

7.7 DI875

7.7.1 General Information

The DI875 module is used to transfer digital signals from Namur encoders according to EN 60947-5-6.

In addition to Namur encoders normal switches can also be used.

7.7.2 Examples of Possible Encoders

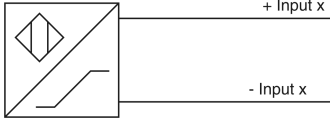
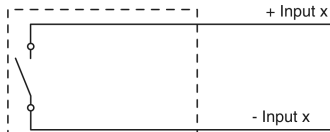
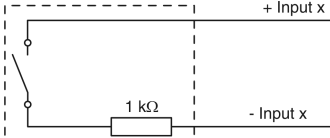
Proximity Switch	
Switch according to EN 60947-5-6 (Namur)	
Mechanical Contacts (instead of Namur encoders)	
Without open line recognition and without short circuit recognition	
Without open line recognition and with short circuit recognition	

Table 122: DI875 Examples of possible encoders

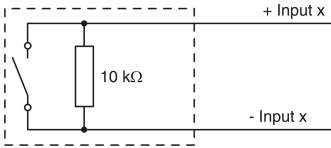
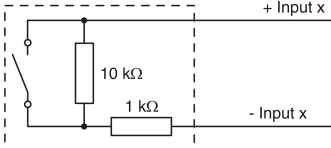
Mechanical Contacts (instead of Namur encoders)	
With open line recognition and without short circuit recognition	
With open line recognition and with short circuit recognition	

Table 122: DI875 Examples of possible encoders (cont.)

7.7.3 Order Data

Model Number	Short Description	Figure
3DI875.6	2005 digital input module, 16 Namur inputs, 8.05 VDC, 2 electrically isolated input groups. Order 2 x TB718 terminal blocks separately.	

Table 123: DI875 order data

7.7.4 Technical Data

Product ID	DI875
General Information	
C-UL-US Listed	In preparation
B&R ID Code	\$B4
Can be Installed on Main Rack Expansion Rack	Yes Yes
Static Characteristics	
Module Type	B&R 2005 I/O module
Number of Inputs Total in 2 Groups of	16 8
No Load Voltage	8.05 V $\pm 5\%$
Internal Resistance	Approx. 1 k Ω
Open Line Detection	<200 μ A
Short Circuit Recognition	> 7 mA
Maximum short circuit current	< 9 mA
Switching Threshold Switching range Hysteresis	1.2 mA to 2.1 mA Typ. ± 100 μ A
Delay 0 to 1	Max. 1 ms
Delay 1 to 0	Max. 1 ms
Power Consumption 5 V 24 V Total	Max. 1.3 W Max. 4.8 W Max. 6.1 W
Operating Characteristics	
Electrical Isolation Input - PLC Group - Group Input - Input (same group)	Yes Yes No
Mechanical Characteristics	
Dimensions	B&R 2005 single-width
Terminal Layout	See 7.7.7 "Pin Assignments", on page 242

Table 124: DI875 technical data

7.7.5 Status LEDs

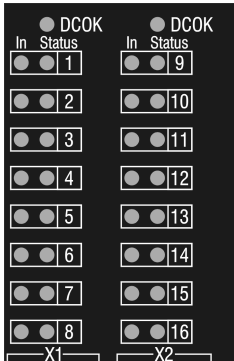
Figure	LED	Description	
	2 x DCOK	The orange DCOK LED is lit when there is a Namur supply voltage of 8 VDC (supply for Namur encoder).	
	16 x green	Input state of the corresponding digital inputs.	
	16 x Dual LED	Operating status for the corresponding digital inputs.	
		Status	Description
		Not lit	Normal Operation
		Red blinking	Open line recognition for the respective input
	Red lit	Short circuit recognition for the respective input	

