



**Control relay, 24 V DC, 12DI(4AI), 8DO-Trans, time, expandable**



Powering Business Worldwide™

**Part no. EASY721-DC-TCX**  
**Article no. 274122**  
**Catalog No.**

### Delivery programme

Product range  
 Basic function  
 Description

Control relays easyRelay easy700 (expandable)  
 Expandable: Digital inputs/outputs, bus systems AS-Interface, PROFIBUS-DP, CANopen®, DeviceNet  
 customized laser inscription or delivery with user program possible with EASY-COMBINATION-\* product (article No. 2010781)

Inputs  
 Digital input count

digital: 12  
 digital: 12; of which can be used as analog: 4  
 12  
 4

Digital of which can be used as analog

Outputs  
 Type  
 Quantity of outputs  
 Outputs  
 Transistor

Number

Transistor  
 Transistor: 8  
 8  
 8

Additional features  
 Display  
 Expansions  
 Supply voltage  
 Software

without display, without keypad  
 Expandable  
 24 V DC  
 EASY-SOFT-BASIC/-PRO

### Approvals

Product Standards

IEC/EN see Technical Data; UL 508; CSA C22.2 No. 142-M1987; CSA C22.2 No. 213-M1987; CE marking

UL File No.  
 UL Category Control No.  
 CSA File No.  
 CSA Class No.  
 North America Certification  
 Degree of Protection  
 shipping classification

E135462  
 NRAQ  
 012528  
 2252-01 + 2258-02  
 UL listed, CSA certified  
 IEC: IP20, UL/CSA Type: -  
 BV  
 DNV  
 GL  
 LR



Germanischer Lloyd



### General

Standards

		EN 55011, EN 55022, IEC/EN 61000-4, IEC 60068-2-6, IEC 60068-2-27
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 <sup>2</sup>	0.2/4 (AWG 22 - 12)
Flexible with ferrule	mm <sup>2</sup>	0.2/2.5 (AWG 22 - 12)
Standard screwdriver	mm	3.5 x 0.8
Max. tightening torque	Nm	0.6

### Climatic environmental conditions

Operating ambient temperature

	°C	In accordance with IEC 60068-2-1, -25 - +55
Condensation		Take appropriate measures to prevent condensation
Storage	θ	-40 - +70
relative humidity	%	in accordance with IEC 60068-2-30, IEC 60068-2-78 5 - 95
Air pressure (operation)	hPa	795 - 1080

## Ambient conditions, mechanical

Protection type (IEC/EN 60529, EN50178, VBG 4)

Vibrations

Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms  
Drop to IEC/EN 60068-2-31

Free fall, packaged (IEC/EN 60068-2-32)

Mounting position

## Electromagnetic compatibility (EMC)

Overvoltage category/pollution degree

Electrostatic discharge (ESD)

applied standard

Air discharge

Contact discharge

Electromagnetic fields (RFI) to IEC EN 61000-4-3

Radio interference suppression

Burst

power pulses (Surge)

Immunity to line-conducted interference to (IEC/EN 61000-4-6)

## Insulation resistance

Clearance in air and creepage distances

Insulation resistance

## Back-up of real-time clock

Back-up of real-time clock

Accuracy of real-time clock to inputs

## Repetition accuracy of timing relays

Accuracy of timing relays (of values)

Resolution

Range "S"

Range "M:S"

Range "H:M"

## Retentive memory

Write cycles of the retentive memory

## Power supply

Rated operational voltage

Permissible range

Residual ripple

Siemens MPI, (optional)

Input current

Voltage dips

Fuse

## Digital inputs 24 V DC

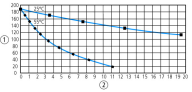
Number

Inputs can be used as analog inputs

		IP20
	Hz	In accordance with IEC 60068-2-6 constant amplitude 0.15 mm: 10 - 57 constant acceleration 2 g: 57 - 150
	Impacts	18
Drop height	mm	50
	m	1
		Vertical or horizontal

		III/2
		according to IEC EN 61000-4-2
	kV	8
	kV	6
	V/m	10
		EN 55011 Class B, EN 55022 Class B
	kV	according to IEC/EN 61000-4-4
		according to IEC/EN 61000-4-5 1 kV (supply cables, symmetrical)
	V	10

