC End	Telefast End						
Analog	1 x 25-way SUB-D	1 x 25-way SUB-D	24	0.22	9.84 (3)	16	**ABFS25S302**	1.37 (0.620)

Examples of Connection



1 ABFA32H●●1
2 ABE7H16R21

Correspondence Tables Between the PLC Terminal Block and HE 10 Connectors

ABFA32H●●00

20-way HE 10 (1)		PIN0100		20-way HE 10 (2)	
Term. No.	Name	Term. Blk.		Name	Term. No.
1	Q0	2	12	Q16	1
2	Q1	22	32	Q17	2
3	Q2	3	13	Q18	3
4	Q3	23	33	Q19	4
5	Q4	4	14	Q20	5
6	Q5	24	34	Q21	6
7	Q6	5	15	Q22	7
8	Q7	25	35	Q23	8
9	Q8	7	17	Q24	9
10	Q9	27	37	Q25	10
11	Q10	8	18	Q26	11
12	Q11	28	38	Q27	12
13	Q12	9	19	Q28	13
14	Q13	29	39	Q29	14
15	Q14	10	20	Q30	15
16	Q15	30	40	Q31	16
17	24 Vdc	1	11	24 Vdc	17
18	0 Vdc	21	31	0 Vdc	18
19	24 Vdc	6	16	24 Vdc	19
20	0 Vdc	26	36	0 Vdc	20

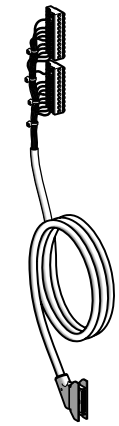
ABFA32H●01

20-way HE 10 (1)		PIN0100		20-way HE 10 (2)	
Term. No.	Name	Term. Blk.		Name	Term. No.
1	Q0	2	12	Q16	1
2	Q1	22	32	Q17	2
3	Q2	3	13	Q18	3
4	Q3	23	33	Q19	4
5	Q4	4	14	Q20	5
6	Q5	24	34	Q21	6
7	Q6	5	15	Q22	7
8	Q7	25	35	Q23	8
9	Q8	7	17	Q24	9
10	Q9	27	37	Q25	10
11	Q10	8	18	Q26	11
12	Q11	28	38	Q27	12
13	Q12	9	19	Q28	13
14	Q13	29	39	Q29	14
15	Q14	10	20	Q30	15
16	Q15	30	40	Q31	16
17	NC	NC	NC	NC	17
18	0 Vdc	21/26	31/36	0 Vdc	18
19	NC	NC	NC	NC	19
20	NC	NC	NC	NC	20
Power supply cable	24 Vdc	1/6	11/16	24 Vdc	Power supply cable

Compatibility pages: 14 - 25 Technical Overview pages: 26 - 35 Module Selection pages: 36 - 40, 42

Cabled Connectors for MODICON 984-A120-COMPACT PLC's

Type of Signal	Type of Connection	Gauge AWG	Cross-section mm²	Length ft. (m)	Modularity	Catalog Number	Weight lb (kg)
Input and Relay Output	1 x 20-way HE 10	22	0.324	4.92 (1.5)	16	**ABFM16H150**	0.66 (0.300)
				9.84 (3)	16	**ABFM16H300**	1.21 (0.550)
0.5 A Output	2 x 20-way HE 10	22	0.324	4.92 (1.5)	2 x 8	**ABFM16H151**	1.10 (0.500)
				9.84 (3)	2 x 8	**ABFM16H301**	2.20 (1.000)



ABFM16H●●0

Correspondence Tables

ABFM16H●●0

20-way HE 10		984A120 COMPACT
Term. No.	Channel	Term. Blk.
1	1	3
2	2	4
3	3	5
4	4	6
5	5	7
6	6	8
7	7	9
8	8	10
9	9	14
10	10	15
11	11	16
12	12	17
13	13	18
14	14	19
15	15	20
16	16	21
17	24 Vdc	1
18	0 Vdc	11
19	24 Vdc	12
20	0 Vdc	22

ABFM16H●●1

20-way HE 10 (1)		984A120 COMPACT		20-way HE 10 (2)	
Term. No.	Channel	Term. Blk.		Channel	Term. No.
1	1	3	14	9	1
2	2	4	15	10	2
3	3	5	16	11	3
4	4	6	17	12	4
5	5	7	18	13	5
6	6	8	19	14	6
7	7	9	20	15	7
8	8	10	21	16	8
9-10-11-12	NC			NC	9-10-11-12
13-15-17	24 Vdc	1	12	24 Vdc	13-15-17
14-16-19	24 Vdc	2	13	24 Vdc	14-16-19
18-20	0 Vdc	11	22	0 Vdc	18-20

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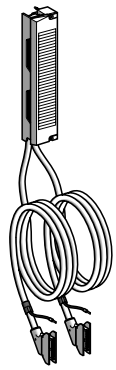
Cabled Connectors for MODICON QUANTUM PLC's



ABFM32H●●1

Type of Signal	I/O Module	Type of Connection	Gauge AWG	Cross-section mm²	Length ft. (m)	Modularity	Catalog Number	Weight lb (kg)
Input and Relay Output	–	2 x 20-way HE 10	22	0.324	4.92 (1.5)	2 x 16	**ABFM32H150**	1.43 (0.650)
					9.84 (3)	2 X 16	**ABFM32H300**	2.54 (1.150)
0.5 A Output	–	2 x HE 10 20-way + Ext. Supply	22	0.324	4.92 (1.5)	2 x 16	**ABFM32H151**	1.43 (0.650)
					9.84 (3)	2 X 16	**ABFM32H301**	2.54 (1.150)
Analog Input	140 AVI/ ACI 03000	1 X 25-way SUB-D	24	0.22	6.56 (2)	8	**ABFM08S201**	1.32 (0.600)
	140 ACI 04000	2 X 25-way SUB-D	24	0.22	6.56 (2)	16	**ABFM16S201**	1.37 (0.620)
Analog Output	140 AVO 02000	1 x 25-way SUB-D	24	0.22	6.56 (2)	4	**ABFM04S200**	0.99 (0.450)
	140 ACO 02000	1 x 25-way SUB-D	24	0.22	6.56 (2)	4	**ABFM04S201**	0.99 (0.450)
	140 ACO 13000	1 x 25-way SUB-D	24	0.22	6.56 (2)	8	**ABFM08S202**	0.99 (0.450)

Correspondence Tables

ABFM32H●●0

20-way HE 10 (1)		QUANTUM		20-way HE 10 (2)	
Term. no.	Channel	Term. blk		Channel	Term. no.
1	1	1	21	17	1
2	2	2	22	18	2
3	3	3	23	19	3
4	4	4	24	20	4
5	5	5	25	21	5
6	6	6	26	22	6
7	7	7	27	23	7
8	8	8	28	24	8
9	9	11	31	25	9
10	10	12	32	26	10
11	11	13	33	27	11
12	12	14	34	28	12
13	13	15	35	29	13
14	14	16	36	30	14
15	15	17	37	31	15
16	16	18	38	32	16
17	24 Vdc	10	30	24 Vdc	17
18	0 Vdc	9	29	0 Vdc	18
19	24 Vdc	20	40	24 Vdc	19
20	0 Vdc	19	39	0 Vdc	20

ABFM32H●●1

20-way HE 10 (1)		QUANTUM		20-way HE 10 (2)	
Term. no.	Channel	Term. blk		Channel	Term. no.
1	1	1	21	17	1
2	2	2	22	18	2
3	3	3	23	19	3
4	4	4	24	20	4
5	5	5	25	21	5
6	6	6	26	22	6
7	7	7	27	23	7
8	8	8	28	24	8
9	9	11	31	25	9
10	10	12	32	26	10
11	11	13	33	27	11
12	12	14	34	28	12
13	13	15	35	29	13
14	14	16	36	30	14
15	15	17	37	31	15
16	16	18	38	32	16
17	NC			NC	17
18	0 Vdc	9/19	29/39	0 Vdc	18
		shunt	shunt		
19	NC			NC	19
20	NC			NC	20
Pwr. supply Cable	24 Vdc	10/20 Shunt	30/40 Shunt	24 Vdc	Pwr. supply Cable

ABFM08S202

Pair	SUB D	MODICON		SUB D	Pair
		Term. blk			
1	2	4			1
2	16	8			2
3	5	14			3
4	19	18			4
5	8	24			5
6	22	28			6
7	11	34	36	13	7
8	25	38			8

ABFM16S201

Pair	SUB D	MODICON		SUB D	Pair
		Term. blk			
1	14	2	1	2	1
2	3	4	3	16	2
3	17	6	5	5	3
4	6	8	7	19	4
5	20	12	11	8	5
6	9	14	13	22	6
7	23	16	15	11	7
8	12	18	17	25	8
1	14	22	21	2	1
2	3	24	23	16	2
3	17	26	25	5	3
4	6	28	27	19	4
5	20	32	31	8	5
6	9	34	33	22	6
7	23	36	35	11	7
8	12	38	37	25	8

ABFM08S201

Pair	SUB D	QUANTUM		SUB D	Pair
		Term. blk			
1	1	1	3	2	1
2	3	6	2	14	2
3	15	5	7	16	3
4	4	11	13	5	4
5	17	12	16	6	5
6	18	15	17	19	6
7	7	21	23	8	7
8	20	22	26	9	8
9	21	25	27	22	9
10	10	31	33	11	10
11	23	32	36	12-13	11
12	24	35	37	25	12

