incremental interface 5111

- **Incremental interface**
- **Data input voltage +24V, single ended**
- **1 interface**

Pinout
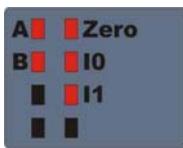
LED:	0; (8)	A
	1; (9)	B
	4; (12)	Zero
	5; (13)	I 0
	6; (14	I 1
	E:	for failure, red
	P:	power supply, red

Pin	Signal	
1	A	Data input
2	Not used	
3	B	Data input
4	Not used	
5	zero	Data input
6	Not used	
7	I 0 *)	Input (24V)
8	/I 0*)	Input (0V)
9	I 1 *)	Input (24V)
10	/I 1 *)	Input (0V)
11	Power	+24V=
12	Power	0V
13	Power	+24V=
14	Power	0V
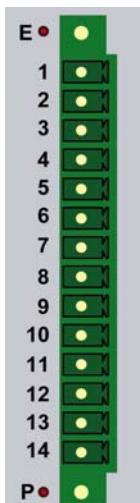
All Power +24V= and Power 0V are internal connected

*) see notes

Attributes

Dataformat:
2 Byte Status
4 Byte Counter

Applications:
This print contains 2 programmable counter **)**.
According to the programming the following operating modes are possible:
- 32-bit incremental counter with quatruple rejection of the incremental impulses (default)
- 2 independent 16-bit UP/DOWN impulse counter with one counter at each case
- 32-bit UP/DOWN impulse counter with seperate counter-input for UP and DOWN impulses

Available prints :
- @P5111L: incremental interface, 24V input
- @P5111R: incremental interface, 24V input

Related Applications:
5V input voltage
- @P5110: incremental interface, 5V input

) see notes

Electrical Data

Power supply external...GND required, see notes, +24V DC ±20%, optional
Supply current...5mA at +24 V
Operating current @ctiveBus...............................25mA at +3,3V / 30mA at +5V
Input protection ....30V overvoltage
Counter ....32 bit
Limiting frequency..200 kHz
Data input ....+24V signal

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System Information

System ID 0x0187
System address space .... 48 bit in, 48 bit out

Environmental Conditions

Electromagnetic compatibility (EMC) .... EN 61000-4-2 (IEC-801-2) / EN 61000-4-4 (IEC-801-4)
Operating temperature [°C] .... 0 .. +55
Storage temperature [°C] .... -20 .. +70
Humidity (rel) .... 98 % (non condensing)
Protection class* .... IP 20 (DIN 40 050)
*The protection class is valid only with housing and connector installed

Mechanical Data PCB

Weight .... approx. 0.05 kg including connector
Dimension .... 105mm x 80mm x 12mm

