

## Digital I/O modules 16 and 48 channels

RIFLEX M1 digital I/O modules

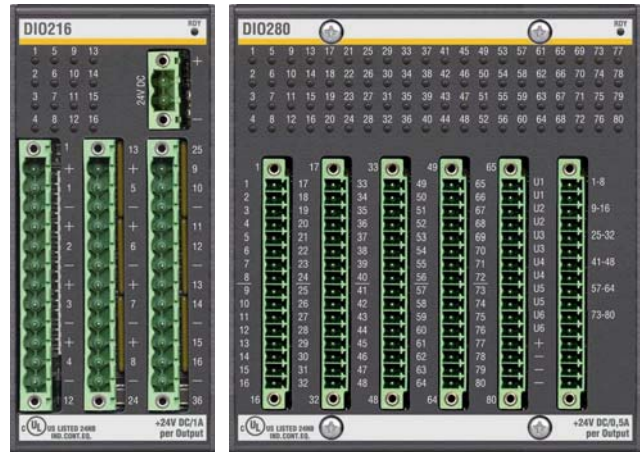
Type:

**RMDIO2xx.x**

Order #:

see below

The digital input/output module DIO2xx/x can be used to read input signals from digitally operating sources such as sensors, photocells or switches and to operate receivers of digital control signals such as contactors, relays, signal lamps or pneumatic and hydraulic valves.



## Features

- 16/48/64 or 80 digital input / output channels, 16 channels configurable as input or output
- status display: yellow LED for *Ready* (RDY) and green LEDs for active channels
- configurable interrupt channel
- internal power supply internal 5 V DC via backplane BS2xx
- connector for external power supply
- full wiring without extra potential rails (DIO216/x)
- individual power supply for outputs in separate groups (DIO216/4, 248, 264, 280)
- For each module 16 channels can be configured individually as input or output via software.

For the DIO216 module the power supply terminals allows wiring between the input/output channels, sensors and actors without any additional potential rails, distributors or terminal blocks. The power supply terminals as well as the I/O logic and the drivers for the outputs (at DIO216/x also I/O logic) are supplied with power externally. The input/output channels are galvanically separated from the controller's bus.

As many digital input/output modules DIO2xx/x as module slots are available, may be used in a controller system. Any combination of DIO2xx/x with other input/output modules is allowed. Nevertheless, the maximum capacity of the power supply module must be considered.



**remark:** The module DIO248 requires a 2 modules slot. For the addressing the right slot of the two is relevant!

Digital In-/Output Module	DIO216/4	DIO248
number of inputs	0 .. 16	16 .. 32
voltage for state 1 (active)	+ 15 V .. + 34 V	
voltage for state 0 (inactive)	0 V .. + 5 V	
impedance	approx. 6.8 kΩ	
input delay typically through filter	3 ms	1 ms
interrupt input (channel)	DIO 1	DI 1 .. 8
input delay typically	50 μs	
trigger	positive edge	pos. / neg. / both edge(s)
outputs, quantity	0 .. 16	16 .. 32
output voltage range	+ 18 V .. + 34 V DC	
output current / channel	1 A	0,5 A
groups of outputs	4	4
groups of outputs, channels	1..4, 5..8, 9..12, 13..16	1..8, 9..16, 25..32, 41..48
total output current per module	max. 16 A	max. 16 A
total output current per group	max. 4 A	max. 6 A

Digital In-/Output Module	DIO216/4	DIO248
UL/CUL	max. 4 A	max. 6 A
short circuit stability	yes	
delay time log 0 -> 1 (typ/max) log 1 -> 0 (typ/max)	no data	65 / 115 $\mu$ s @ 0,5 A, resistive load 50 / 80 $\mu$ s @ 0,5 A, resistive load
refresh cycle time / switching frequency	1 ms / max. 1 kHz at resistive load	
status indicating LEDs	RDY yellow LED, in-/outputs green LEDs	
power supply	internal, via backplane BS2xx + external	
current consumption, via backplane	75 mA @ 5 V DC	255 mA @ 5 V DC
isolation towards bus	yes, @ 500 V	



**remark:** The optional function to use channels 1 and 2 as interrupt inputs is not enabled in the current software.

### Error messages

Error message	Remark	DIO216/x	DIO248
voltage (module)	Breakdown of the module power supply	-	yes
voltage (channel)	Breakdown of the power supply DIO 1..8	-	yes
voltage (channel)	Breakdown of the power supply DIO 9..16	-	yes
voltage (channel)	Breakdown of the power supply DO 1..8	-	yes
voltage (channel)	Breakdown of the power supply DO 9..16	-	yes
overtemperature (module)	Overload of min. one output	-	yes