		EN 50178, UL 508, CSA C22.2, No. 142
		EN 50178


		
		<p>① Backup time (hours) with fully charged double layer capacitor</p> <p>② Service life (years)</p>
	s/day	typ. ± 2 (± 0.2 h/Year)
		depending on ambient air temperature fluctuations of up to ± 5 s/day (± 0.5 h/year) are possible

	%	± 0.02
	ms	10
	s	1
	min	1

		1000000 (10 <sup>6</sup> )
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U <sub>e</sub>	V	24 DC (-15/+20%)
U <sub>e</sub>		20.4 - 28.8 V DC
	%	≲ 5
		yes (Notice: A short-circuit will result if 0 V or earth is applied to the outputs in the event that the supply voltage is connected to the wrong poles.)
		normally 140 mA at U <sub>e</sub>
	ms	≤ In accordance with IEC 61131-2 ≤ 10
	A	≲ 1A (T)

		12
		4 (I7, I8, I11, I12)

Potential isolation			from power supply: no between digital inputs: no from the outputs: yes to interface/memory card: no to easyLink: no
Rated operational voltage	U <sub>e</sub>	V DC	24
Input voltage		V DC	Signal 0:  5 (I1 - I12, R1 - R12) Signal 1:  15 (I1 - I6, I9, I10),  8 (I7, I8, I11, I12)
Input current at signal 1		mA	I1 - I6, I9, I10: 3.3 (at 24 V DC) I7, I8, I11, I12: 2.2 (at 24 V DC)
Deceleration time		ms	20 (0 -> 1/1 -> 0, Debounce ON) normally 0.25 (0 -> 1, Debounce OFF, I1 - I12)
Cable length		m	100 (unshielded)
Frequency counter			
Number			2 (I3, I4)
Counter frequency		kHz	 1
Pulse shape			Square
Pulse pause ratio			1:1
Cable length		m	 20 (screened)
Rapid counter inputs			
Number			2 (I1, I2)
Cable length		m	 20 (screened)
Counter frequency		kHz	< 1
Pulse shape			Square
Pulse pause ratio			1:1

## Analog inputs

Number			4 (I7, I8, I11, I12)
Potential isolation			from power supply: no between digital inputs: no from the outputs: yes to interface/memory card: no to easyLink: no
Input type			DC voltage
Signal range			0-10 V DC
Resolution			0.01 V analog 0.01 V digital 10 Bit (value 0 - 1023)
Input impedance		kΩ	11.2
Accuracy of actual value			
Two EASY devices		%	± 3
Within a single device		%	± 2, (I7, I8, I11, I12) ± 0.12 V
Conversion time, analog/digital		ms	Input delay ON: 20; Input delay OFF: each cycle time
Input current		mA	< 1
Cable length		m	 30, screened

## Transistor outputs

Number			8
Rated operational voltage	U <sub>e</sub>	V DC	24
Permissible range	U <sub>e</sub>		20.4 - 28.8 V DC
Residual ripple		%	5
Supply current		mA	Norm./max. 18/32 at signal 0 24/44 at signal 1
Siemens MPI, (optional)			yes (Notice: A short-circuit will result if 0 V or earth is applied to the outputs in the event that the supply voltage is connected to the wrong poles.)
Potential isolation			from power supply: yes From the inputs: yes to the interface: yes to the memory card: yes to easyLink: yes
Rated operational current at signal „1“ DC per channel	I <sub>e</sub>	A	Max. 0.5