Table 125: DI875 status LEDs

7.7.6 Connection Elements

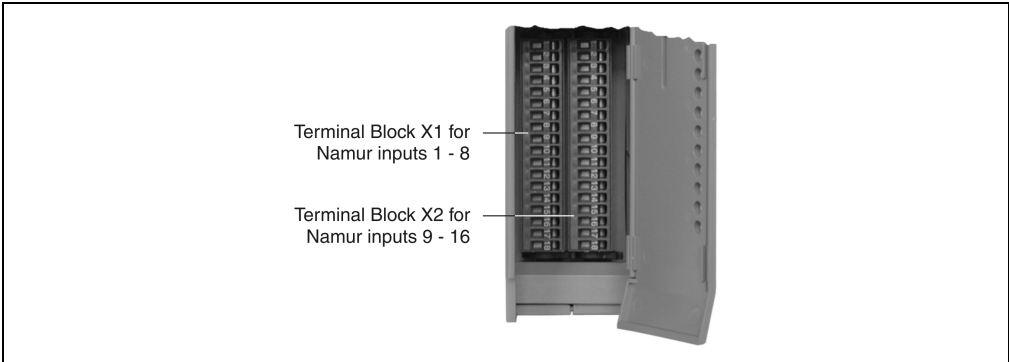


Figure 96: DI875 connection elements

7.7.7 Pin Assignments

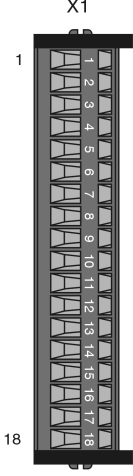
Left 18-pin Terminal Block	Pin	Assignment	Group
 X1 1 18 TB718	1	+ Input 1	1
	2	- Input 1	
	3	+ Input 2	
	4	- Input 2	
	5	+ Input 3	
	6	- Input 3	
	7	+ Input 4	
	8	- Input 4	
	9	+ Input 5	
	10	- Input 5	
	11	+ Input 6	
	12	- Input 6	
	13	+ Input 7	
	14	- Input 7	
	15	+ Input 8	
	16	- Input 8	
	17	NC	
	18	NC	

Table 126: DI875 pin assignments for terminal block X1

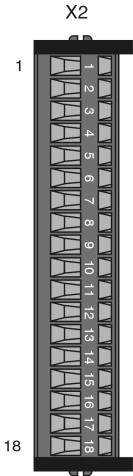
Right 18-pin Terminal Block	Pin	Assignment	Group
 X2 1 18 TB718	1	+ Input 9	2
	2	- Input 9	
	3	+ Input 10	
	4	- Input 10	
	5	+ Input 11	
	6	- Input 11	
	7	+ Input 12	
	8	- Input 12	
	9	+ Input 13	
	10	- Input 13	
	11	+ Input 14	
	12	- Input 14	
	13	+ Input 15	
	14	- Input 15	
	15	+ Input 16	
	16	- Input 16	
	17	NC	
	18	NC	