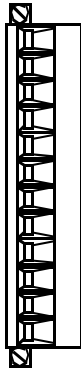
### External Power Supply

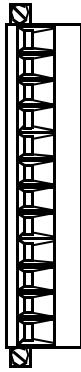
External Power Supply	Description
input voltage, nominal	24 V DC
input voltage, range	18 .. 34 V DC
input voltage, peak value, if $t < 1$ s / min	40 V DC
current consumption	$\Sigma$ current consumption sensors/actors
polarity reversal protection	yes




**attention (DIO channels):** If the external supplying power is off, the voltage from an eventually active sensor is looped through to the "+" pin of the power supply connector and thus will supply power to active outputs of the concerned group (DIO 216/4: group of 4 outputs).

## Pin Assignments DIO216/4

Connector 1/2	Pin	Signal (DIO216 + 216/4)	Pin	Signal (DIO216 + 216/4)
	1	24V	13	24V
	2	DIO 1	14	DIO 5
	3	0V	15	0V
	4	24V	16	24V
	5	DIO 2	17	DIO 6
	6	0V	18	0V
	7	24V	19	24V
	8	DIO 3	20	DIO 7
	9	0V	21	0V
	10	24V	22	24V
	11	DIO 4	23	DIO 8
	12	0V	24	0V

Connector 3	Pin	Signal (DIO 216)	Pin	Signal (DIO 216/4)
	25	DIO 9	25	DIO 9
	26	DIO 10	26	DIO 10
	27	0V	27	DIO 11
	28	DIO 11	28	DIO 12
	29	DIO 12	29	DIO 13
	30	0V	30	DIO 14
	31	DIO 13	31	DIO 15
	32	DIO 14	32	DIO 16
	33	0V	33	U1 (OUT 1 .. 4)
	34	DIO 15	34	U2 (OUT 5 .. 8)
	35	DIO 16	35	U3 (OUT 9 .. 12)
	36	0V	36	U4 (OUT 13 .. 16)

Power Supply	Pin	Signal	Description
	1	+	power supply + 24V DC
	2	-	power supply ground

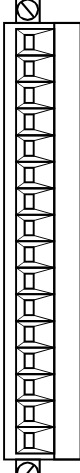


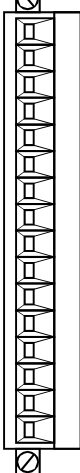
**remark:** All "24V" pins are connected to each other and to the "+" pin of the 2-pin power supply connector. The "0V" pins are connected to each other and to the "-" pin of the 2-pin power supply connector. The maximum current of 12 A per pin must not be exceeded.



**remark:** At the DIO216/4, the drivers of the outputs 1..4 are supplied with power from pin U1, outputs 5..8 from U2, outputs 9..12 from U3 and outputs 13..16 from U4. The grounds of the power supplies U1..U4 must be connected to each other and to the pins "0V" and "-" respectively.

### Pin Assignments DIO248

Connector 1/2/3	Pin	Channel	Pin	Channel	Pin	Channel
	1	DIO 1	17	DI 1	33	DI 9
	2	DIO 2	18	DI 2	34	DI 10
	3	DIO 3	19	DI 3	35	DI 11
	4	DIO 4	20	DI 4	36	DI 12
	5	DIO 5	21	DI 5	37	DI 13
	6	DIO 6	22	DI 6	38	DI 14
	7	DIO 7	23	DI 7	39	DI 15
	8	DIO 8	24	DI 8	40	DI 16
	9	DIO 9	25	DO 1	41	DO 9
	10	DIO 10	26	DO 2	42	DO 10
	11	DIO 11	27	DO 3	43	DO 11
	12	DIO 12	28	DO 4	44	DO 12
	13	DIO 13	29	DO 5	45	DO 13
	14	DIO 14	30	DO 6	46	DO 14
	15	DIO 15	31	DO 7	47	DO 15
	16	DIO 16	32	DO 8	48	DO 16

Supply voltage	Pin	Signal	Description
	1	U1	Supply voltage DIO 1 .. 8
	2	U1	
	3	U2	Supply voltage DIO 9 .. 16
	4	U2	
	5	U3	Supply voltage DO 1 .. 8
	6	U3	
	7	U4	Supply voltage DO 9 .. 16
	8	U4	
	9		n.c.
	10		n.c.
	11		n.c.
	12		n.c.
	13		n.c.
	14	-	Ground
	15	-	
	16	-	

