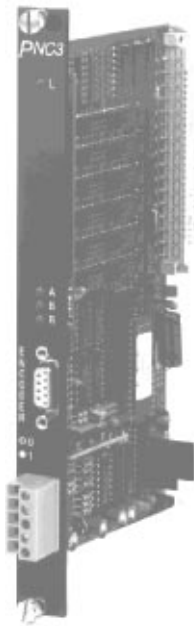
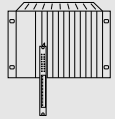


COUNTING AND POSITIONING MODULES, PNC3 - COUNTER MODULE (POSITIONING)

PLC SYSTEMS
MULTICONTROL COMPONENTS

A6



PNC3

- Fast Counter Module for Positioning Applications
- Counter Frequency Max. 200 kHz
- Counting Range 24 Bit
- Analog Output for Controlling Servo Motors (± 10 V, 11 Bit)
- Encoder Inputs for 24 VDC (Galvanically Isolated) or 5 - 15 V

See section A8 "Positioning" as well.

SLOTS

The PNC3 counter module can be operated in the following slots of racks MULTI, MIDI and M264.

| Rack | Slot | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|----------------------|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MULTI Base Rack | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| MULTI Expansion Rack | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| MIDI | | ○ | ● | ● | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| M264 | | ● | ● | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

● The module can be operated in this slot
 ○ The module cannot be operated in this slot

ORDER DATA

| | |
|---|-----------------|
| Counter Module for Positioning Applications, Binary 24 Bit Counter, Counting Frequency Max. 200 kHz, 11 Bit Analog Output (± 10 V) | |
| With Galvanic Isolation, For Connection of Externally Supplied 24 VDC Encoders (Asymmetric Input) | ECPNC3-0 |
| Without Galvanic Isolation, For the Connection of Internally or Externally Supplied 5 - 15 VDC encoders (Symmetric input) | ECPNC3-1 |

SIGNAL ENCODER

The PNC3-0 counter module is designed for externally supplied 24 VDC encoders. The supply voltage is connected to the terminals. It is internally connected directly to the 9 pin D-type (F) of the encoder connection (see Pin-outs). Counter inputs A and B and the reference pulse input R are galvanically isolated from the signal encoder with an optocoupler. It can be used with positive switching, negative switching or push-pull switching encoders.

With the PNC3-1 module, the user can select internal and external encoder supply with a jumper. With internal encoder supply, the encoder is supplied by the PNC3 module. A 5V and a 15V supply voltage are available. With external supply, the supply voltage is connected to two terminals. It is then fed directly to the 9 pin D-type (F) of the encoder connection (see pin-outs). Counter inputs A and B as well as reference pulse input R are not galvanically isolated.

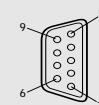
TECHNICAL DATA

| | PNC3-0 | PNC3-1 |
|--|--------------------------|---|
| Signal Encoder Connection | 9 pin D-type (F) | 9 pin D-type (F) |
| Signal Encoder Inputs | | |
| Galvanically Isolated | YES | NO |
| Input Voltage - Nominal | 24 VDC ¹⁾ | 5 - 12 VDC |
| Input Voltage Min./Max. | 18 VDC / 30 VDC | 2.4 VDC / 15 VDC |
| Input Current | typ. 10 mA | typ. 2 mA at 5 VDC typ. 5 mA at 15 VDC |
| Encoder Supply | 24 VDC Fed Externally | Optional from PNC3 ²⁾ or Fed Externally 5 VDC/250 mA or 15 VDC/500 mA |
| Distance from Signal Encoder | Max. 50 m | Max. 50 m |
| Input Frequency | Max. 50 kHz | Max. 50 kHz |
| Counting Frequency | | |
| With Single Evaluation | Max. 50 kHz | Max. 50 kHz |
| With Double Evaluation | Max. 100 kHz | Max. 100 kHz |
| With Four Fold Evaluation | Max. 200 kHz | Max. 200 kHz |
| Phase Shift between Counter Channels A and B | 90° \pm 30° | 90° \pm 30° |
| Reference Pulse Duration | > 50 μ sec | > 50 μ sec |
| Counting Range | 24 Bit Binary | 24 Bit Binary |
| Analog Output | | |
| Output Voltage | ± 10 V | ± 10 V |
| Resolution | 10 Bit + Sign | 10 Bit + Sign |
| Quantization Error | < 1 Bit | < 1 Bit |
| Offset Voltage | < 1 mV | < 1 mV |
| Resistance to Disturbance ³⁾ | Grade 3 | Grade 4 |
| Power Consumption | | |
| At +8 V | 1.2 W | 1.6 W |
| At +15 V | 0.4 W | 0.4 W |
| At -30 V | 0.6 W | 0.6 W |
| Documentation | | Positioning User's Manual MAPOSI-0 MAPOSI-E |
| German | | |
| English | | |
| French | | Hardware Manual MULTICONTROL, MIDICONTROL, M264 MAHWMULTI-F |
| Italian | | MAHWMULTI-I |
| Spanish | | MAHWMULTI-S |

PIN ASSIGNMENT

| Pin | ECPNC3-0 | ECPNC3-1 |
|-----|-----------------------------|-----------------------------|
| 1 | Counter Channel B | Counter Channel B |
| 2 | Counter Channel B Ret | Counter Channel B |
| 3 | Encoder Supply + | +15 V (Max. 500 mA) |
| 4 | Counter Channel A | Counter Channel A |
| 5 | Counter Channel A Ret | Counter Channel A |
| 6 | Ref. Potential Encoder Sup. | Ref. Potential Encoder Sup. |
| 7 | Reference Signal R | Reference Signal R |
| 8 | Reference Signal R Ret | Reference Signal R |
| 9 | - | 5 V (Max. 250 mA) |

9 pin D-type (F)



STANDARD SOFTWARE

Software Package SWSPSPOS01-0 contains standard function blocks for positioning applications with servo applications with servo motors and dual speed positioning (see section A7 "PLC Programming/Standard Software" and section A8 "Positioning" as well).

¹⁾ Positive switching (PNP), negative switching (NPN) or push-pull

²⁾ Jumper selectable

³⁾ Conforms to DIN VDE 0843-4, Signal encoder connection grounded at both ends