

RLS-CANnode

1 Product description

1.1 *General*

The RLS-CANnode is a compact programmable logic controller (PLC), which allows to capture the measured length of four sensors RLS-1-WP and control up to eight actuators or signalling devices. You can connect the RLS-Terminal and several RLS-CANnodes via a bus system to handle a large number of winding positions.

1.2 *Working principle*

The length information, which is generated by the sensor RLS-1-WP, is processed by the RLS-CANnode, stored and used for an automatic activation of the actuators or of the signalling devices.

The stored process data can be retrieved and modified by the operator through a human machine interface (HMI). This device is connected to the RLS-CANnode by the bus system. CANopen bus protocol is used. It supports the draft standards DS301¹, DS303-3² and DS404³ proposed by CAN in Automation e.V. (CiA).

¹ Application Layer and Communication Profile, CiA Draft Standard 303, Version 4.02

² Indicator specification, CiA Draft Recommendation 303-3, Version 1.2

³ Device Profile Measuring Devices and Closed-Loop Controllers, CiA Standard 404, Version 1.2

2 Specifications

general	
dimension	60 x 225 x 40 mm
housing material	PA6 / PUR
weight	545 g
protection	IP 67
operating temperatur range	-20 ... +60 °C
storage temperatur range	-25 ... +85 °C

power (all data at $V_{CC} = 24 V_{DC}$)	
interface	2 x M23-connector 6-pins
power supply	$V_{CC} = 24 V_{DC} \pm 20 \%$
current consumption logic / sensors	$\leq 0,24 A$
current consumption load	$\leq 5,6 A$
reverse polarity protection	yes
isolation bus / logic	yes
isolation logic / in- and output	no

output (all data at $V_{CC} = 24 V_{DC}$)	
8 push-pull, not stored, protected, with automatic restart	
interface	M12-socket A-COD
isolation	no
common electrical potential	0V
protection against overload and reverse polarity	yes
output voltage nominal	$24 V_{DC}$
voltage drop at high level	$\leq 0,4 V$
output current nominal	$8 \times 0,7 A$
output current at low level, leakage current	$\leq 5 \mu A$
inductive load at $R_{load} = 48 \Omega$ max.	1,5 H
switching frequency resistive load at $R_{load} = 48 \Omega$	$\leq 3000 Hz$
switching frequency lamp load	$\leq 50 Hz$
switching frequency inductive load	$\leq 1 Hz$
lamp load	$\leq 10 W$
output delay	$\leq 150 \mu s$
parallel operation	yes
status indicator	LED

sensor	
4 ports for the sensor RLS-1	
interface	M12-socket A-COD
power supply	$12 V_{DC}$
output current max.	$4 \times 100 mA$
protection against overload and reverse polarity	yes
isolation	nein
common electrical potential	gemeinsames 0V-Potential

input voltage max.	12 V _{DC}
input voltage low level	0 ... 2 V _{DC}
input voltage high level	3 ... 12 V _{DC}
input current low level	≤ 0,2 mA
input current high level	≤ 1,2 mA
status indicator	LED

bus	
interface	2 x M12-connector A-COD
protocol	CANopen
bit rate	10, 20, 50, 125, 250, 500, 800, 1000 kbit/s
load max.	approximately 110 nodes
ESD protection	±15kV (air), ±8kV (contact)
CiA standard	DS301, DR303-3 und DS404
status indicator	LED for error and operating

3 Installation

3.1 Power supply

The wire cross section of the power line depends on the local conditions. A clue may apply 3x1.5mm² for 16A and 3x2.5mm² for 25A. A five wire installation is also possible.

3.2 Bus

As a bus line, we recommend shielded cables with the DESINA® standard.

The ratio of bit rate to the maximum bus length can be read from the following table. For bus length of more than 1000m typically bridges or repeaters are required.

bit rate / bus length							
1Mbit/s	800kbit/s	500kbit/s	250kbit/s	125kbit/s	50kbit/s	20kbit/s	10kbit/s
25m	50m	100m	250m	500m	1000m	2500m	5000m

4 Operation / Initial operation

Setting the device parameter:

- press and hold the button S1 for about 3 seconds
- the 7-segment display shows "id"
- by pressing the button S1 the menu item is incremented by one
 - „id“ node-ID [001...127]
 - „br“ bit rate [999, 800, 500, 250, 125, 50, 20, 10], 999 entspricht 1Mbit/s
 - „tst“ test mode [252...255]
 - „End“ save [YES, No]
- to change the respective value press the button S2
- by selecting "YES" on the last menu item "End" it is possible to exit the programming menu and to save the new values. If "No" is selected, the programming

routine starts again and leaving the last set values as initially. These can now be changed or controlled.

The factory default is the node-ID to 1, the bit rate to 500 and the test mode to 255.

A status message may be displayed outside the programming routine at any time by briefly pressing the button S2.