Drawing (effective if mounted in @M housing)
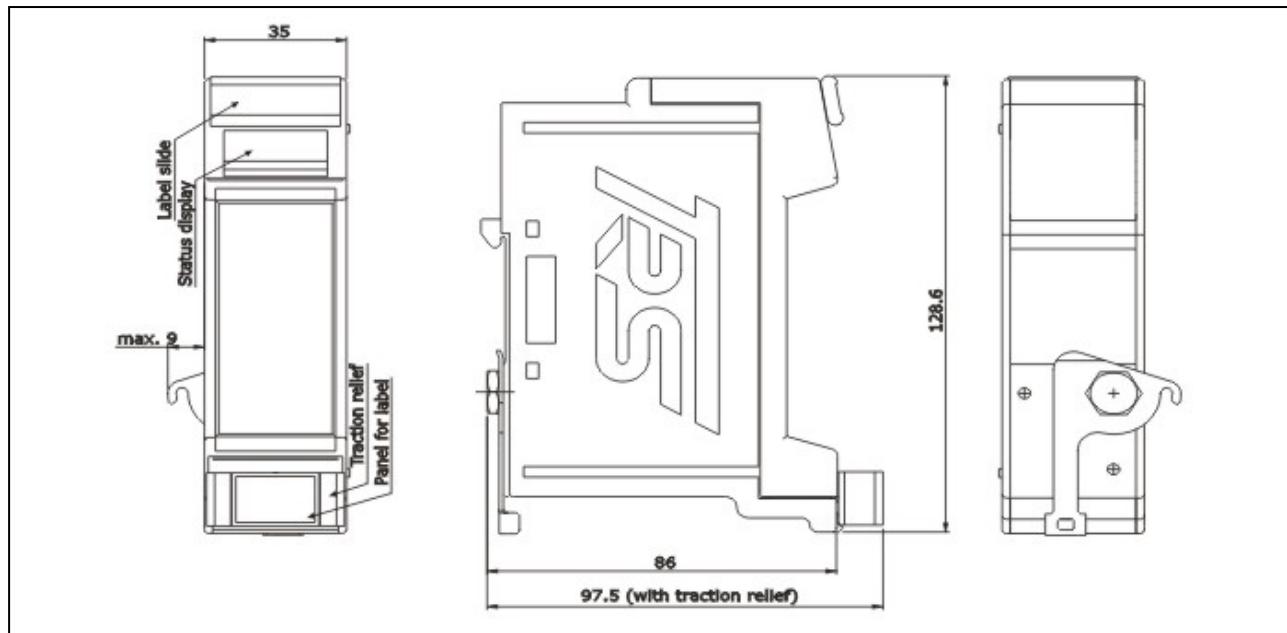
Ordering Key
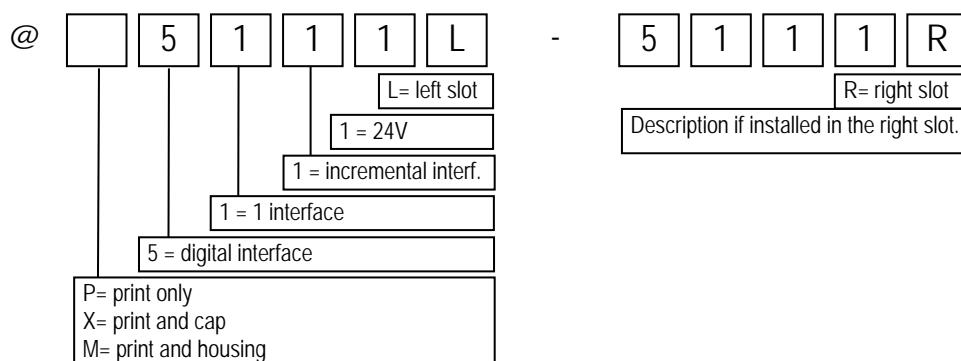
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notes:

Example of application for the inputs (I0 +/I0).
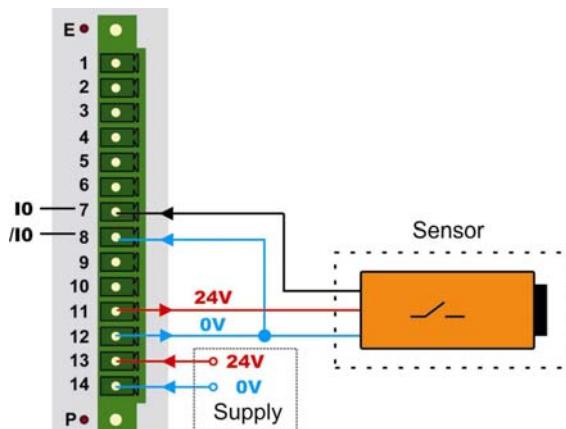
Connection at operating mode:

32-bit incremental counter

32-bit UP/DOWN impulse counter

2 independent 16-bit UP/DOWN
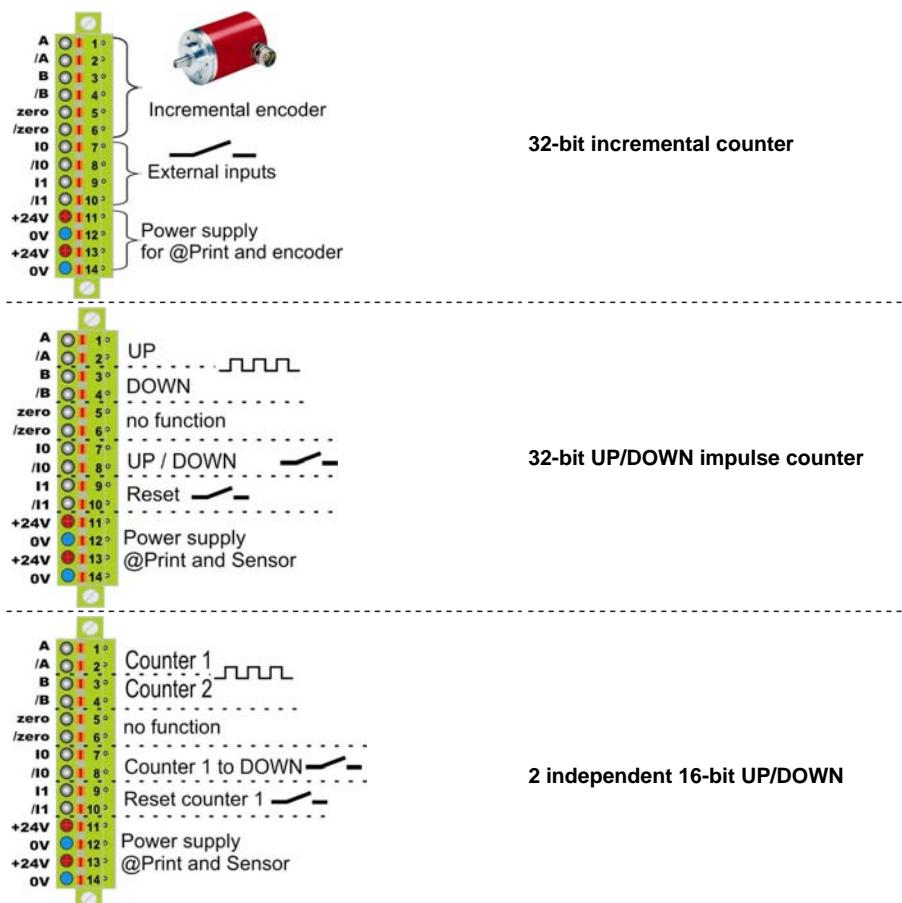
Power Supply for the @Print

The power supply can be chosen freely. Selection between 4 - 28V. This can be dependent from the supply for the encoder/sensor.
Caution! Never connect different voltage potential!

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notes:

System bus data:

Bit	Name	Description	
0-15	Low Word 32bit Counter / Counter 1	Depending on operating mode this value is the 32bit-counter or the value of the independent 16bit-counters	
16-31	High Word 32bit Counter / Counter 2		
32	E0 = REF_CAM	Value of input I0	
33	E1 = Special	Value of input I1	
34	ZERO	Value of Input zero	
35	EN_ZERO	write 1:	inputs 'I0' together with Input 'zero' set the counter to 0
		read:	set to 1 if counter is set to 0
36	EN_LOAD_CNT	write 1:	Copy bits 0-31 to counter
		read:	set to 1 if finished copying
37	not used		
38	not used		
39	WR_EN	must be set to one to use any function	
40	STOP_Z1	stop counter1 or 32bit-counter	
41	INV_Z1	change direction of counter 1 or 32bit-counter	
42	OVER_Z1	write	clear overflow-bit counter 1
		read	read overflow-bit counter 1
43	STOP_Z2	stop counter 2	
44	DOWN_Z2	set counter 2 countdirection to DOWN	
45	OVER_Z2	write	clear overflow-bit counter 2
		read	read overflow-bit counter 2
46	not used		
47	not used		

Reset 32Bit Counter using inputs I0 /I0 and zero /zero

- Set Bit35 and Bit 39 to 1
- Signal I0 together with Signal zero set the counter to 0

To check if the counter has been reset, read bit 35. If bit 35 is 1 the counter has been reset. To reset the counter again first write 0 to bit 35 and then write 1 to bit 35.

Set 32Bit Counter

- Set bit 0 – 31 to the new counter value
- Set bit 36 and Bit 39 to 1

To check if the counter has been set, read bit 36. If bit 36 is 1 the counter has been set. To set the counter again first write 0 to bit 36 and then write 1 to bit 36.

Caution:

Power 0V has to be directly connected with power 0V of the interface partner and power 0V of the controller-module.

History:

Version	Description	Date
00	Serie 0	09/02
01	Added: electrical data operating current	09/03
02	Added: connection examples	03/05
03	Layout changed	06/08