ABFM04S200

Pair	SUB D	QUANTUM		SUB D	Pair
		Term. blk			
1	14	2	1	1	1
5	2	8			5
2	3	12	11	15	2
6	16	18			6
3	17	22	21	4	3
7	5	28			7
4	6	32	31	18	4
8	19	38			8

ABFM04S201

Pair	SUB D	QUANTUM		SUB D	Pair
		Term. blk			
5	14	2	1	2	5
1	14	10	9	1	1
6	3	12	11	16	6
2	3	20	19	15	2
7	17	22	21	5	7
3	17	30	29	4	3
8	6	32	31	19	8
4	6	40	39	18	4

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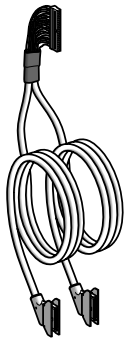
Connection Cables for ALLEN BRADLEY PLC's



ABFH40H●●0

Connection Cables for ALLEN BRADLEY SLC 500 PLC's

Type of Signal	Type of Connection		Gauge AWG	Cross-section mm²	Length ft. (m)	Modularity	Catalog Number	Weight lb (kg)
	PLC End	Telefast End						
32 Channel Input	40-way HE 10	2 x 20-way HE 10	22	0.324	4.92 (1.5)	16	**ABFH40H150**	0.77 (0.350)
					9.48 (3)	16	**ABFH40H300**	1.76 (0.800)
100 mA 32 Channel Output	40-way HE 10	2 x 20-way HE 10	22	0.324	4.92 (1.5)	16	**ABFH40H151**	0.77 (0.350)
					9.48 (3)	16	**ABFH40H301**	1.76 (0.800)
16 Channel Input	Terminal Block	1 x 20-way HE 10	22	0.324	6.56 (2)	16	**ABFR16H201**	1.76 (0.800)
16 Channel Output	Terminal Block	1 x 20-way HE 10	22	0.324	6.56 (2)	16	**ABFR16H200**	1.76 (0.800)

Correspondence Tables

ABFH40H●●0

20-way HE 10 (1)		SLC500 1 X 40-way		20-way HE 10 (2)	
Term. No.	Channels	HE 10		Channels	Term. No.
1	0	5	6	16	1
2	1	7	8	17	2
3	2	9	10	18	3
4	3	11	12	19	4
5	4	13	14	20	5
6	5	15	16	21	6
7	6	17	18	22	7
8	7	19	20	23	8
9	8	21	22	24	9
10	9	23	24	25	10
11	10	25	26	26	11
12	11	27	28	27	12
13	12	29	30	28	13
14	13	31	32	29	14
15	14	33	34	30	15
16	15	35	36	31	16
17	NC			NC	17
18	0 Vdc	1	2	0 Vdc	18
19	NC			NC	19
20	0 Vdc	39	40	0 Vdc	20

ABFH40H●●1

20-way HE 10 (1)		SLC500 1 X 40-way		20-way HE 10 (2)	
Term. No.	Channels	HE 10		Channels	Term. No.
1	0	5	6	16	1
2	1	7	8	17	2
3	2	9	10	18	3
4	3	11	12	19	4
5	4	13	14	20	5
6	5	15	16	21	6
7	6	17	18	22	7
8	7	19	20	23	8
9	8	21	22	24	9
10	9	23	24	25	10
11	10	25	26	26	11
12	11	27	28	27	12
13	12	29	30	28	13
14	13	31	32	29	14
15	14	33	34	30	15
16	15	35	36	31	16
17	24 Vdc	1	2	24 Vdc	17
18	0 Vdc	37	38	0 Vdc	18
19	24 Vdc	3	4	24 Vdc	19
20	0 Vdc	39	40	0 Vdc	20

ABFR16H200

20-way HE 10	SLC 500 Terminal block		20-way HE 10
17-19	Vdc	OUT 0	1
2	OUT 1	OUT 2	3
4	OUT 3	OUT 4	5
6	OUT 5	OUT 6	7
8	OUT 7	OUT 8	9
10	OUT 9	OUT 10	11
12	OUT 11	OUT 12	13
14	OUT 13	OUT 14	15
16	OUT 15	0 V	18-20

ABFR16H201

20-way HE 10	SLC 500 Terminal block		20-way HE 10
–	–	IN 0	1
2	IN 1	IN 2	3
4	IN 3	IN 4	5
6	IN 5	IN 6	7
8	IN 7	IN 8	9
10	IN 9	IN 10	11
12	IN 11	IN 12	13
14	IN 13	IN 14	15
16	IN 15	0 V	18-20

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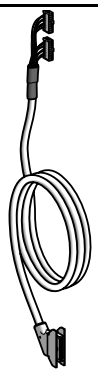
Connection Cables for SIEMENS PLC's



ABFH32H●●0

Type of Signal	Type of Connection		Gauge AWG	Cross-section mm²	Length ft. (m)	Modularity	Catalog Number	Weight lb (kg)
	PLC End	Telefast End						
24 v Input and Relay Output	2 x 14--way HE 10	1 x 20-way HE 10	26	0.13	4.92 (1.5)	16	**ABFH28H150**	0.33 (0.150)
					9.84 (3)	16	**ABFH28H300**	0.55 (0.250)
8 Channel I/O	Extension Plate	2 X 20-way HE 10	22	0.32	6.56 (2)	2 X 8	**ABFS16H200**	1.32 (0.600)
0.5 A Output	1 x 14-way he 10	1 X 20-way HE 10	26	0.13	4.92 (1.5)	8	**ABFH14H150**	0.33 (0.150)
					9.84 (3)	8	**ABFH14H300**	0.77 (0.350)
Connection Cables for SIEMENS S7 PLC's								
24 V Input and Relay Output	2 x 16-way HE 10	1 x 20-way HE 10	26	0.13	4.92 (1.5)	16	**ABFH32H150**	0.35 (0.160)
					9.84 (3)	16	**ABFH32H300**	0.57 (0.260)
8 Channel Input	Terminal Block	1 x 20-way HE 10	22	0.32	6.56 (2)	8	**ABFS08H202**	0.77 (0.350)
0.5 A Output	1 x HE 10	1 X HE 10	26	0.13	4.92 (1.5)	8	**ABFH16H150**	0.35 (0.160)
					9.84 (3)	8	**ABFH16H300**	0.57 (0.260)
8 Channel Output	Terminal Block	1 x 20-way HE 10	22	0.32	6.56 (2)	8	**ABFS08H203**	0.77 (0.350)
Analog	Bare Wires	25-way SUB-D	24	0.205	6.56 (2)	–	**ABFF25S200**	1.32 (0.600)
14 Channel Input 10 Channel Output	Terminal Block	2 x 20-way HE 10	22	0.32	6.56 (2)	24	**ABFS24H200**	2.03 (0.920)

Correspondence Tables

ABFH14H●●0

20-way HE 10		SIEMENS S5
Term. no.	Channel	14-way HE 10
1	0	1
2	1	2
3	2	3
4	3	4
5	4	5
6	5	6
7	6	7
8	7	8
9	NC	
10	NC	
11	NC	
12	NC	
13	NC	
14	NC	
15	NC	
16	24 Vdc	9
17	24 Vdc	11
18	0 Vdc	12
19	+ 24 Vdc	13
20	0 Vdc	14

ABFH28H●●0

20-way HE 10		SIEMENS S5	
Term. no.	Channel	2 x 14-way HE 10	
1	0	1	
2	1	2	
3	2	3	
4	3	4	
5	4	5	
6	5	6	
7	6	7	
8	7	8	
9	8		1
10	9		2
11	10		3
12	11		4
13	12		5
14	13		6
15	14		7
16	15		8
17	24 Vdc	13	
18	0 Vdc	14	
19	24 Vdc		13
20	0 Vdc		14

ABFH16H●●0

20-way HE 10		SIEMENS S7
Term. no.	Channel	16-way HE 10
1	0	16
2	1	14
3	2	12
4	3	10
5	4	8
6	5	6
7	6	4
8	7	2
9	NC	
10	NC	
11	NC	
12	NC	
13	NC	
14	NC	
15	24 Vdc	9
16	24 Vdc	11
17	24 Vdc	13
18	0 Vdc	1
19	24 Vdc	15
20	0 Vdc	3

ABFH32H●●0

20-way HE 10		SIEMENS S7	
Term. no.	Channel	2 x 16-way HE 10	
1	0	16	
2	1	14	
3	2	12	
4	3	10	
5	4	8	
6	5	6	
7	6	4	
8	7	2	
9	8		16
10	9		14
11	10		12
12	11		10
13	12		8
14	13		6
15	14		4
16	15		2
17	24 Vdc	13	
18	0 Vdc	1	
19	24 Vdc		13
20	0 Vdc		1

ABFS16H200

20-way HE 10		SIEMENS S5		
Term. no.	Channel	Extension plate		Channel
13-14-15-	24 Vdc	1	1	24 Vdc
17-19				
18-20	0 Vdc	2	2	0 Vdc
2	E 1	3	3	E 1
1	E 0	4	4	E 0
4	E 3	5	5	E 3
3	E 2	6	6	E 2
6	E 5	7	7	E 5
5	E 4	8	8	E 4
8	E 7	9	9	E 7
7	E 6	10	10	E 6

