

# ABE7B20MRM20

connection sub-base ABE7 - for Twido modular base  
- 12 inputs 8 outputs



## Main

Range of product	Advantys Telefast ABE7
Product or component type	Discrete I/O sub-base
[Us] rated supply voltage	24 V DC (controller side) 24 V DC (sensor/controller side)
Number of channels	20
Number of terminal per channel	2
Connections - terminals	Screw type terminals, clamping capacity: 1 x 0.09...1 x 1.5 mm <sup>2</sup> AWG 28...16 flexible with cable end Screw type terminals, clamping capacity: 1 x 0.14...1 x 2.5 mm <sup>2</sup> AWG 26...12 solid Screw type terminals, clamping capacity: 1 x 0.14...1 x 2.5 mm <sup>2</sup> AWG 26...14 flexible without cable end Screw type terminals, clamping capacity: 2 x 0.09...2 x 0.75 mm <sup>2</sup> AWG 28...20 flexible with cable end Screw type terminals, clamping capacity: 2 x 0.2...2 x 2.5 mm <sup>2</sup> AWG 28...16 solid
Connector destination	Twido programmable controller

## Complementary

Supply voltage limits	19...30 V DC conforming to IEC 61131-2 (controller side) 19...30 V DC conforming to IEC 61131-2 (sensor/controller side)
Discrete input number	12
Discrete input logic	Sink
Discrete output number	2 solid state output(s), 2000 mA at source 6 relay output(s), 3000 mA
Discrete output voltage	110...250 V AC relay output(s) 24 V DC solid state output(s) 5...30 V DC relay output(s)
Discrete output function	1 NO
Product compatibility	TWDLMDA20DTK TWDLMDA40DTK
Status LED	1 LED for power ON
Polarity distribution	1 common/12 channels for input 1 common/2 channels for solid state output 1 common/6 channels for relay output
Short circuit protection	2 A internal fuse, 5 x 20 mm, fast blow (controller side)
Connector type	HE-10
Pin number	26
Fixing mode	By clips on 35 mm symmetrical DIN rail conforming to IEC 60715 By screws
Supply current	<= 2 A
Current per channel	0.0045 A solid state output(s) 0.009 A relay output(s)
Switched current	15 mA for input 2000 mA for solid state output 3000 mA for relay output
Current per output common	10 A relay output 4 A solid state output
Voltage drop on power supply fuse	0.3 V
Current state 0 guaranteed	0.4 mA solid state output(s) (sensor/controller side)
Voltage state 0 guaranteed	10 V solid state output(s) (sensor/controller side) 2 V relay output(s) (sensor/controller side)

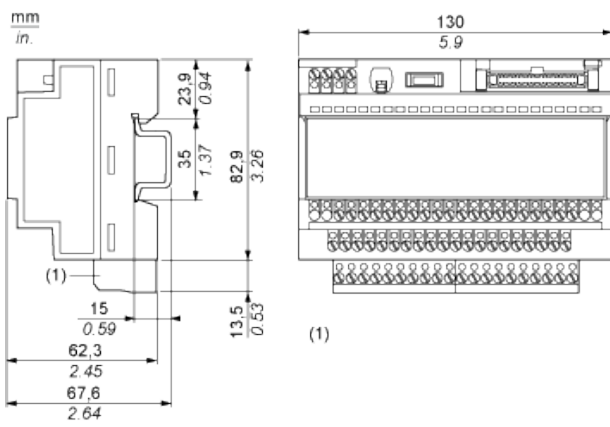
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Current state 1 guaranteed	5.5 mA solid state output(s) (sensor/controller side)
Voltage state1 guaranteed	16 V solid state output(s) (sensor/controller side) 16.8 V relay output(s) (sensor/controller side)
Electrical durability	500000 cycles, maximum switching current: 2000 mA AC-12 relay output(s) (preactuator side) 500000 cycles, maximum switching current: 2000 mA DC-12 solid state output(s) (preactuator side) 500000 cycles, maximum switching current: 2000 mA DC-13 solid state output(s) (preactuator side) 500000 cycles, maximum switching current: 3000 mA DC-12 relay output(s) (preactuator side) 500000 cycles, maximum switching current: 400 mA AC-15 relay output(s) (preactuator side) 500000 cycles, maximum switching current: 500 mA DC-13 relay output(s) (preactuator side)
Minimum switching current	1 mA solid state output(s) 100 mA relay output(s)
Response time	<= 0.01 ms from state 0 to 1 solid state output(s) <= 0.4 ms from state 1 to 0 solid state output(s) <= 2.5 ms from state 1 to 0 relay output(s) <= 5 ms from state 0 to 1 relay output(s)
[Uimp] rated impulse withstand voltage	6 kV relay output(s) 2.5 kV solid state output(s)
Switching frequency	20 Hz relay 300 Hz solid state
Mechanical durability	20000000 cycles at 20 °C
[Ui] rated insulation voltage	2000 V between terminals/mounting rails 300 V between coil circuit/contact circuits conforming to IEC 60947-1
Overvoltage category	II conforming to IEC 60664-1
Tightening torque	0.6 N.m (with flat Ø 3.5 mm)
Product weight	0.43 kg