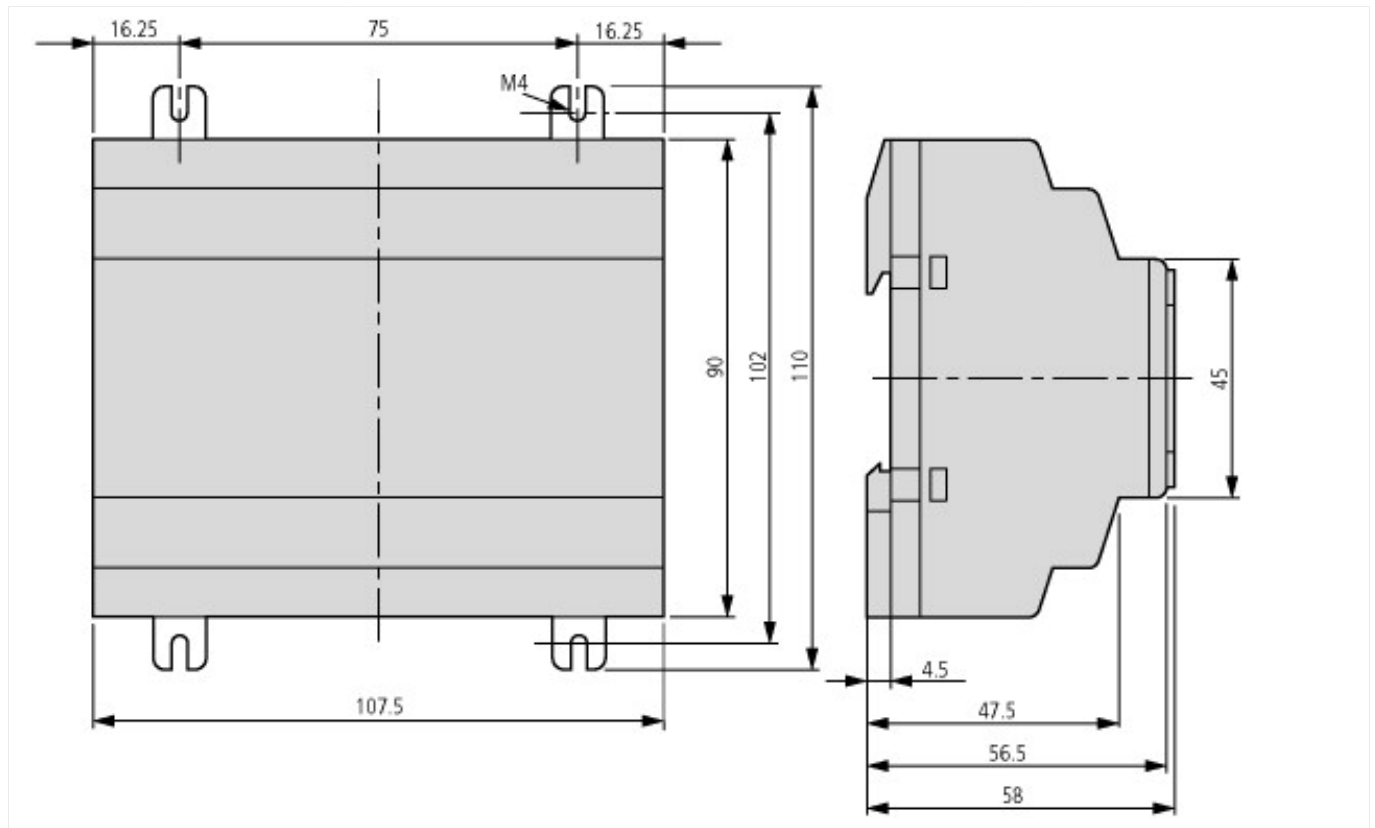
Residual current on 0 signal per channel	mA	< 0.1
Max. output voltage	V	2.5 (signal 0 at external load < 10 MΩ) U = U <sub>e</sub> - 1 V (signal 1 at I <sub>e</sub> = 0.5 A)
Short-circuit protection		Yes, thermal (analysis via diagnostics input I16, I15; R15, R16)
Short-circuit tripping current for R <sub>a</sub> $\cong$ 10 mΩ	A	0.7 $\cong$ I <sub>e</sub> $\cong$ 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	Operations/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	A	2 (Caution! Outputs must be actuated simultaneously and for the same length of time.)
Output status indication		LCD-display
Inductive load to EN 60947-5-1		
Without external suppressor circuit		
T <sub>0.95</sub> = 1 ms, R = 48 Ω, L = 16 mH		
Utilization factor	g	0.25
Duty factor	% DF	100
Max. switching frequency f = 0.5 Hz (max. DF = 50 %)	Operations	≤ 500
DC-13, T <sub>0.95</sub> = 72 ms, R = 48 Ω, L = 1.15 H		
Utilization factor	g	0.25
Duty factor	% DF	100
Max. switching frequency f = 0.5 Hz (max. DF = 50 %)	Operations	≤ 500
T <sub>0.95</sub> = 15 ms, R = 48 Ω, L = 0.24 H		
Utilization factor	g	0.25
Duty factor	% DF	100
Max. switching frequency f = 0.5 Hz (max. DF = 50 %)	Operations	≤ 500
With external suppressor circuit		
Utilization factor	g	1
Duty factor	% DF	100
Max. switching frequency, max. duty factor	Operations	Depending on the suppressor circuit