ABFS24H200

20-way HE 10		SIEMENS S7		20-way HE 10	
Term. no.	Channel	Terminal block		Channel	Term. no.
18	0 V	1 M	1 M	0 V	18
1	0	0.0	1 L+	+ 24 V	13-14-15
2	1	0.1	0.0	0	1
3	2	0.2	0.1	1	2
4	3	0.3	0.2	2	3
5	4	0.4	0.3	3	4
6	5	0.5	0.4	4	5
7	6	0.6	2 M	0 V	20
8	7	0.7	2 L+	+ 24 V	16-17-19
20	0 V	2 M	0.5	5	6
9	8	1.0	0.6	6	7
10	9	1.1	0.7	7	8
11	10	1.2	1.0	8	9
12	11	1.3	1.1	9	10
13	12	1.4	–	–	–
14	13	1.5	–	–	–

ABFS08H203

20-way HE 10		SIEMENS S7
Term. no.	Channel	Term. block
18	0 Vdc	1 M
13-14-15	24 Vdc	1 L+
1	E1	0.0
2	E2	0.1
3	E3	0.2
4	E4	0.3
20	0 Vdc	2 M
16-17-19	24 Vdc	2 L+
1	E1	0.4
2	E2	0.5
3	E3	0.6
4	E4	0.7

ABFS08H202

20-way HE 10		SIEMENS S7
Term. no.	Channel	Term. block
13-14-15	24Vdc	1 M
1	E1	0.0
2	E2	0.1
3	E3	0.2
4	E4	0.3
16-17-19	24Vdc	2 M
5	E5	0.4
6	E6	0.5
7	E7	0.6
8	E8	0.7

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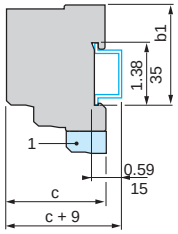
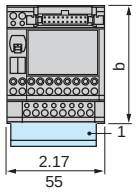
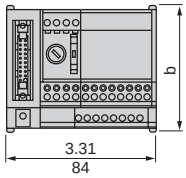
Common side view



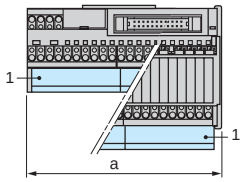
ABE7H20E●●●
ABE7H32E●●●



ABE7H16R50, ABE7H12R50, ABE7H08R1●, ABE7H08R21, ABE7R08S111/S111E, ABE7H08S21, ABE7CPA21



ABE7H16C●●/ABE7H16CM●●, ABE7●16M111/ABE7●16T111

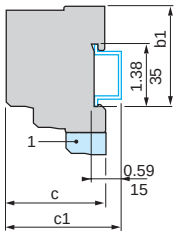


ABE	7H20E/7H32E●●●	7H●●●●●/CPA21	7R08S111●
b	2.64 (67)	2.76 (70)	3.03 (77)
b1	2.20 (56)	2.28 (58)	2.28 (58)
c	2.32 (59)	2.28 (58)	2.28 (58)

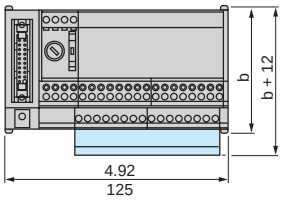
ABE	7H16C●●/CM●●	7●16M111/T111
a	4.17 (106)	4.33 (110)
b	1.93 (49)	3 50 (89)
b1	1.63 (41.5)	2.28 (58)
c	2.36 (60)	2.13 (54)

1 Additional shunt terminal block ABE7BV10/7BV20

Common side view

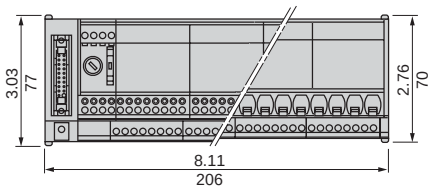


ABE7H16R2●, ABE7H12R2●, ABE7H16R3●, ABE7H16R1●, ABE7H12R1●, ABE7H12S21, ABE7H16S2●, ABE7R16S11●, ABE7R08S210, ABE7S08S2B0, ABE7CPA02, ABE7CPA03 ABE7S16S1B2, ABE7R08S216



ABE7R16S21●, ABE7S16S2B0/S2B02E, ABE7S16E2●●/S16E2●●E ABE7S08S2B1/S08S2B1E ABE7CPA31

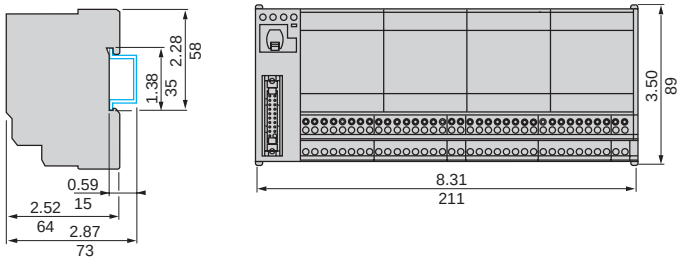
ABE7H16●43



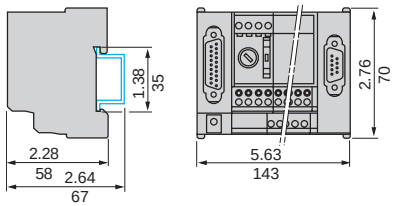
ABE	7●●●●●●	7●R08S210●, 7S16S1B2●, 7R08S216	All modules	
b	2.76 (70)	3.03 (77)	b1	2.28 (58)
b1	2.28 (58)	2.28 (58)	c	2.28 (58)
c	2.28 (58)	2.28 (58)		

