

37135E



IKD 1 Digital I/O Expansion Board



Manual
Software version 1.00xx

Manual 37135E

Chapter 1. General Information

Introduction



The IKD 1 is an external digital expansion card that can be used alternatively with an upper level control unit (e. g. GCP) or an PLC. The IKD 1 can read the status of 8 discrete inputs and transmit these via the CAN bus to the higher level control unit. In the opposite direction the higher level control unit can control the 8 relay outputs situated on the IKD 1 via the CAN bus.

Type designation of the IKD 1 as follows:

IKD1M	
	Mounting
	[S]..Vibration absorber
	[M]..DIN-rail/rear panel mounting
	Model

Examples:

- IKD1M (standard unit for DIN-rail/rear panel mounting)
- IKD1S (standard unit for vibration absorber mounting)

Intended Use The item must only be operated for the uses described in this manual. The prerequisite for a proper and safe operation of the product is correct transportation, storage, and installation as well as careful operation and maintenance.



NOTE

These manual have been developed for an item fitted with all available options. Inputs/outputs, functions, configuration screens and other details described, which do not exist on your item may be ignored.

The present manual has been prepared to enable the installation and commissioning of the item. On account of the large variety of parameter settings, it is not possible to cover every possible combination. The manual are therefore only a guide. In case of incorrect entries or a total loss of functions, the default settings can be taken from the enclosed list of parameters.

Chapter 3. Installation



Caution

A circuit breaker must be provided near to the device and in a position easily accessible to the operator. This must also bear a sign identifying it as an isolating switch for the unit.



NOTE

Inductivities connected (such as coils of operating current or undervoltage tripping devices, or auxiliary or power contacts) must be connected to a suitable interference suppressor.

Power Supply



Figure 3-1: Power supply

Terminal	Description	A _{max}
1	6 to 36 Vdc	2.5 mm ²
2	0 Vdc	2.5 mm ²

Discrete Inputs



CAUTION

Please note that the maximum voltages which may be applied at the discrete inputs are defined as follows. Voltages higher than those specified destroy the hardware!

- Maximum input range: ± 6 to 32 Vdc.

The discrete inputs may be either connected in a positive or a negative logic circuit:

- positive logic The discrete input is connected with ± 6 to 32 Vdc.
- negative logic The discrete input is connected with GND.

Positive Logic

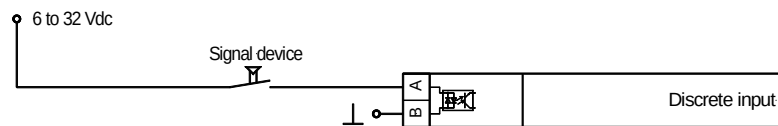


Figure 3-2: Discrete inputs - positive logic

Terminal	Associated common	Description (according to DIN 40 719, part 3, 5.8.3)	A _{max}
A	B		
5	4	Discrete input 1	2.5 mm ²
6		Discrete input 2	2.5 mm ²
7		Discrete input 3	2.5 mm ²
8		Discrete input 4	2.5 mm ²
9		Discrete input 5	2.5 mm ²
10		Discrete input 6	2.5 mm ²
11		Discrete input 7	2.5 mm ²
12		Discrete input 8	2.5 mm ²

Negative Logic

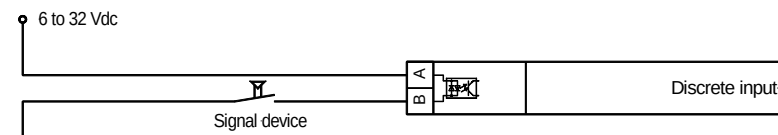


Figure 3-3: Discrete input - negative logic

Associated common	Terminal	Description (according to DIN 40 719, part 3, 5.8.3)	A _{max}
A	B		
4	5	Discrete input 1	2.5 mm ²
	6	Discrete input 2	2.5 mm ²
	7	Discrete input 3	2.5 mm ²
	8	Discrete input 4	2.5 mm ²
	9	Discrete input 5	2.5 mm ²
	10	Discrete input 6	2.5 mm ²
	11	Discrete input 7	2.5 mm ²
	12	Discrete input 8	2.5 mm ²

Appendix C. Technical Data

Ambient variables -----

- Power supply (V_{aux})----- 12/24 Vdc (6.0 to 36.0 Vdc)
- Intrinsic consumption-----max. 3 W
- Ambient temperature for storage ----- -40 to 85 °C / -40 to 185 °F (P/N: 8440-2028)
- Ambient temperature for storage ----- -30 to 80 °C / -22 to 176 °F (P/N: 8440-1041)
- Ambient temperature for operation----- -20 to 70 °C / -4 to 158 °F
- Ambient humidity----- 95 %, not condensing

Discrete inputs ----- galvanically isolated

- Input range ($V_{Cont., dig. input}$)----- Rated voltage 12/24 Vdc (6 to 32 Vdc)
- Input resistance ----- approx. 6.8 k Ω

Relay outputs ----- potential free

- Contact material AgCdO
- General purpose (GP) ($V_{Cont., relay output}$)
 - AC ----- 2.00 Aac@250 Vac
 - DC ----- 2.00 Adc@24 Vdc
 - 0.36 Adc@125 Vdc
 - 0.18 Adc@250 Vdc
- Pilot duty (PD) ($V_{Cont., relay output}$)
 - AC ----- B300
 - DC ----- 1.00 Adc@24 Vdc
 - 0.22 Adc@125 Vdc
 - 0.10 Adc@250 Vdc