## Technical data ETIM 5.0

PLC's (EG000024) / Logic module (EC001417)		
Electric engineering, automation, process control engineering / Control / Programmable logic control (SPS) / Logic module (ecl@ss8-27-24-22-16 [AKE539010])		
Supply voltage AC 50 Hz	V	0 - 0
Supply voltage AC 60 Hz	V	0 - 0
Supply voltage DC	V	20.4 - 28.8
Voltage type of supply voltage		DC
Switching current	A	0.5
Number of analogue inputs		4
Number of analogue outputs		0
Number of digital inputs		12
Number of digital outputs		8
With relay output		No
Number of HW-interfaces industrial Ethernet		0
Number of HW-interfaces PROFINET		0
Number of HW-interfaces RS-232		0
Number of HW-interfaces RS-422		0
Number of HW-interfaces RS-485		0
Number of HW-interfaces serial TTY		0
Number of HW-interfaces USB		0
Number of HW-interfaces parallel		0
Number of HW-interfaces Wireless		0
Number of HW-interfaces other		1
With optical interface		No
Supporting protocol for TCP/IP		No
Supporting protocol for PROFIBUS		No
Supporting protocol for CAN		No
Supporting protocol for INTERBUS		No
Supporting protocol for ASI		No
Supporting protocol for KNX		No

Supporting protocol for MODBUS	No
Supporting protocol for Data-Highway	No
Supporting protocol for DeviceNet	No
Supporting protocol for SUCONET	No
Supporting protocol for LON	No
Supporting protocol for PROFINET IO	No
Supporting protocol for PROFINET CBA	No
Supporting protocol for SERCOS	No
Supporting protocol for Foundation Fieldbus	No
Supporting protocol for EtherNet/IP	No
Supporting protocol for AS-Interface	No
Safety at Work	
Supporting protocol for DeviceNet Safety	No
Supporting protocol for INTERBUS- Safety	No
Supporting protocol for PROFIsafe	No
Supporting protocol for SafetyBUS p	No
Supporting protocol for other bus systems	No
Radiostandard Bluetooth	No
Radiostandard WLAN 802.11	No
Radiostandard GPRS	No
Radiostandard GSM	No
Radiostandard UMTS	No
IO link master	No
Redundancy	No
With display	No
Degree of protection (IP)	IP20
Basic device	Yes
Expandable	Yes
Expansion device	No
With timer	Yes
Rail mounting possible	Yes
Wall mounting/direct mounting	Yes
Front build in possible	No
Rack-assembly possible	No
Suited for safety functions	No
Category according to EN 954-1	-
SIL according to IEC 61508	0
Performance level acc. to EN ISO 13849-1	-
Appendant operation agent (Ex ia)	No
Appendant operation agent (Ex ib)	No
Explosion safety category for gas	None
Explosion safety category for dust	None
Width	mm 108
Height	mm 90
Depth	mm 60

## Dimensions



## Additional product information (links)

[IL05013015Z \(AWA2528-2105\) Control relay easy](#)

IL05013015Z (AWA2528-2105) Control relay easy	<a href="ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL05013015Z2010_11.pdf">ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL05013015Z2010_11.pdf</a>
<b>MN05013003Z-EN (AWB2528-1508) control relay easy500, easy700</b>	
MN05013003Z-DE (AWB2528-1508) Steuerrelais easy500, easy700 - Deutsch	<a href="ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN05013003Z_DE.pdf">ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN05013003Z_DE.pdf</a>
MN05013003Z-EN (AWB2528-1508) control relay easy500, easy700 - English	<a href="ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN05013003Z_EN.pdf">ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN05013003Z_EN.pdf</a>
Labeleditor	<a href="http://downloadcenter.moeller.net/de/software.f6023a63-5acb-42c7-a51c-ccf99091cace">http://downloadcenter.moeller.net/de/software.f6023a63-5acb-42c7-a51c-ccf99091cace</a>