1 Additional shunt terminal block ABE7BV10/7BV20

ABE7R16T2●●, ABE7P16T2●●

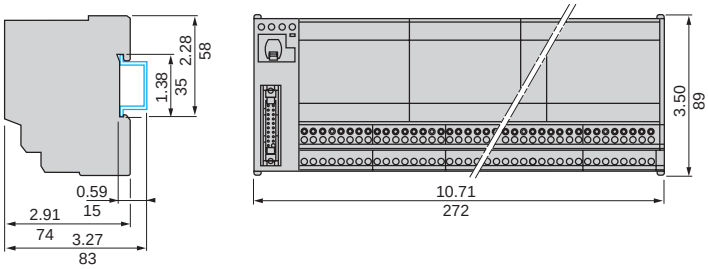


ABECPA01, ABE7CPA11/CPA12/CPA13

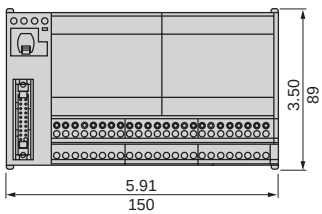


Note:
Details of the front view are the same as for the ABE7CPA01

Common side view
ABE7R16T3●●, ABE7P16T3●●, ABE7P16F31●

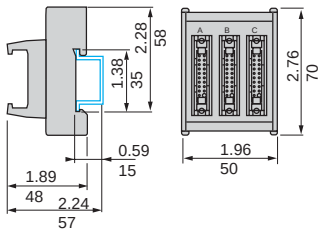


ABE7P08T330

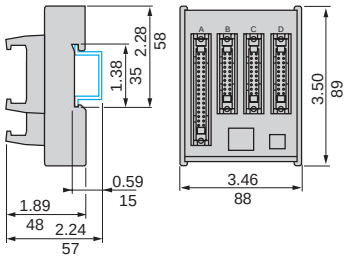


Dual Dimensions inches / mm

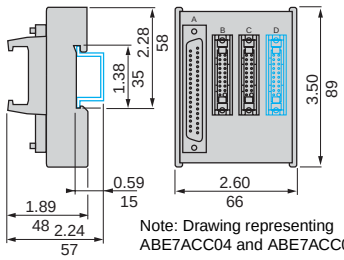
ABE7ACC02



ABE7ACC03

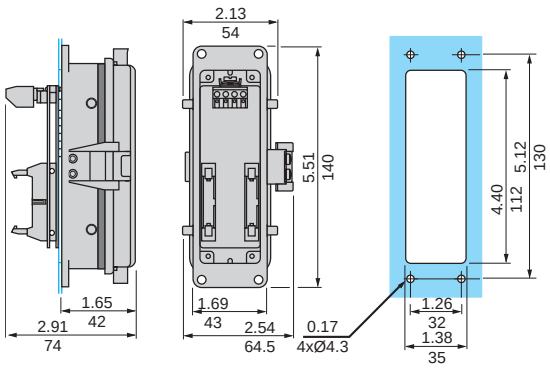


ABE7ACC04, ABE7ACC05
ABE7ACC10, ABE7ACC11

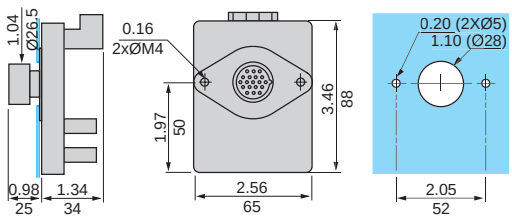


Note: Drawing representing ABE7ACC04 and ABE7ACC05

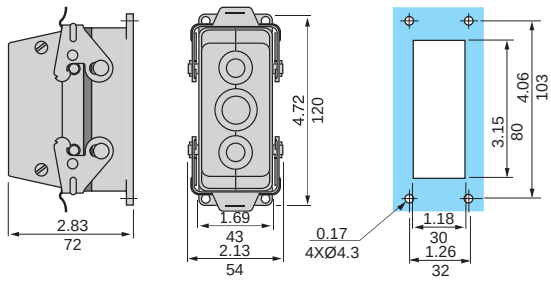
ABE7ACC80



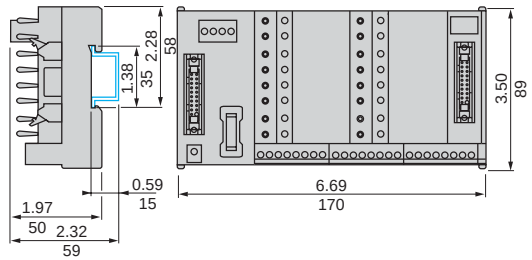
ABE7ACC82, ABE7ACC83



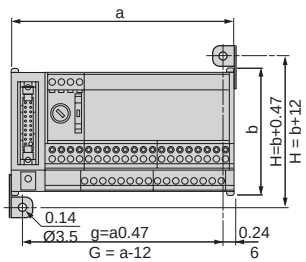
ABE7ACC84



ABE7TES160



Mounting centers for modules using mounting kit ABE7ACC01



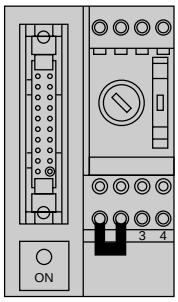
ABE7	In (mm) G	In (mm) H
ACC02	1.50 (38)	3.23 (82)
ACC03	2.09 (53)	3.98 (101)
ACC04	2.09 (53)	3.98 (101)
ACC05	2.09 (53)	3.98 (101)
ACC10/11	2.09 (53)	3.98 (101)
H08R●●	2.85 (72)	3.23 (82)
H08S21	2.85 (72)	3.23 (82)
H12R50	2.85 (72)	3.23 (82)
H16R50	2.85 (72)	3.23 (82)
R08S111	2.85 (72)	3.23 (82)
CPA01	5.16 (131)	3.23 (82)
CPA02	4.49 (113)	3.23 (82)
CPA1●	5.16 (131)	3.23 (82)
CPA03	4.49 (113)	3.23 (82)

ABE7	In (mm) G	In (mm) H
H12R1●	4.49 (113)	3.23 (82)
H12R2●	4.49 (113)	3.23 (82)
H16R1●	4.49 (113)	3.23 (82)
H16R2●	4.49 (113)	3.23 (82)
H16R3●	4.49 (113)	3.23 (82)
H12S21	4.49 (113)	3.23 (82)
H16S21	4.49 (113)	3.23 (82)
R08S210	4.49 (113)	3.23 (82)
R16S111	4.49 (113)	3.23 (82)
R16S21●	7.64 (194)	3.23 (82)
S08S2B0	4.49 (113)	3.23 (82)
S08S2B1	7.64 (194)	3.23 (82)

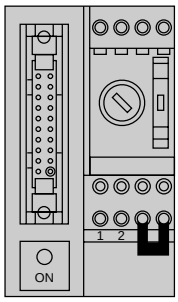
ABE7	In (mm) G	In (mm) H
H16F43	7.64 (194)	3.23 (82)
H16S43	7.64 (194)	3.23 (82)
S16E2●●	7.64 (194)	3.23 (82)
S16S1B2	4.49 (113)	3.23 (82)
S16S2●●	7.64 (194)	3.23 (82)
R16T2●●	7.83 (199)	3.98 (101)
P16T2●●	7.83 (199)	3.98 (101)
R16T3●●	10.24 (260)	3.98 (101)
P08T330	5.91 (150)	3.98 (101)
P16T3●●	10.24 (260)	3.98 (101)
P16F3●●	10.24 (260)	3.98 (101)

Dual Dimensions $\frac{\text{inches}}{\text{mm}}$

Connection of terminal block common (on ABE7H●●S21 and ABE7H16R3● modules only)



Position 1



Position 2

Connection is made using a shunt.

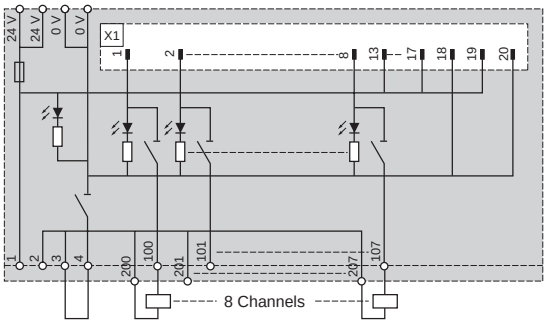
The shunt is supplied with the module and is mounted in the neutral position between terminals 2-3.

It may be connected:

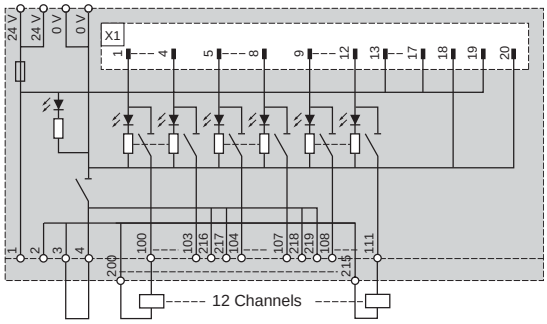
– either to + for positive logic inputs across terminals 1-2 (position 1),
– or to – for positive logic outputs across terminals 3-4 (position 2).

For modules ABE7H16R3●, the shunt is in -position 1. A second wire shunt must be connected between the 3rd row common (C) and first row terminal 4 (0V).

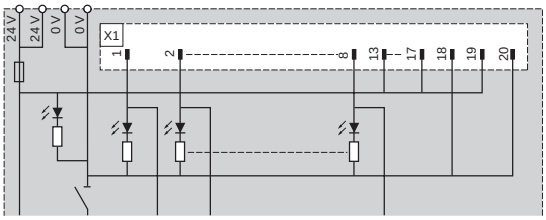
ABE7H08S21



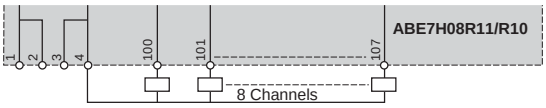
ABE7H12S21



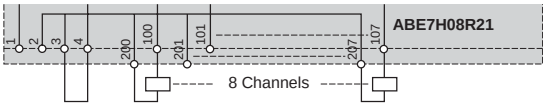
ABE7H08R●● (R10 with no LED)



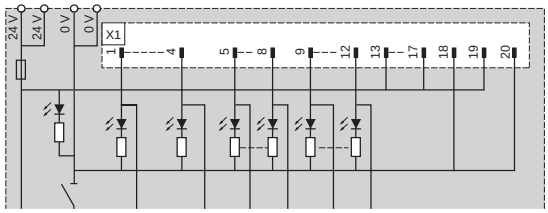
ABE7H08R11/R10



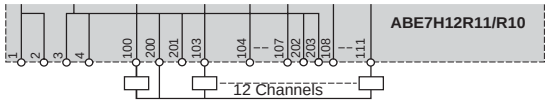
ABE7H08R21



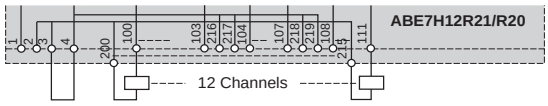
ABE7H12R●● (R20, R10 and R50 with no LED)



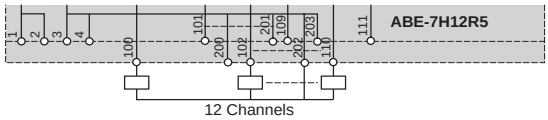
ABE7H12R11/R10



ABE7H12R21/R20

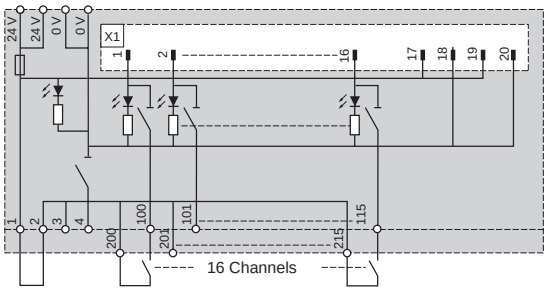


ABE-7H12R5

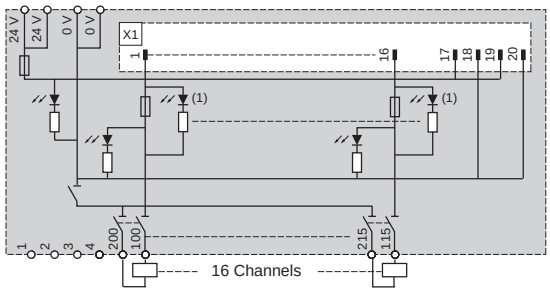


NOTE: Disconnect all power before making connection, if voltage is greater than 42.4 V or 30 Vac.