## Environment

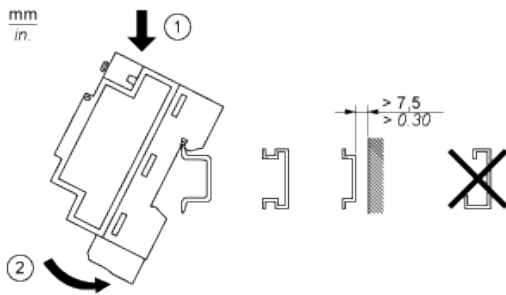
Standards	IEC 61131-2 Type 1
Product certifications	CSA UL
IP degree of protection	IP2x conforming to IEC 60529
Resistance to incandescent wire	750 °C conforming to IEC 60695-2-11
Shock resistance	15 gn for 11 ms conforming to IEC 60068-2-27
Vibration resistance	2 gn (f = 10...150 Hz) conforming to IEC 60068-2-6
Resistance to electrostatic discharge	4 kV (contact) conforming to IEC 61000-4-2 level 3 8 kV (air) conforming to IEC 61000-4-2 level 3
Resistance to radiated fields	10 V/m (80000000...2000000000 Hz) conforming to IEC 61000-4-3 level 3
Resistance to fast transients	2 kV conforming to IEC 61000-4-4 level 3
Ambient air temperature for operation	-5...60 °C conforming to IEC 61131-2
Ambient air temperature for storage	-40...80 °C conforming to IEC 61131-2
Pollution degree	2 conforming to IEC 60664-1

## Dimensions

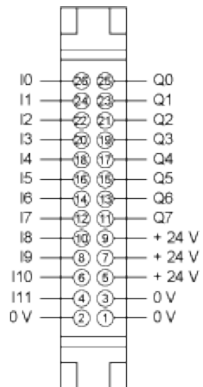


(1) ABE7BV10 / BV20 / BV20TB

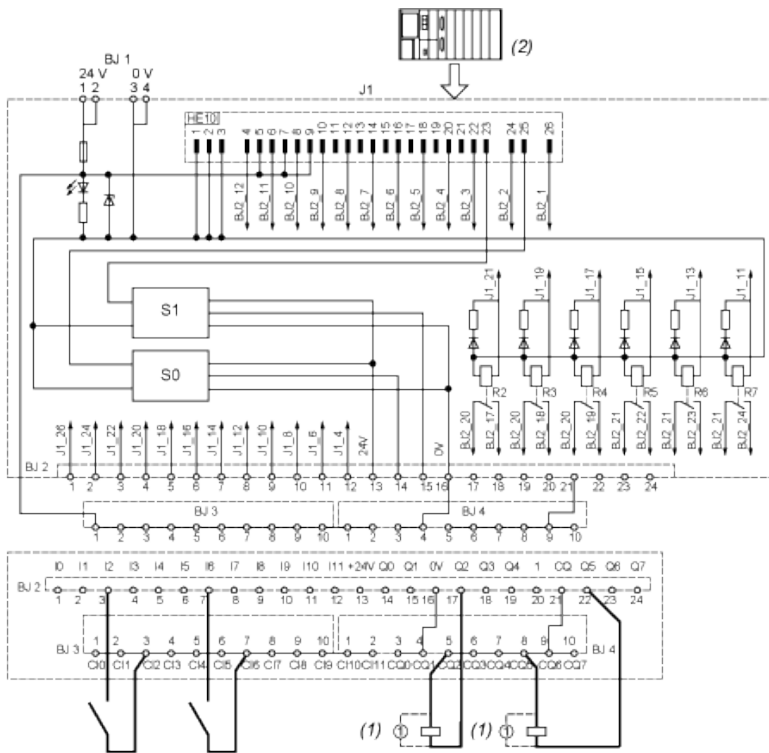
### Mounting



### HE10 20 Channels

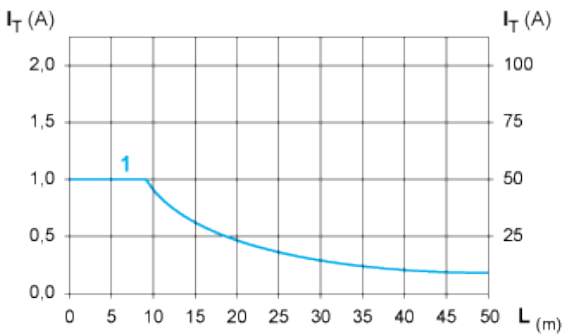


### Wiring Diagram



- (1) Inductive load
- (2) Input sink

### Curves for Determining Cable Type and Length According to the Current



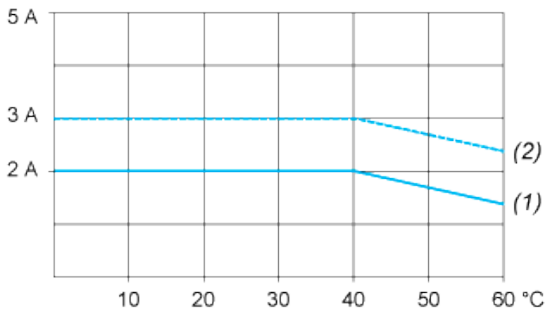
- L Cable length
- $I_T$  Total current per sub base (A)
- $I_A$  Average current per channel (mA)

(1) Cables ABFT2••••• c.s.a. 0.08 mm<sup>2</sup> (AWG 28)

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.