Table 127: DI875 pin assignment for terminal block X2

7.7.8 Input Circuit Diagram

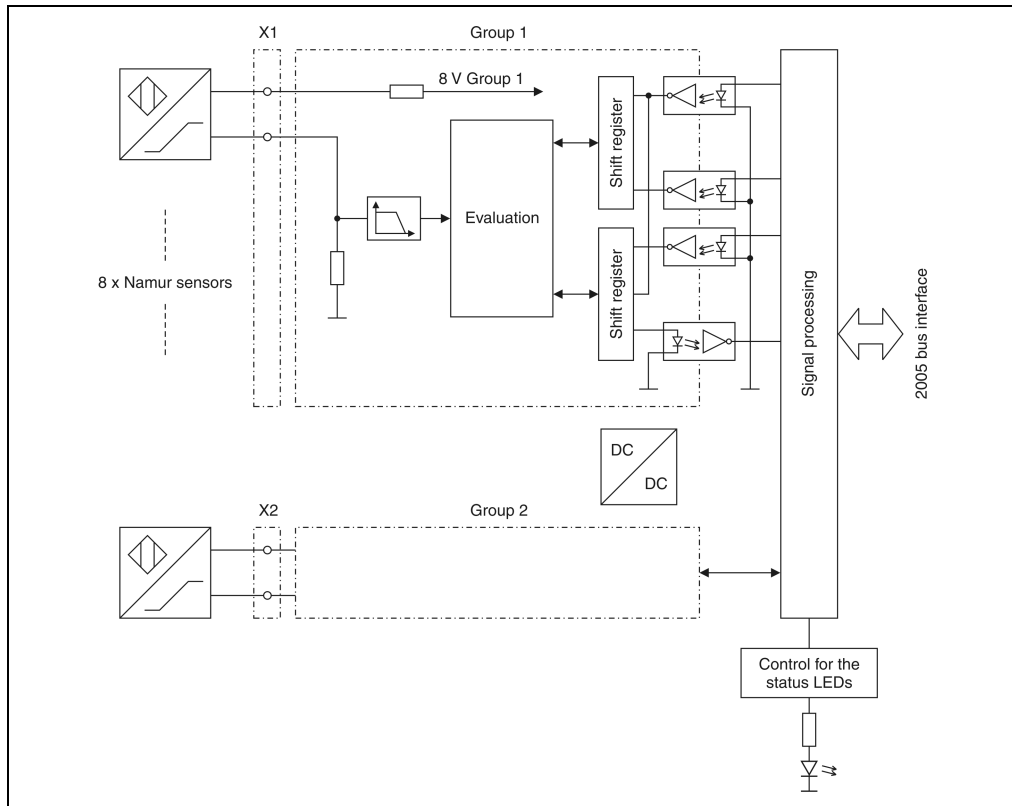


Figure 97: DI875 input circuit diagram

7.7.9 Variable Declarations

B&R Automation Studio™ Support: See B&R Automation Studio™ Help starting with V1.40.

Function	Variable Declarations				
	Scope	Data Type	Length	Module Type	Chan.
Read single digital input (channel x)	tc_global	BOOL	1	Digit. In	1 ... 16
Read open line registers 1 - 8	tc_global	USINT	1	Status In	0
Read open line registers 9 - 16	tc_global	USINT	1	Status In	1
Read short circuit registers 1 - 8	tc_global	USINT	1	Status In	2
Read short circuit registers 9 - 16	tc_global	USINT	1	Status In	3

Table 128: DI875 variable declaration

Open Line Register (read)

Legend: No No open line
 Yes ... Open line

Bit	Chan.	Status	Description
0	1	0	No
		1	Yes
1	2	0	No
		1	Yes
2	3	0	No
		1	Yes
3	4	0	No
		1	Yes
4	5	0	No
		1	Yes
5	6	0	No
		1	Yes
6	7	0	No
		1	Yes
7	8	0	No
		1	Yes
8	9	0	No
		1	Yes
9	10	0	No
		1	Yes
10	11	0	No
		1	Yes
11	12	0	No
		1	Yes
12	13	0	No
		1	Yes
13	14	0	No
		1	Yes
14	15	0	No
		1	Yes
15	16	0	No
		1	Yes

Table 129: DI875 open line register (read)

Short Circuit Register (read)

Legend: No No short circuit
 Yes ... Short circuit

Bit	Chan.	Status	Description
0	1	0	No
		1	Yes
1	2	0	No
		1	Yes
2	3	0	No
		1	Yes
3	4	0	No
		1	Yes
4	5	0	No
		1	Yes
5	6	0	No
		1	Yes
6	7	0	No
		1	Yes
7	8	0	No
		1	Yes
8	9	0	No
		1	Yes
9	10	0	No
		1	Yes
10	11	0	No
		1	Yes
11	12	0	No
		1	Yes
12	13	0	No
		1	Yes
13	14	0	No
		1	Yes
14	15	0	No
		1	Yes
15	16	0	No
		1	Yes

Table 130: DI875 short circuit register (read)