



NCN102

Node Adapter CAN/CANopen

The NCN102 node adapter maps the powerful and flexibly configurable M100 station to a standard CANopen interface. The operating modes of the M100 I/O modules are defined during the configuration and are transferred to the station node during start-up. The CANopen synchronization features enables clock-synchronous sampling and processing of the I/O signals.

Features

- CAN/CANopen node adapter
- Wiring on M100 standard terminal block
- Integrated termination resistor
- Address configuration: via 2 rotary switches, or via LSS service according to CiA 305
- Baud rate setting: via rotary switches, or automatic detection
- Synchronization: CANopen sync consumer
- Maximum process image per station: 2048 bytes
- Integrated power supply unit for module supply: 20 W
- Diagnostic LEDs according to CANopen standard

Part type designation	Part number
NCN102	00042226-00
NCN102 EC	00042227-00

Common properties	
Basic function	CAN/CANopen fieldbus IO node adapter, integrated station power supply
System	Bachmann system M100
Module bus interface	
System	M100
Slot type	0/C
Network interface / bus interface	
Protocol standard	CANopen
Node address setting	Via 2 rotary switches
Baud rate setting	Via rotary switch, via automatic baud rate detection or via LSS service on the CAN bus
Integrated line terminators	Yes, can be activated via jumper on standard terminal block
Substitute value during interruptions	Configurable behavior: • Substitute value • Off state • Last value
Process data image per station (PDO)	Max. 128 TPDOs, max. 128 RPDOs
Service data image per station (SDO)	2 SDO server
Bus interface	M100 standard terminal block
Data transfer rate	10, 20, 50, 100, 125, 250, 500, 800 and 1000 kbit/s
Cable specification	Shielded two-wire line with 120 Ω impedance
Maximum cable length	Total length depending on baud rate
Synchronization	
Synchronization functions	PDO modes • Asynchronous • Synchronous • Timer-driven • RTR
Diagnostics	
Electronic type plate	Yes (application interface and in the engineering tool)
Machine readable type plate	Yes (QR code with type and part information and internet link)
Environmental conditions sensor	Integrated temperature sensor
Diagnostics interface	USB-C socket
Operational indications	LED "MOD" (red/green) module status LED "RUN" (green) to indicate CAN status, according to CANopen specification
Error indications	LED "ERR" (red) to indicate CAN bus fault, blinking pattern according to CANopen specification
Energy supply	
Supply voltage, nominal	24 V DC
Supply voltage, range	18 V to 32 V DC
Supply voltage, short-term overload	40 V for 100 ms
Power consumption, continuous, max.	25 W
Input current, continuous, max.	1.4 A @ 18 V DC, $T_a = 25\text{ }^{\circ}\text{C}$
Input current, inrush	46 A for < 1 ms (@ 24 V DC, $T_a = 25\text{ }^{\circ}\text{C}$)
Input capacity	Typ. 220 μF
Maximum residual ripple	2.4 V _{ss} at 50 Hz, 60 Hz, 100 Hz and 120 Hz
Power output for I/O modules/backplane	20 W