ABE7H16S21

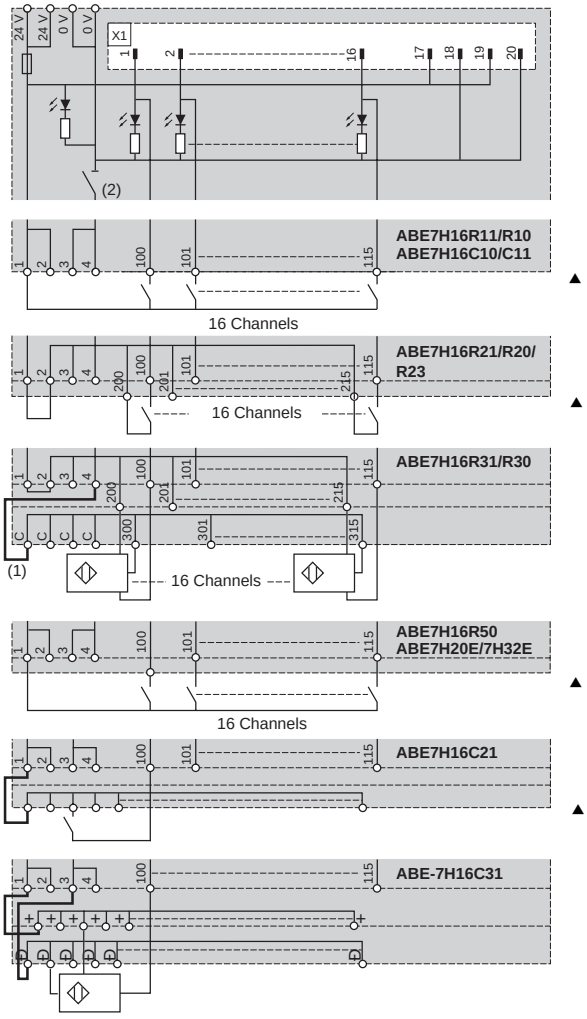


ABE7H16F43

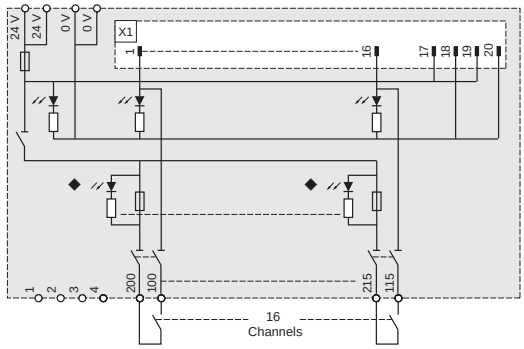


(1) LED fuse blown.

ABE7H●●●●● (C10, R20, R10, R30 and R 50 without LED)

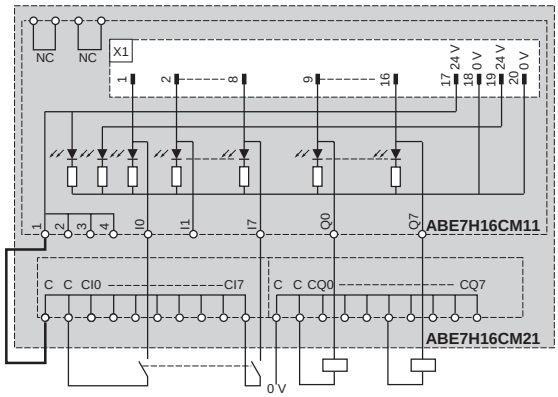


ABE7H16S43



(1) LED fuse blown.

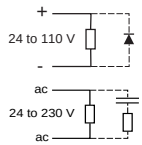
ABE7H16CM●1



Note:

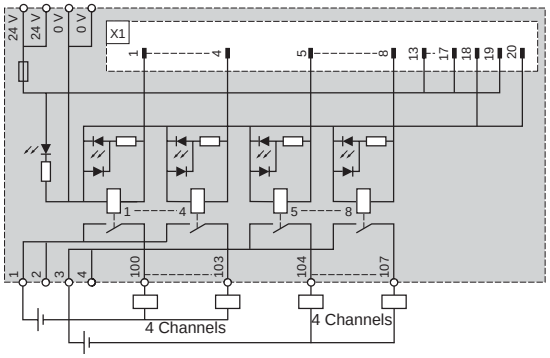
The wiring diagrams above are recommended for inductive loads and are valid for all modules equipped with electromechanical relays.

Self-protected relays ABS7SC3BA (24 Vdc/2 A) do not require any special protection.

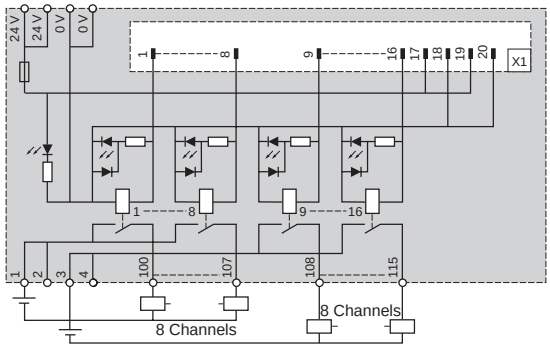


(1) The user must connect 1 and 2, 4 and C
(2) No isolator on ABE7H●●E●●●/7H16C●●
(3) Example of input wiring
▲ External contacts

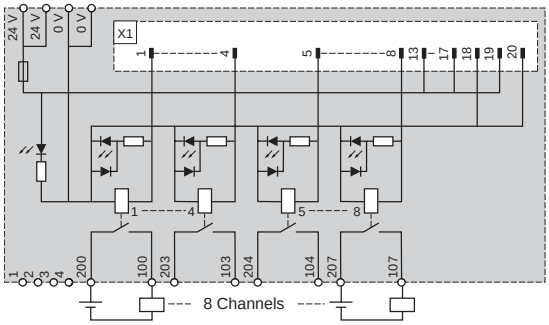
ABE7R08S111



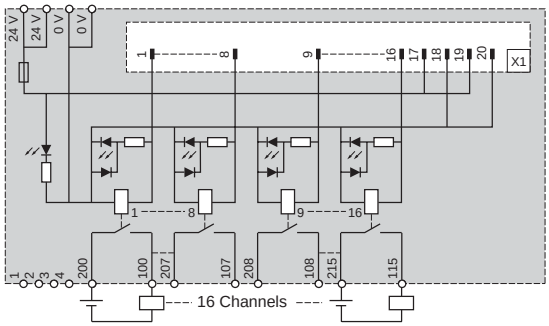
ABE7R16S111



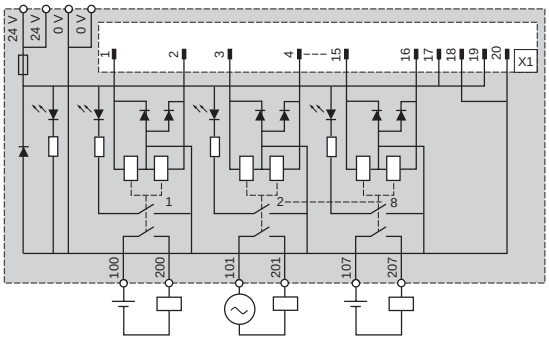
ABE7R08S210



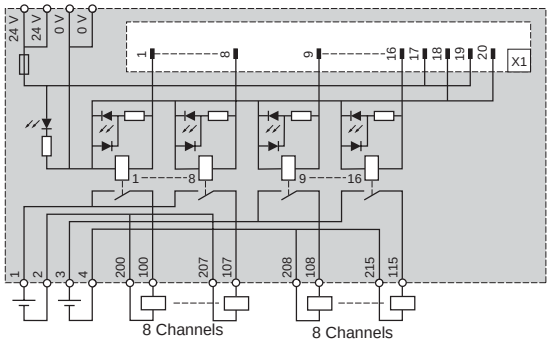
ABE7R16S210



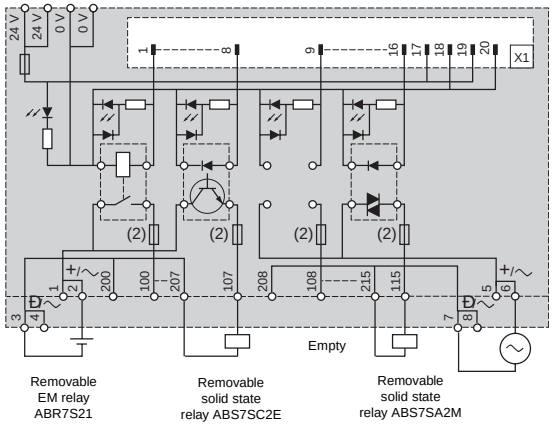
ABE7R08S216



ABE7R16S212



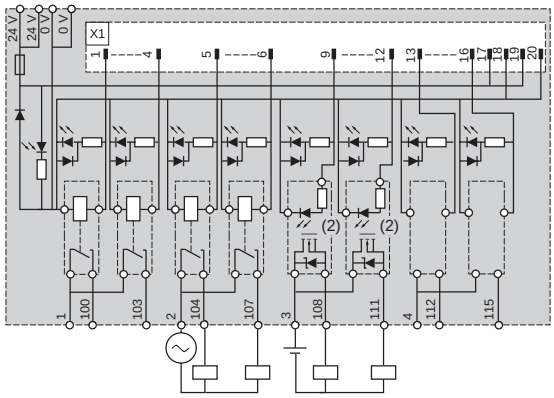
ABE7P16T212 (1), ABE7R16T212, ABE7P16T215 (1)



(1) Modules are not supplied with relays.

(2) ABS7SC1B solid state relays can be installed in the module.

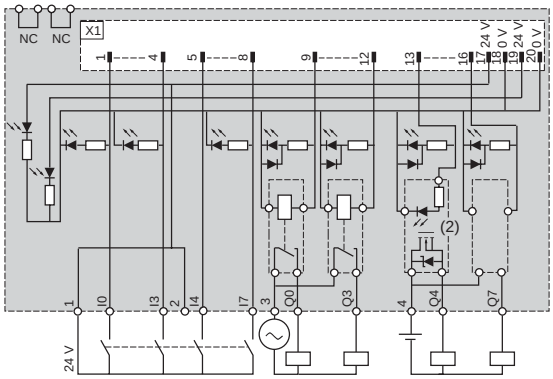
ABE7P16T111 (1), ABE7R16T111



(1) ABR7S11 modules are not supplied with relays.

