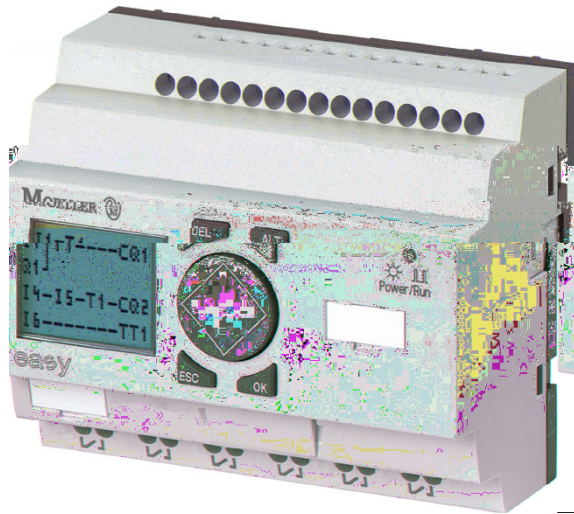


Type: **EASY721-DC-TCX**
 Article No.: **274122**



Ordering information

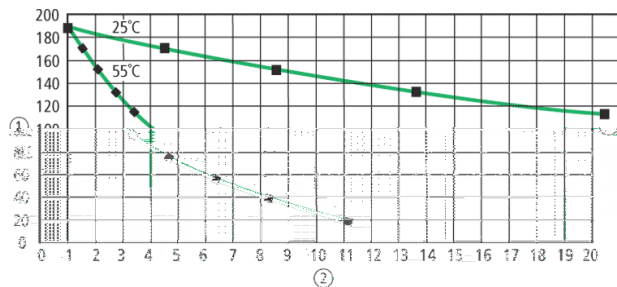
Power supply	V DC	24 V DC
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Description

- 12 digital inputs (4 inputs available as analog inputs)
- 8 transistor outputs
- Screw terminals
- Timer
- Can be expanded using easy expansion units

Notes concerning the product group

Backup of real-time clock (only for appropriate devices)



① Backup time (hours)

② Operating time (years)

General			
Standards			EN 55011, EN 55022, IEC/EN 61000-4, IEC 60068-2-6, IEC 60068-2-27
Dimensions (W × H × D)		mm	107.5 × 90 × 58 (6 PE)
Weight		kg	0,3
Mounting			Top-hat rail IEC/EN 60715, 35 mm or screw fixing using fixing brackets ZB4-101-GF1 (accessories)
Terminal capacities			
Solid		mm ²	0.24 (AWG 22 – 12)
Flexible with ferrule		mm ²	0.22.5 (AWG 22 – 12)
Standard screwdriver		mm	3.5 × 0.8
Max. tightening torque		Nm	0,6
Climatic environmental conditions			
Operating ambient temperature		° C	-25 to 55, cold as per IEC 60068-2-1, heat as per IEC 60068-2-2
Condensation			Take appropriate measures to prevent condensation
LCD display (clearly legible)		° C	055
Storage		° C	-40/+70
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	5 – 95
Air pressure (operation)		hPa	795 – 1080
Corrosion resistance			
IEC/EN 60068-2-42	4 days SO ₂	cm ³ /m ³	10
IEC/EN 60068-2-43	4 days H ₂ S	cm ³ /m ³	1
Ambient conditions, mechanical			
Pollution degree			2
Degree of protection (IEC/EN 60529)			IP 20
Vibrations (IEC/EN 60068-2-6)			
Constant amplitude 0.15 mm		Hz	10 – 57
Constant acceleration 2 g		Hz	57 – 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Impacts	18