### Temperature Derating Curves

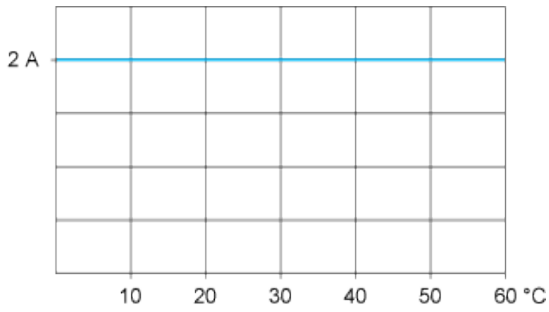
#### Electromechanical Relay Outputs



- (1) 100 % of channels used
- (2) 50 % of channels used

**Temperature Derating Curves**

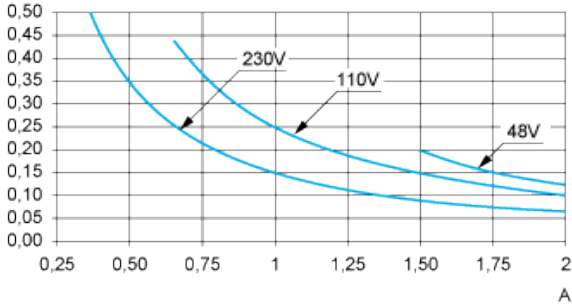
**Solid State Outputs**



**Electrical Durability (in Millions of Operating Cycles) Conforming to IEC 60947-5-1**

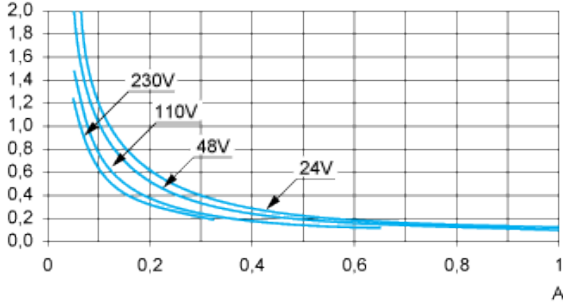
**DC Loads**

DC12 curves



DC12 control of resistive loads and of solid state loads isolated by optocoupler,  $I/R \leq 1$  ms.

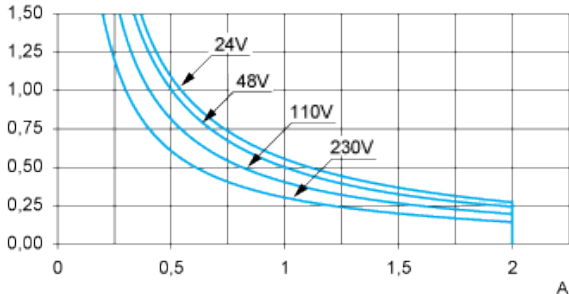
DC13 curves



DC13 switching electromagnets,  $L/R \leq 2 \times (U_e \times I_e)$  in ms,  $U_e$ : rated operational voltage,  $I_e$ : 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)

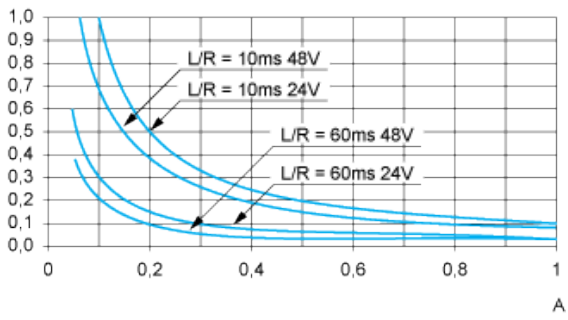
**AC Loads**

AC12 curves



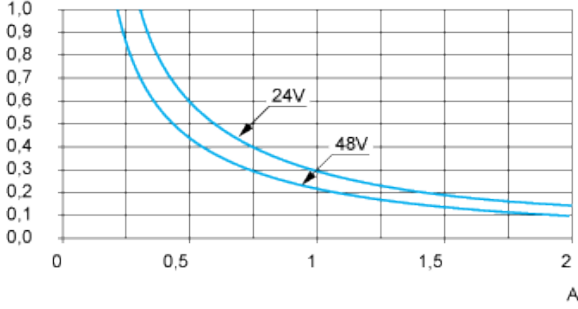
AC12 control of resistive loads and of solid state loads isolated by optocoupler,  $\cos \phi \geq 0.9$ .

AC14 curves



**AC14** control of small electromagnetic loads  $\leq 72$  VA, make:  $\cos \phi = 0.3$ , break:  $\cos \phi = 0.3$ .

AC15 curves



**AC15** control of electromagnetic loads  $> 72$  VA, make:  $\cos \phi = 0.7$ , break:  $\cos \phi = 0.4$ .