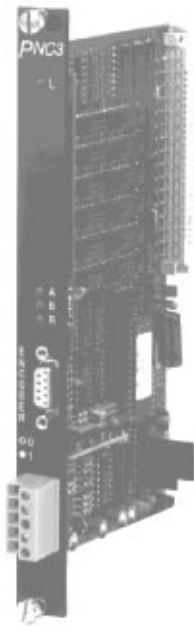
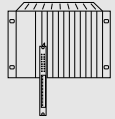


# COUNTING AND POSITIONING MODULES, PNC3 - COUNTER MODULE (POSITIONING)

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 ( $\pm 10$  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 ( $\pm 10$ V)	
With Galvanic Isolation, For Connection of Externally Supplied 24 VDC Encoders (Asymmetric Input)	<b>ECPNC3-0</b>
Without Galvanic Isolation, For the Connection of Internally or Externally Supplied 5 - 15 VDC encoders (Symmetric input)	<b>ECPNC3-1</b>

### 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.

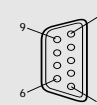
### TECHNICAL DATA

	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 <sup>1)</sup>	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 <sup>2)</sup> 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 $\mu$ sec	> 50 $\mu$ sec
Counting Range	24 Bit Binary	24 Bit Binary
Analog Output		
Output Voltage	$\pm 10$ V	$\pm 10$ V
Resolution	10 Bit + Sign	10 Bit + Sign
Quantization Error	< 1 Bit	< 1 Bit
Offset Voltage	< 1 mV	< 1 mV
Resistance to Disturbance <sup>3)</sup>	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).

<sup>1)</sup> Positive switching (PNP), negative switching (NPN) or push-pull

<sup>2)</sup> Jumper selectable

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