Energy supply	
Permitted voltage interruptions	PS1 according to IEC 61131-2
Reverse polarity protection	Yes, continuously (up to -32 V)
Limitation of supply / fusing	No internal protection External protection with circuit breaker characteristic: B, C, D, Z or K Max. nominal current 8 A DC for the supply forwarding
Parallel operation	Yes, with PSI135 modules (if galvanic isolation is required, the NCN102 module must not be supplied via the 24 V signal supply)
Power dissipation	2.7 W @ 24 V DC, $T_a = 25\text{ °C}$, $P_{out} = 0\text{ W}$ 4.0 W @ 24 V DC, $T_a = 25\text{ °C}$, $P_{out} = 20\text{ W}$ 3.3 W @ 32 V DC, $T_a = 60\text{ °C}$, $P_{out} = 0\text{ W}$ 4.8 W @ 32 V DC, $T_a = 60\text{ °C}$, $P_{out} = 20\text{ W}$
Supply terminal block bridge	Yes, internal connection from 1+ to 2+, and 1- to 2-
Product safety	
Galvanic isolation	850 V AC
Degree of protection acc. IEC 60529	IP40, terminal block IP30
Protection class acc. IEC 61010-1, IEC 61010-2-201	III
Overvoltage category acc. IEC 61010-1	II
Environmental conditions	
Temperature, operating	Standard: -30 °C to +60 °C Extended Climate: -30 °C to +70 °C
Temperature, transport and storage	-40 °C to +85 °C
Installation altitude, max.	Up to 2000 m without temperature derating 2000 m to 4500 m: Reduction of the max. ambient temperature by 0.1 °C per 100 m elevation
Air pressure	106 kPa to 58 kPa (0 m to 4500 m)
Relative humidity, operation	Standard: 0 % to 100 % noncondensing Extended Climate: 0 % to 100 % with temporary condensation
Pollution degree acc. IEC 61010-1	Standard: 2, noncondensing Extended Climate: 2
Vibration	With BPS1nn: 4 g (11.5 Hz to 500 Hz) 7.5 mm amplitude (2 Hz to 14.1 Hz) - Test duration: 15 h With BPR1nn: 4 g (IACS E10, IEC 61131-2)
Shock	45 g max. (test scope 18 shocks) 20 g permanently (test scope 6000 shocks)
Approvals/certificates	
Product safety	CE, UKCA: in preparation cULus (NRAQ, NRAQ7)
Hazard area operation	ATEX: Ex II 3G Ex ec IIC Gc
Maritime	ABS, BV, DNV, KR, LR, NK, RINA: in preparation
Hazardous substances and waste treatment	RoHS, RoHS China, REACH, WEEE
Quality management	ISO 9001 for development and production
Engineering	
Configuration tool	SolutionCenter (≥ V2.85)
Firmware package update	Yes

Engineering	
Secure boot / root-of-trust	Yes
Mounting/installation	
Mounting type	Inserting and screwing onto the backplane with integrated M4 screw
Dimensions	
Number of slots	1
Size unpacked W × H × D	95.7 mm × 152.5 mm × 23.3 mm
Mass unpacked	294 g

Order data

Part type designation	Part number	Description
NCN102	00042226-00	Fieldbus node adapter CANopen for M100 system Baud rate up to 1 Mbit/s; wiring with M100 standard terminal block; integrated power supply unit 20 W; without terminal block
NCN102 EC	00042227-00	Like NCN102; Extended Climate Range 

Accessories

Part type designation	Part number	Description
BPR1nn	00039235-nn	Backplane for DIN-rail mounting Active backplane system M100: BPR1nn with nn = 04 to 16 slots in increments of 1, as well as 20, 24, 28, 32 slots, for DIN-rail mounting; delivery without backplane slot covers and without mounting rail
BPR1nn EC	00039236-nn	Like BPR1nn; Extended Climate Range 
BPS1nn	00039237-nn	Backplane for direct screw mounting Active backplane system M100: BPS1nn with nn = 04 to 16 slots in increments of 1, as well as 20, 24, 28, 32 slots, for direct screw mounting; delivery without backplane slot covers and without screws
BPS1nn EC	00039238-nn	Like BPS1nn; Extended Climate Range 
TPI100_W24_P5.0_Cgy_L1to24		Signal terminal block Completely removable terminal block, push-in spring connector for system M100, 24-way/contacts, pitch 5.0 mm, female, conductors flexible 0.2 mm ² to 2.5 mm ² (24 to 14 AWG), solid 0.2 mm ² to 1.5 mm ² (24 to 16 AWG), with wire end ferrules 0.25 mm ² to 1.5 mm ² (24 to 16 AWG), stripping length: 10 mm, rating: 300 V / 8 A per contact, connector color: gray, push-release: yellow, labeling: 1 to 24
TPI100_W4_P5.0_Cgy_Lsup		Supply terminal block Completely removable terminal block, push-in spring connector for system M100, 4-way/contacts, pitch 5.0 mm, female, conductors flexible 0.2 mm ² to 2.5 mm ² (24 to 14 AWG), solid 0.2 mm ² to 1.5 mm ² (24 to 16 AWG), with wire end ferrules 0.25 mm ² to 1.5 mm ² (24 to 16 AWG), stripping length: 10 mm, rating: 300 V / 8 A per contact, connector color: gray, push-release: yellow, labeling: 1+/1-/2+/2-
TKP106		Keying element Keying element for signal terminal blocks and supply terminal blocks TPI100 for system M100, plastic ring with 6 keying elements
TPI100_W24_W4_Set ¹⁾	00042412-00	Terminal block set for M100 standard modules: • 1x TPI100_W24_P5.0_Cgy_L1to24 • 1x TPI100_W4_P5.0_Cgy_Lsup • 2x TKP106

¹⁾ All components of the set are also available in bulk packages.