Drop to IEC/EN 60068–2–31	Drop height	mm	50
Free fall, packaged (IEC/EN 60068–2–32)		m	1
Mounting position			horizontal/vertical
Electromagnetic compatibility (EMC)			
Electrostatic discharge (IEC/EN 61000–4–2, Level 3, ESD)			
Air discharge		kV	8
Contact discharge		kV	6
Electromagnetic fields (IEC/EN 61000–4–3, RFI)		V/m	10
Radio interference suppression (EN 55011)			EN 55011 Class B, EN 55022 Class B
Burst pulses (IEC/EN 61000–4–4, level 3)			
Supply cables		kV	2
Signal lines		kV	2
High–energy pulses (surge) (IEC/EN 61000–4–5)		kV	2 (supply cables, symmetrical, EASY...AC)
High–energy pulses (surge) (IEC/EN 61000–4–5, level 2)		kV	0.5 (supply cables, symmetrical, EASY...DC)
Immunity to line–conducted interference to (IEC/EN 61000–4–6)		V	10
Insulation resistance			
Clearance in air and creepage distances			EN 50178, UL 508, CSA C22.2, no. 142
Insulation resistance			EN 50178
Backup/accuracy of the real–time clock			
Accuracy of the real–time clock			Normally ± 5 (± 0.5 h/year)
Repetition accuracy of timing relays			
Accuracy of timing relays (of values)		%	± 1
Resolution			
Range “S”		ms	10
Range “M:S”		s	1
Range “H:M”		min	1
Retentive memory			
Write cycles of the retentive memory			1000000 (10^6)
Power supply			

Rated operational voltage	U_e	V	24 DC (–15/+20%)
Admissible range		V DC	20,4 – 28,8
Residual ripple		%	5
Input current			
Input current 115/230 V AC		mA	Normally 140
Voltage dips (IEC/EN 61131–2)		ms	10
Heat dissipation		W	Normally 3.5
Digital inputs 24 V DC			
Number			12
Inputs can be used as analog inputs			4 (I7, I8, I11, I12)
Status indication			LCD–display (if present)
Potential isolation			
From power supply			No
Between digital inputs			No
From the outputs			Yes
Rated operational voltage	U_e	V DC	24
On 0 signal	U_e	V DC	< 5 (I1 – I12, R1 – R12)
On 1 signal	U_e	V DC	> 15.0 (I1 – I6, I9, I10), > 8.0 (I7, I8, I11, I12)
Input current on 1 signal			
I1 to I6		mA	3.3 (at 24 V DC)
I7, I8		mA	2.2 (at 24 V DC)
I9, I10		mA	3.3 (at 24 V DC)
I11, I12		mA	2.2 (at 24 V DC)
Delay time from 0 to 1			
Debounce ON		ms	20
Debounce OFF		ms	Normally 0.25 (I1 – I12)
Delay time from 1 to 0			
Debounce ON		ms	20
Cable length (unscreened)		m	100
Frequency counter			
Quantity			2 (I3, I4)
Counter frequency		kHz	< 1
Pulse shape			Square
Pulse pause ratio			1:1
Rapid counter inputs			
Number			2 (I1, I2)
Counter frequency		kHz	< 1

Pulse shape			Square
Pulse pause ratio			1:1
Analog inputs			
Quantity			4 (I7, I8, I11, I12)
Potential isolation			
From power supply			No
From the digital inputs			No
From the outputs			Yes
From the PC interface, memory card NET network, EASY-Link			No
Input type			DC voltage
Signal range		V DC	0 – 10
Resolution, analog		V	0,01
Resolution, digital		V	0,01
Resolution, digital		Bit	10 (value 0 – 1023)
Input impedance		k	11,2
Accuracy of actual value			
Two EASY devices		%	± 3
Within a single device		%	± 2, ± 0.12 V
Conversion time, analog/digital		ms	Debounce ON: 20; Debounce OFF: every cycle time
Input current		mA	< 1
Cable length screened		m	< 30
Transistor outputs			
Number			8
Rated operational voltage	U_e	V DC	24
Admissible range	U_e	V DC	20,4 – 28,8
Residual ripple		%	5
Supply current			
On 0 signal	Normallymax.	mA	1832
On 1 signal	Normallymax.	mA	24 – 44
Protection against polarity reversal			Yes (Attention: A short-circuit will occur if voltage is applied to the outputs on account of reverse polarity.)
Potential isolation			
From power supply			Yes
Potential isolation			Yes