Interface, Service interface -----

- Version RS-232, USB
- Signal level ----- 5 V
- Connection kit: DPC-RS-232 P/N 5417-557, DPC-USB P/N 5417-1251

Interface, CAN ----- galvanically isolated

- Insulation voltage (continuously)----- 100 Vdc
- Insulation test voltage (≤ 5 s) ----- 1,000 Vac
- Version CAN-Bus
- Internal line termination----- not available

Housing

- **Extrusion profile** for fastening onto a DIN rail/C profile ----- Um 122
- Dimensions ----- 168 × 128 × 51 mm
- **Vibration absorber** ----- M4×6
- Dimensions ----- 152 × 122 × 52 mm
- Wiring Screw-plug terminals 2.5 mm²
 - Recommended locked torque 0.5 Nm
 - use 60/75 °C copper wire only
 - use class 1 wire only or equivalent
- Weight approx. 360 g

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Vibration

- **Frequency range - sine sweep** ----- 5 Hz to 100 Hz
- **Acceleration** ----- 4 G
- **Standards** ----- EN 60255-21-1 (EN 60068-2-6, Fc), Lloyd's Register, Vibration Test2, SAEJ1455 Chassis Data
- **Frequency range – random** ----- 10 Hz to 500 Hz
- **Power intensity** ----- 0.015 G²/Hz
- **RMS value** ----- 1.04 Grms
- **Standards** ----- MIL-STD 810F, M514.5A, Cat.4, Truck/Trailer tracked-restrained Cargo, Fig. 514.5-C1

Shock

- **Shock** ----- 40 G, Saw tooth pulse, 11 ms
- **Standards** ----- EN 60255-21-2, MIL-STD 810F, M516.5, Procedure 1

Protection

- **Protection type** ----- IP 20
- **EMC test (CE)** ----- tested according to applicable EN guidelines
- **Type approval** ----- UL/cUL, Ordinary Locations, File No.: 231544 (P/N: 8440-2028)

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Appendix D. List of Parameters

Version _____

Project _____

Item number _____ Date _____

Option	Parameter	Range	Standard setting	Customer setting	
BASIC DATA					
	Software version	-	-		
	Software number	-	-		
CAN BUS PARAMETERS					
			from V1.0001		
	Can Node ID	0 to 31	12	0	
	Can ID receive data	0 to 2,047	236	1501	
	Can ID send data	0 to 2,047	268	1503	
	Can ID receive config	0 to 2,047	748	1505	
	Can ID send config	0 to 2,047	780	1505	
	Can ID receive upload	0 to 2,047	812	1505	
	Can ID send upload	0 to 2,047	845	1505	
	CAN baudrate	125/250/500 kBaud	250 kBaud		
	Mux send	0 to 255	1		
	Mux receive	0 to 255	1		
	Rate to send (s)	0.00 to 99.98 s	0.1 s		
	Start-up procedure	S/S Off S/S+Aut S/S-Aut	S/S Off	☐ S/S Off ☐ S/S+Aut ☐ S/S-Aut	☐ S/S Off ☐ S/S+Aut ☐ S/S-Aut
CAN BUS ERROR					
	CAN error delay (s)	0.00 to 9.98 s	2.5 s		
	CAN error self-acknowledg.	YES/NO	YES	☐ Y ☐ N	☐ Y ☐ N
DISCRETE INPUTS					
All	Physical state only	YES/NO	NO	☐ Y ☐ N	☐ Y ☐ N
No.1	Function NC	YES/NO	NO	☐ Y ☐ N	☐ Y ☐ N
..	Tripping delay (s)	0.00 to 99.98 s	0.20 s		
..	Enable delay (s)	0.00 to 99.98 s	0.20 s		
..	Remote enabling	YES/NO	NO	☐ Y ☐ N	☐ Y ☐ N
..	Alarm class	Control/0/1/2/3	0		
..	Self acknowledgment	YES/NO	NO	☐ Y ☐ N	☐ Y ☐ N
No.1	Remote acknowledgment	YES/NO	NO	☐ Y ☐ N	☐ Y ☐ N
No.2	Function NC	YES/NO	NO	☐ Y ☐ N	☐ Y ☐ N
..	Tripping delay (s)	0.00 to 99.98 s	0.20 s		
..	Enable delay (s)	0.00 to 99.98 s	0.20 s		
..	Remote enabling	YES/NO	NO	☐ Y ☐ N	☐ Y ☐ N
..	Alarm class	Control/0/1/2/3	0		
..	Self acknowledgment	YES/NO	NO	☐ Y ☐ N	☐ Y ☐ N
No.2	Remote acknowledgment	YES/NO	NO	☐ Y ☐ N	☐ Y ☐ N
No.3	Function NC	YES/NO	NO	☐ Y ☐ N	☐ Y ☐ N
..	Tripping delay (s)	0.00 to 99.98 s	0.20 s		
..	Enable delay (s)	0.00 to 99.98 s	0.20 s		
..	Remote enabling	YES/NO	NO	☐ Y ☐ N	☐ Y ☐ N
..	Alarm class	Control/0/1/2/3	0		
..	Self acknowledgment	YES/NO	NO	☐ Y ☐ N	☐ Y ☐ N
No.3	Remote acknowledgment	YES/NO	NO	☐ Y ☐ N	☐ Y ☐ N



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