



NCN102, NCN102/D

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
- Available with either a M100 standard terminal block or 2x 9-pin D-sub ports
- 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
NCN102/D	00045686-00
NCN102/D EC	00045688-00

Common properties		NCN102		NCN102/D	
Basic function		CAN/CANopen fieldbus IO node adapter, integrated station power supply			
System		Bachmann system M100			
Module bus interface		NCN102		NCN102/D	
System		M100			
Slot type		0/C			
Network interface / bus interface		NCN102		NCN102/D	
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		No	
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		2x 9-pin D-sub	
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		NCN102		NCN102/D	
Synchronization functions		PDO modes - Asynchronous - Synchronous - Timer-driven - RTR			
Diagnostics		NCN102		NCN102/D	
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		NCN102		NCN102/D	
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 °C			
Input current, inrush		46 A for < 1 ms (@ 24 V DC, T _a = 25 °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	NCN102	NCN102/D
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	NCN102	NCN102/D
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	NCN102	NCN102/D
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	NCN102	NCN102/D
Product safety	CE, UKCA: in preparation cULus (NRAQ, NRAQ7)	CE, UKCA: in preparation cULus (NRAQ, NRAQ7): in preparation
Hazard area operation	ATEX: Ex II 3G Ex ec IIC Gc	ATEX: Ex II 3G Ex ec IIC Gc: in preparation
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	NCN102	NCN102/D
Configuration tool	SolutionCenter (≥ V2.85)	

Engineering	NCN102	NCN102/D
Firmware package update	Yes	
Secure boot / root-of-trust	Yes	
Mounting/installation	NCN102	NCN102/D
Mounting type	Inserting and screwing onto the backplane with integrated M4 screw	
Dimensions	NCN102	NCN102/D
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 
NCN102/D	00045686-00	Fieldbus node adapter CANopen for M100 system Baud rate up to 1 Mbit/s; connection via 9-pin D-sub connector; integrated power supply unit 20 W; without terminal block
NCN102/D EC	00045688-00	Like NCN102/D; 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
TPI100_W4_Set ¹⁾	00042413-00	Terminal block set for M100 modules that only require the supply terminal block: • 1x TPI100_W4_P5.0_Cgy_Lsup • 1x TKP106

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