Rated operational current on 1 signal DC	I_e	A	Max. 0.5
Lamp load without R_v		W	5
Residual current on 0 signal per channel		mA	< 0,1
Max. output voltage			
On 0 signal with external load < 10 M		V	2,5
On 1 signal with $I_e = 0.5$ A		V	$U = U_e - 1$ V
Short-circuit protection			Yes, thermal (analysis via diagnostics input I16, I15; R15, R16)
Short-circuit tripping current for R_a 10 m		A	0.7 I_e 2 per output
Total short-circuit current		A	16
Peak short-circuit current		A	32
Thermal cutout			Yes
Max. operating frequency with constant resistive load $R_L < 100$ k (depending on number of active channels and their load)		Ops./h	40000
Parallel connection of outputs			
With resistive load, inductive load with external suppressor circuit, combination within a group			Group 1: Q1 to Q4 Group 2: Q5 – Q8
Number of outputs	max.		4
Max. total current			2 (Caution! Outputs must be actuated simultaneously and for the same length of time.)
Output status indication			LCD-display (if present)
Inductive load			
Without external suppressor circuit			
$T_{0.95} = 1$ ms, $R = 48$, $L = 16$ mH			
Utilization factor		g	0,25
Duty factor		% DF	100
Max. switching frequency $f = 0.5$ Hz (max. DF = 50 %)		Operations	1500
DC-13, $T_{0.95} = 72$ ms, $R = 48$, $L = 1.15$ H			
Utilization factor		g	0,25
Duty factor		% DF	100
Max. switching frequency $f = 0.5$ Hz (max. DF = 50 %)		Operations	1500

$T_{0.95} = 15 \text{ ms}, R = 48, L = 0.24 \text{ H}$			
Utilization factor		g	0,25
Duty factor		% DF	100
Max. switching frequency $f = 0.5 \text{ Hz}$ (max. DF = 50 %)		Operations	1500
With external suppressor circuit			
Utilization factor		g	1
Duty factor		% DF	100
Max. switching frequency, max. duty factor		Operations	Depending on the suppressor circuit
Analog outputs			
Potential isolation			
From power supply			No
From the digital inputs			No
Signal range		V DC	0 – 10
Conversion time, analog/digital		ms	Debounce ON: 20; Debounce OFF: every cycle time
Notes			
Dimensions			

Notes

For additional Technical Data EASY5... and EASY7... → AWB2528–1508GB,

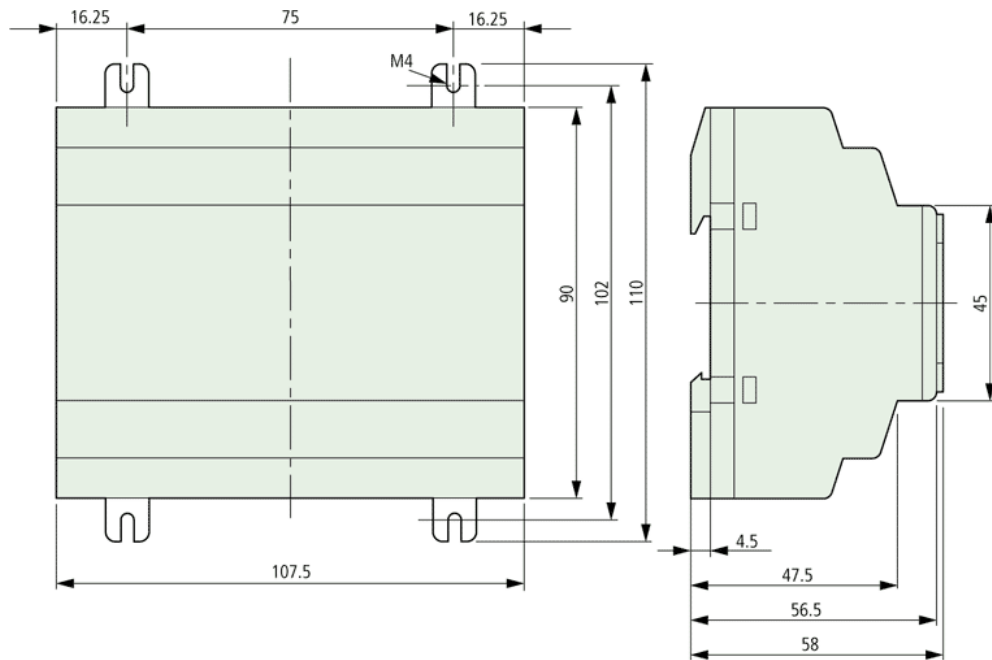
EASY8... → AWB2528–1423D

Notes

For inductive loading, without external suppression of the transistor outputs, the following applies:
 $T_{0.95}$ = time in ms, until 95 % of the steady-state current is achieved. $T_{0.95} \approx 3 \times T_{0.65} = 3 \times L/R$.

Data transfer rate in the NET network: bus lengths of 40 m and over only attainable with cables with additional cross-section and connection adapter.

Dimensions



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