(2) ABS7SC1B solid state relays can be installed in the module.

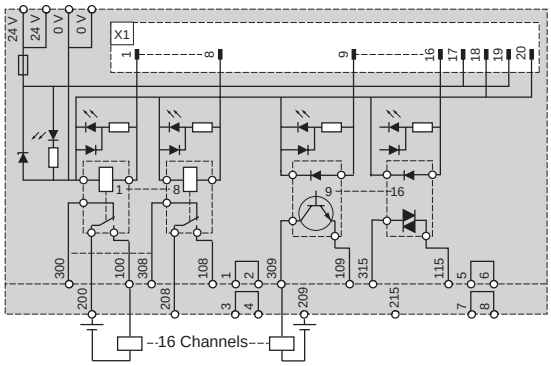
ABE7P16M111 (1), ABE7R16M111



(1) ABR7S11 modules are not supplied with relays.

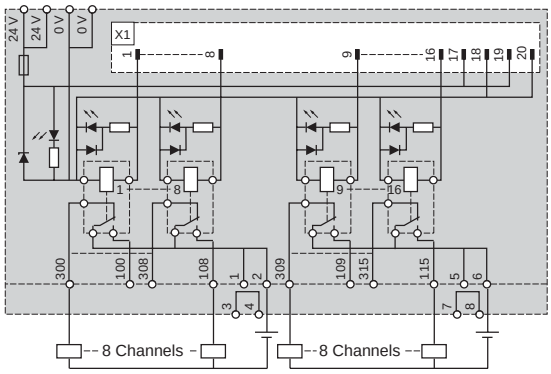
(2) ABS7SC1B solid state relays can be installed in the module.

ABE7●16T230 (1)

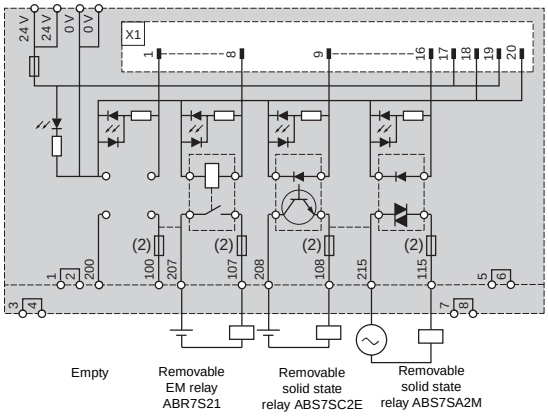


(1) ABS7S●2●● solid state relays can be installed in the modules.

ABE7R16T231



ABE7P16T210, ABE7R16T210 (1), ABE7P16T214 (1)

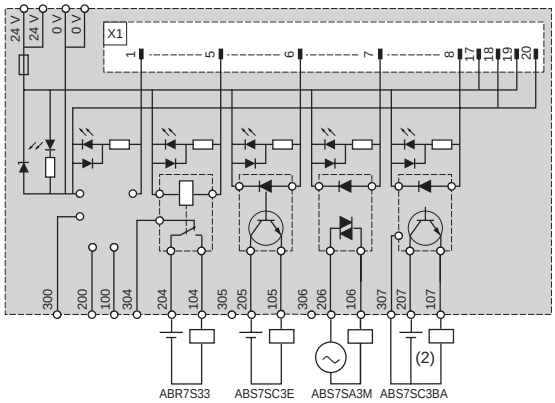


(1) Modules are not supplied with relays.

(2) Fuses only on ABE7P16T214.

EM = Electromechanical

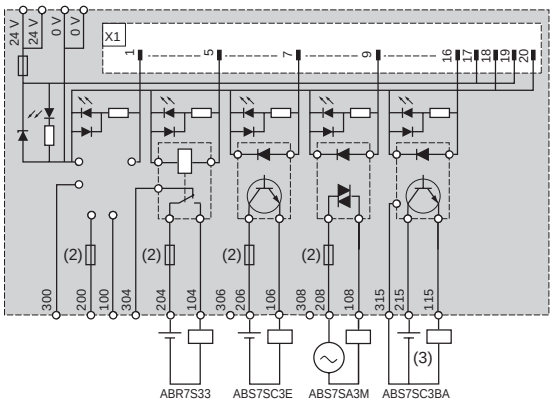
ABE7P08T330 (1)



(1) Module is not supplied with relays.

(2) Connection of ABS7SC3BA solid state relay.

ABE7R16T330, ABE7P16T330 (1), ABE7P16T334 (1)

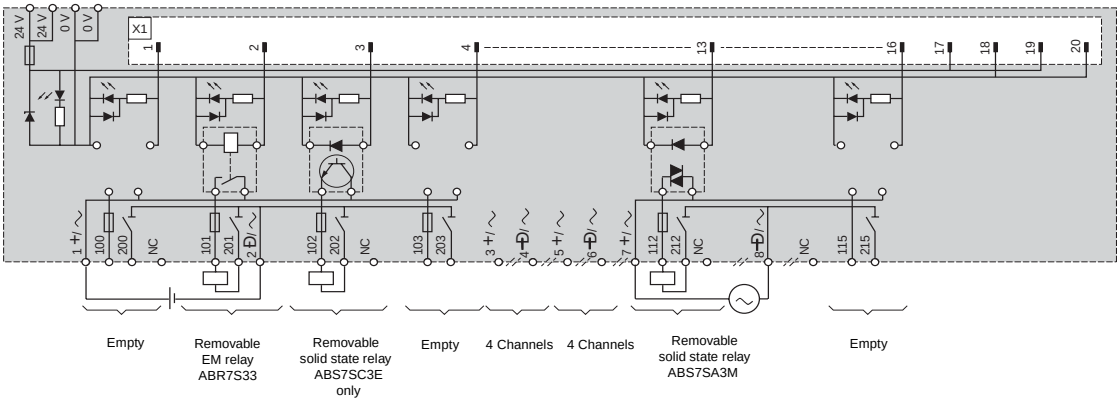


(1) Module is not supplied with relays.

(2) Fuses only on ABE7P16T334.

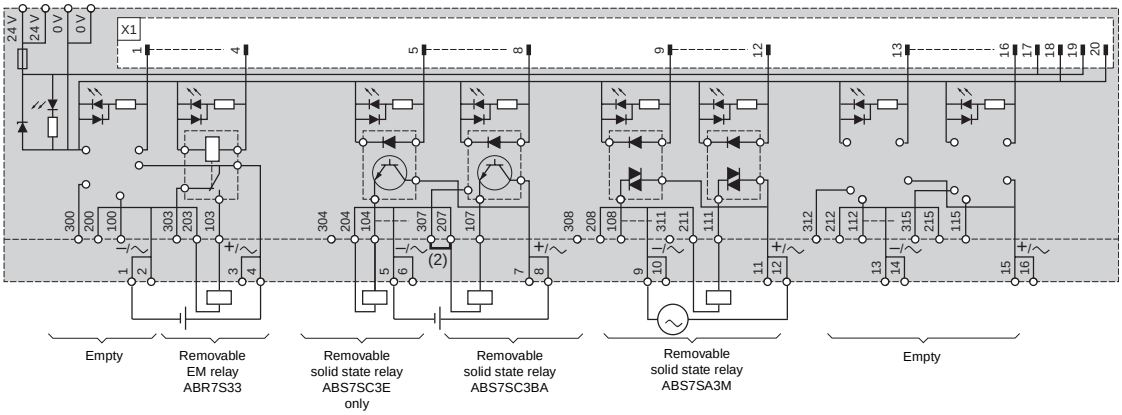
(3) Connection of ABS7SC3BA solid state relay.

ABE7P16T318 (1)



(1) Module is not supplied with relays.

ABE7R16T332 (1)**, ABE7P16T332**

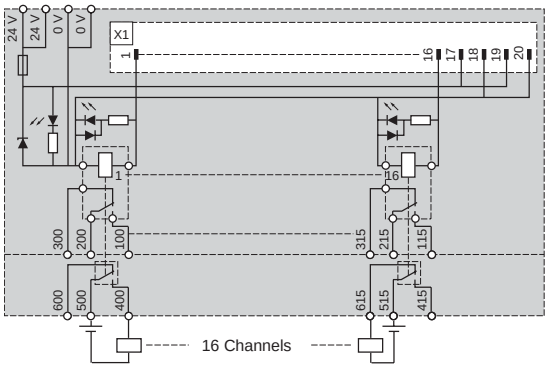


(1) Module is not supplied with relays.

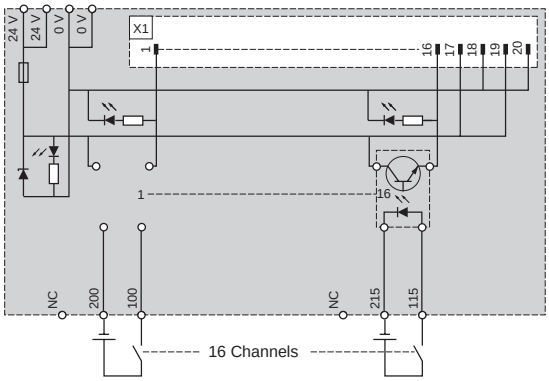
(2) Required jumper supplied with relay ABS7SC3BA.