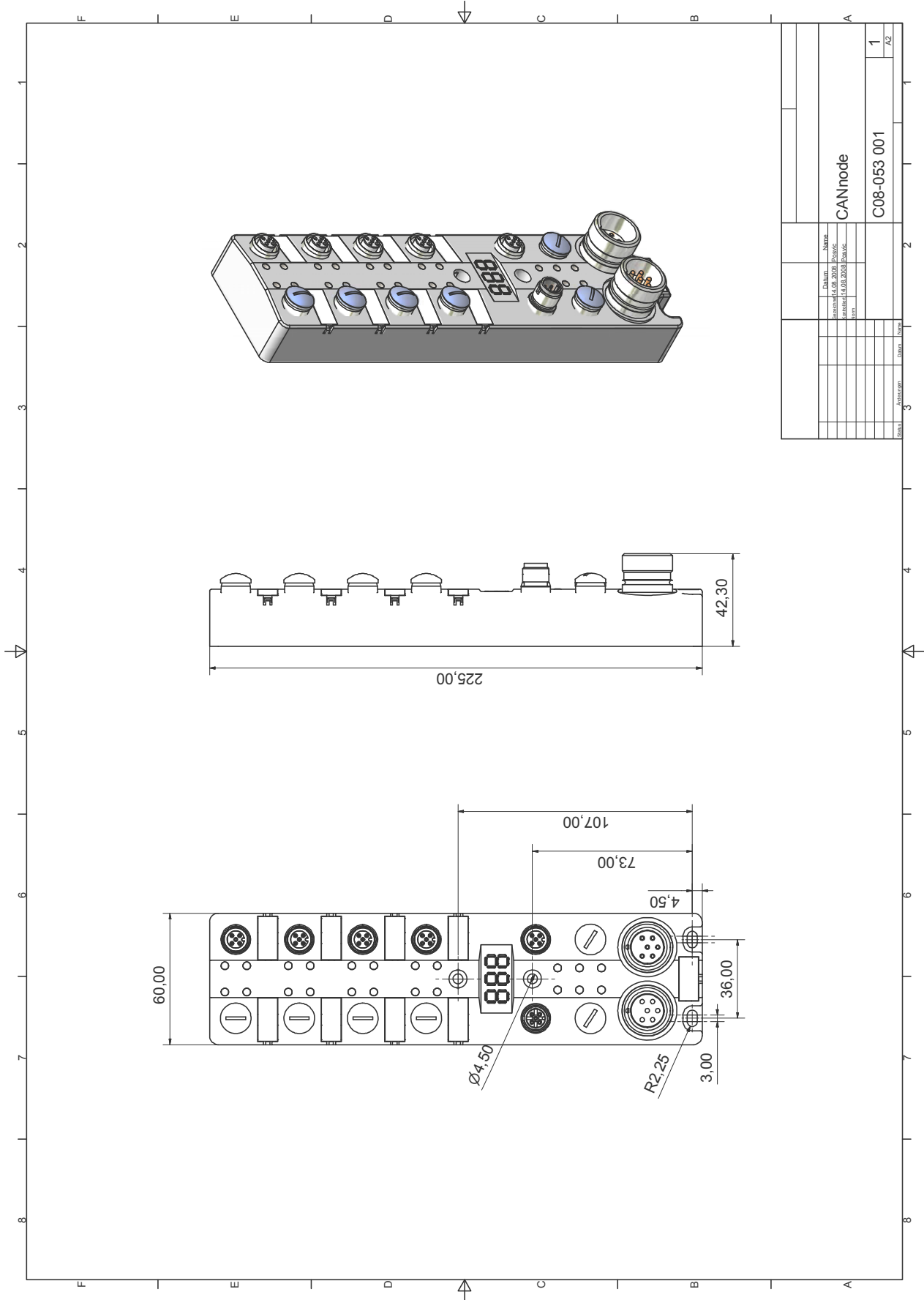
5 Signalling

LED		Description
UI	on	external power supply works properly
	off	external power supply is faulty
US	on	internal power supply for the sensor RLS-1-WP works properly
	off	internal power supply for the sensor RLS-1-WP is faulty
UL	on	internal power supply for the logic module works properly
	off	internal power supply for the logic modules is faulty
RUN	on	CANopen is in state OPERATIONAL
	blink	CANopen is in state PRE-OPERATIONAL
	flash	CANopen is in state STOPPED
ERR	on	CAN controller is in state Bus-off
	blink	CAN bus is faulty
	off	CAN controller works properly
OVL	on	overload or short circuit at the outputs of the actuators
	off	no overload or short circuit at the outputs of the actuators
SEN.A	on	MONITOR signal from the sensor RLS-1-WP is active
	off	MONITOR signal from the sensor RLS-1-WP is not active
SEN.B	on	INHIBIT signal to the sensor RLS-1-WP is active
	off	INHIBIT signal to the sensor RLS-1-WP is not active
OUT.A	on	actuator output A provides HIGH level
	off	actuator output A is high impedance
OUT.B	on	actuator output B provides HIGH level
	off	actuator output B is high impedance

6 Terminal layout

power supply																				
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7 Hausing drawing



8 Notes