EM = Electromechanical

ABE7R16T370

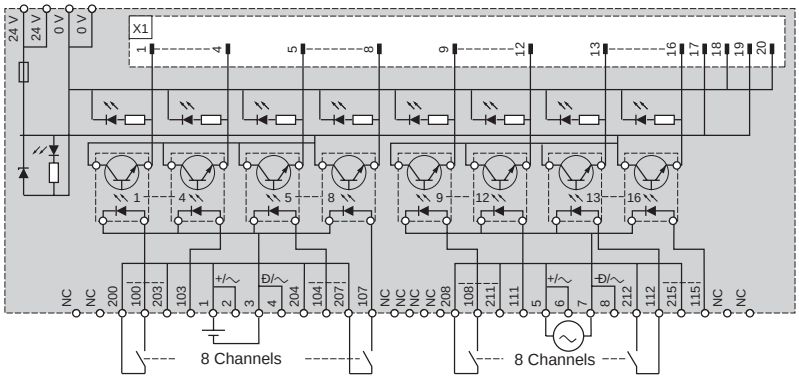


ABE7P16F310 (1)



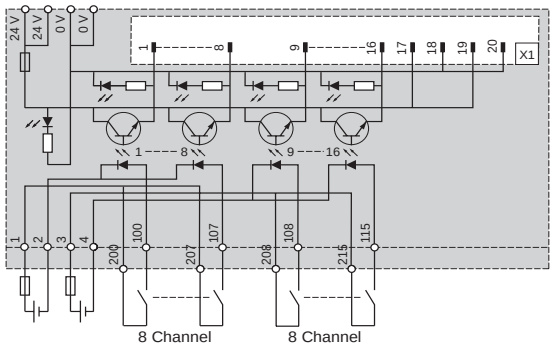
(1) Module is not supplied with relays.

ABE7P16F312 (1)

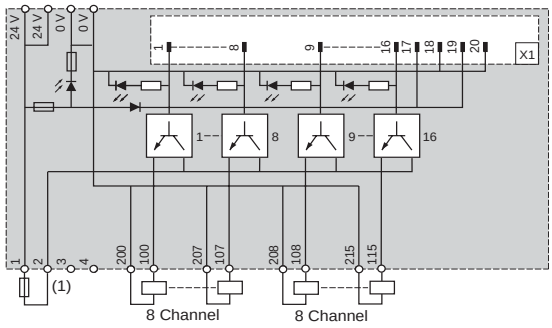


(1) Module is not supplied with relays.

ABE7S16E2●●

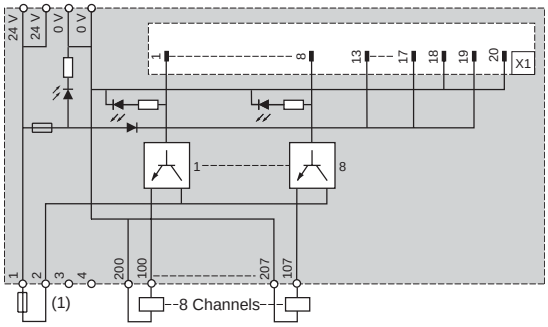


ABE7S16S1B2/ABE7S16S2B0



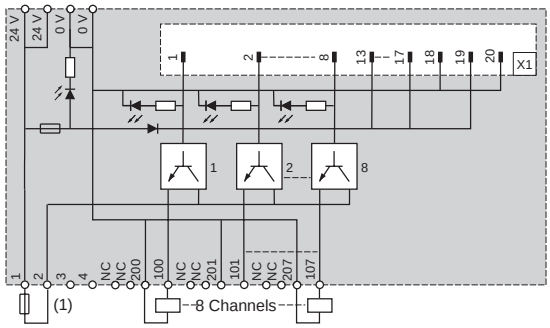
(1) The user must connect the protection fuse across terminals 1 and 2

ABE7S08S2B0



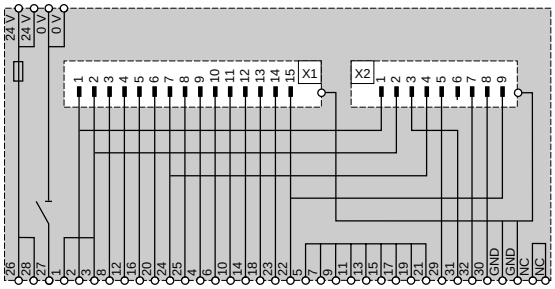
(1) The user **must** connect the protection fuse across terminals 1 and 2.

ABE7S08S2B1

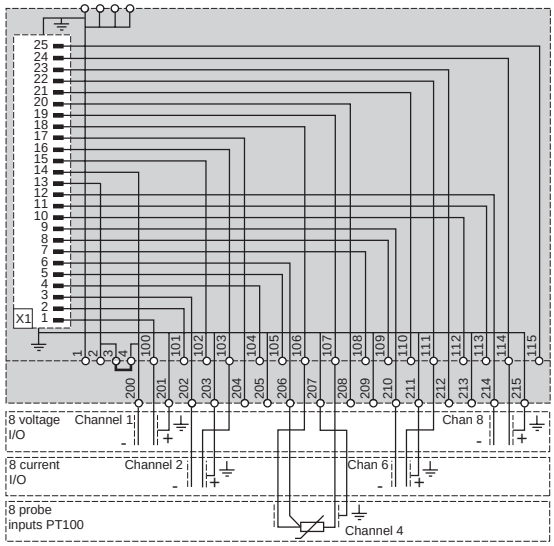


(1) The user **must** connect the protection fuse across terminals 1 and 2

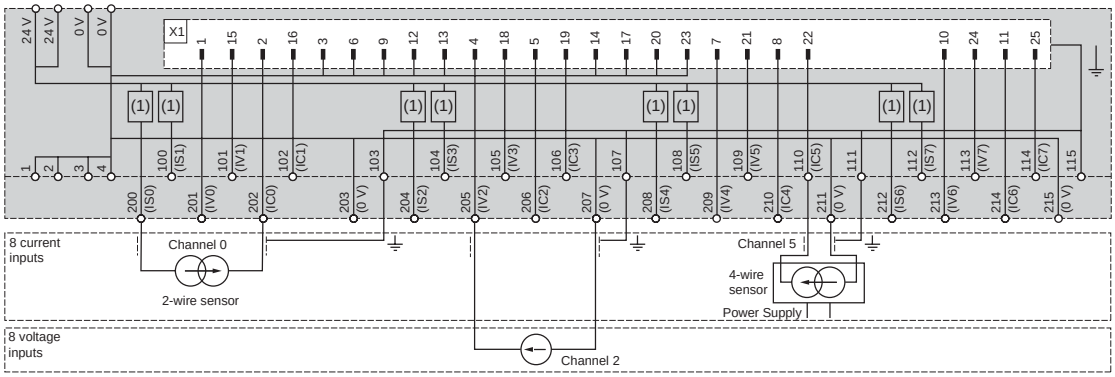
ABE7CPA01



ABE7CPA02

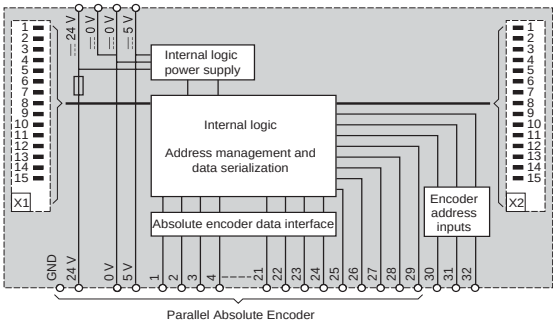


ABE7CPA03



(1) 25 mA limiter

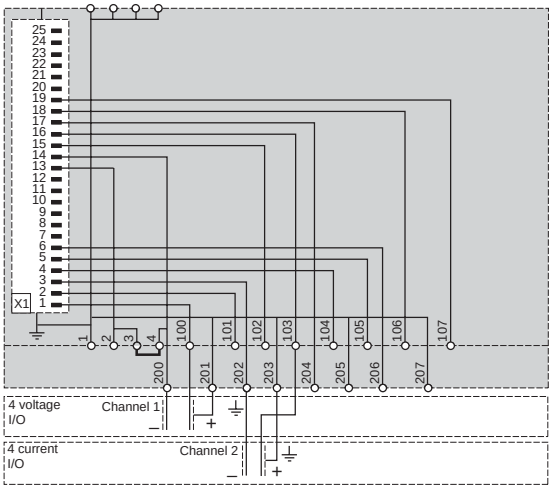
ABE7CPA11



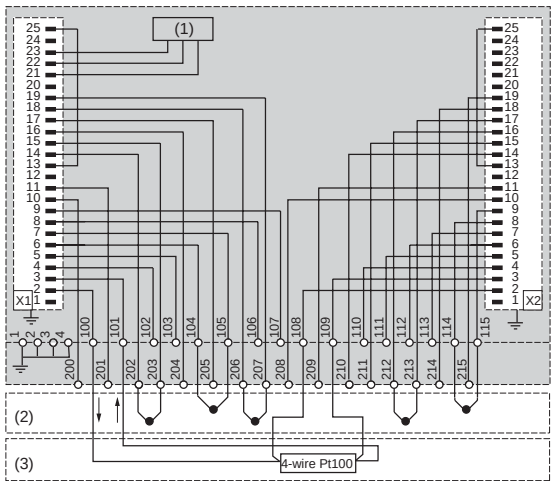
X1 To Premium module

X2 To Telefast

ABE7CPA21



ABE7CPA12

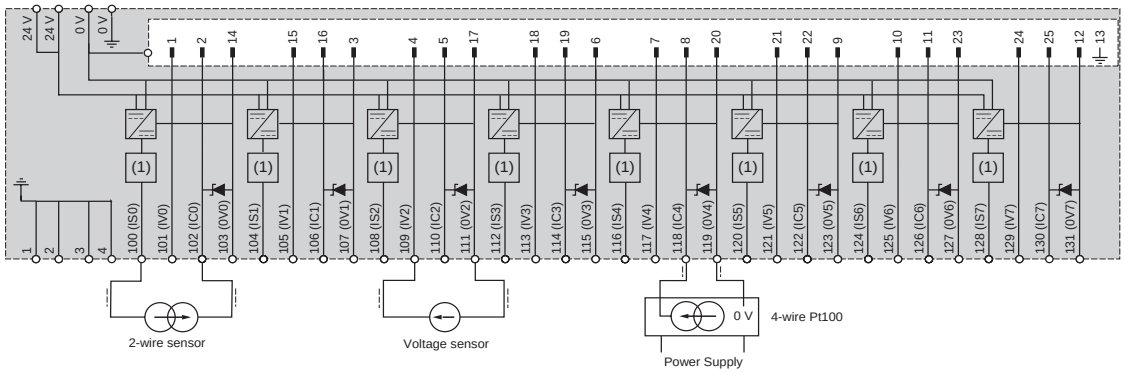


(1) Temperature probe

(2) Used in cold junction compensation mode in the Telefast module

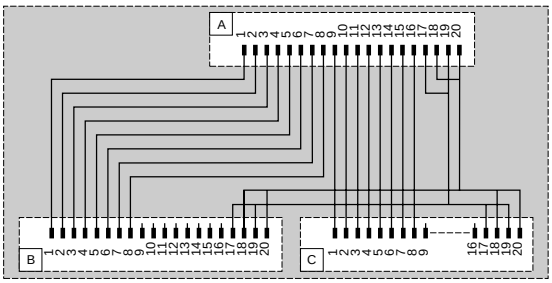
(3) Used in cold junction compensation mode by external 4-wire Pt100

ABE7CPA31

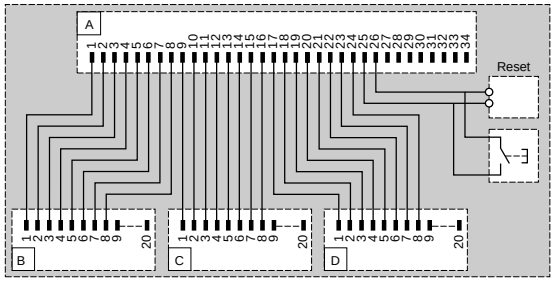


(1) 25 mA limiter

ABE7ACC02



ABE7ACC03



Enclosure Feedthrough

With 40-way industrial connector

ABE7ACC80

20-way HE 10		Industrial connector		20-way HE 10	
Term no.	Channel	Pin no.		Channel	Term no.
1	0	C16	B16	16	1
2	1	C15	B15	17	2
3	2	C14	B14	18	3
4	3	C13	B13	19	4
5	4	C12	B12	20	5
6	5	C11	B11	21	6
7	6	C10	B10	22	7
8	7	C9	B9	23	8
9	8	C8	B8	24	9
10	9	C7	B7	25	10
11	10	C6	B6	26	11
12	11	C5	B5	27	12
13	12	D5	A5	28	13
14	13	D6	A6	29	14
15	14	D7	A7	30	15
16	15	D8	A8	31	16
17	24 Vdc	A3	A3	24 Vdc	17
18	0 Vdc	C3	C3	0 Vdc	18
19	24 Vdc	B3	B3	24 Vdc	19
20	0 Vdc	D3	D3	0 Vdc	20

With CNOMO M23 connector

ABE7ACC82

20-way HE 10		M23 connector	Removable power supply
Term no.	Channel	Pin no.	term. block
1	0	15	
2	1	5	
3	2	16	
4	3	3	
5	4	17	
6	5	2	
7	6	11	
8	7	1	
9	8	7	
10	9	4	
11	10	8	
12	11	14	
13	12	9	
14	13	13	
15	14	10	
16	15	18	
17/19	24Vdc	19	B/C
NC	Ground	12	A
18/20	0Vdc	6	D/E

ABE7ACC83

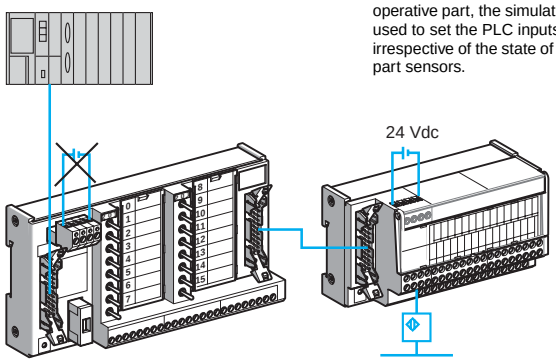
20-way HE 10		M23 connector	Removable power supply
Term no.	Channel	Pin no.	term. block
1	0	15	
2	1	5	
3	2	16	
4	3	3	
5	4	17	
6	5	2	
7	6	11	
8	7	1	
9	8	7	
10	9	4	
11	10	8	
12	11	14	
NC		9	
NC		13	
NC		10	
NC		18	
NC	Ground	12	A
13/14/15/ 16/17/19	24 Vdc	19	B/C
18/20	0 Vdc	6	D/E

ABFF25S200

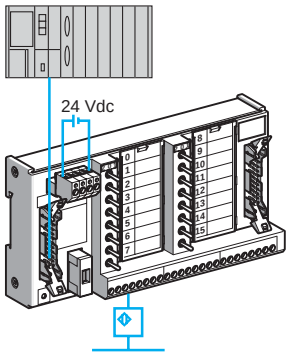
Channel		25-way SUB-D	Color
1	–	14	Black
	+	1	Yellow
2	–	3	Black
	+	15	Blue
3	–	17	Black
	+	4	Green
4	–	6	Black
	+	18	White
5	–	20	Green
	+	7	Red
6	–	9	Red
	+	21	White
7	–	23	Black
	+	10	Orange
8	–	12	Black
	+	24	Red

Simulation Modules

ABE7TES160
Input Connectors

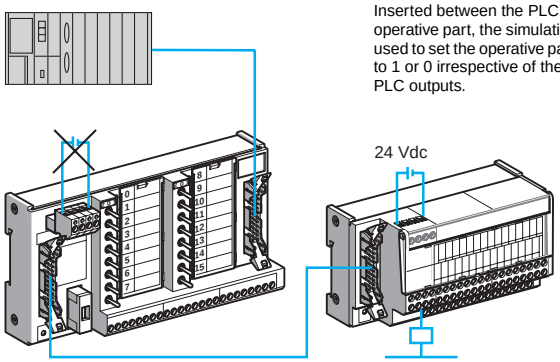


Inserted between the PLC and the operative part, the simulation module is used to set the PLC inputs to 1 or 0 irrespective of the state of the operative part sensors.



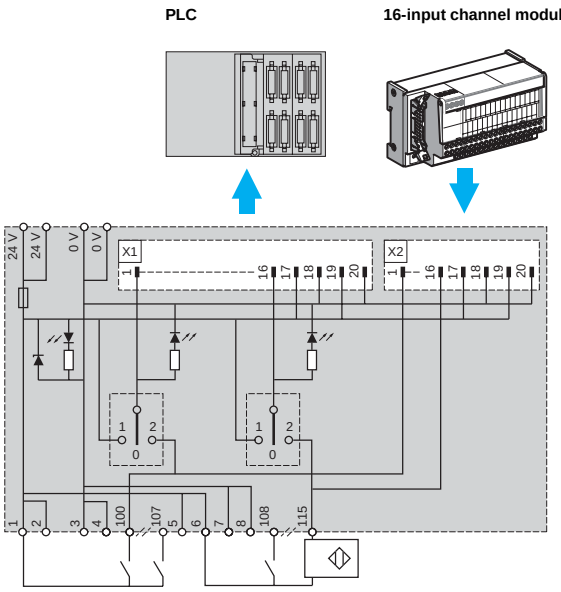
Connected to a PLC input module, the simulation module enables signals to be forced to 1 or 0 and sensors to be connected to its screw terminals.

Output Connectors

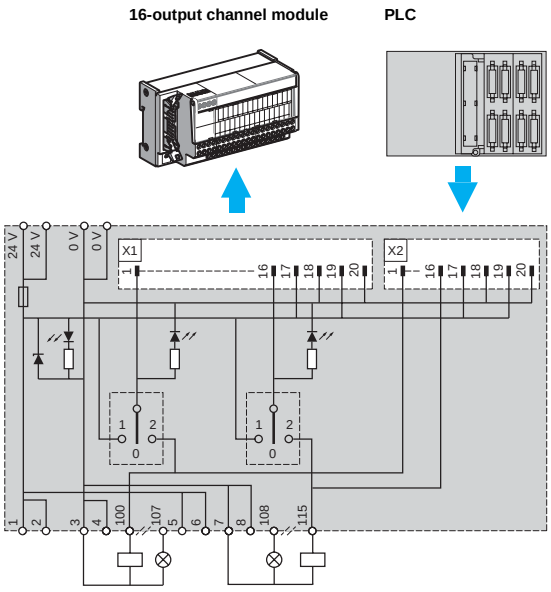


Inserted between the PLC and the - operative part, the simulation module is used to set the operative part -actuators to 1 or 0 irrespective of the state of the PLC outputs.

Input Connection Wiring



Output Connection Wiring



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