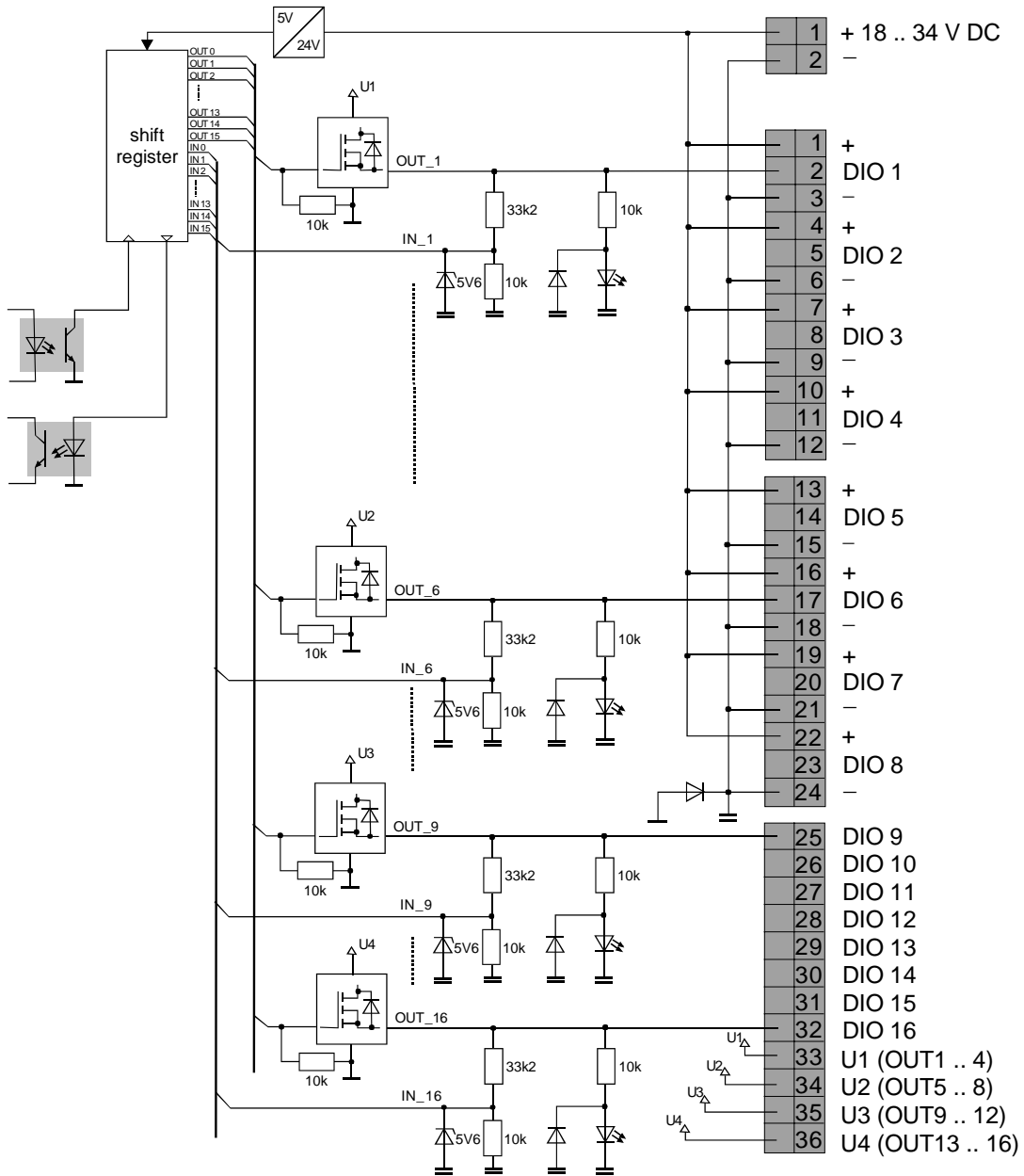


**remark:** Pins with identical designation are connected together.

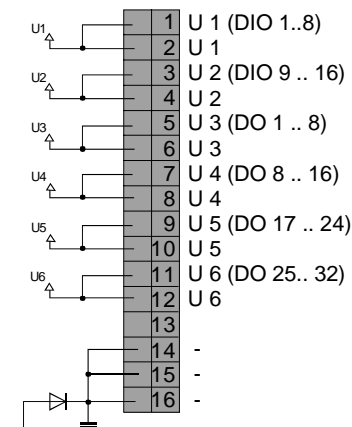
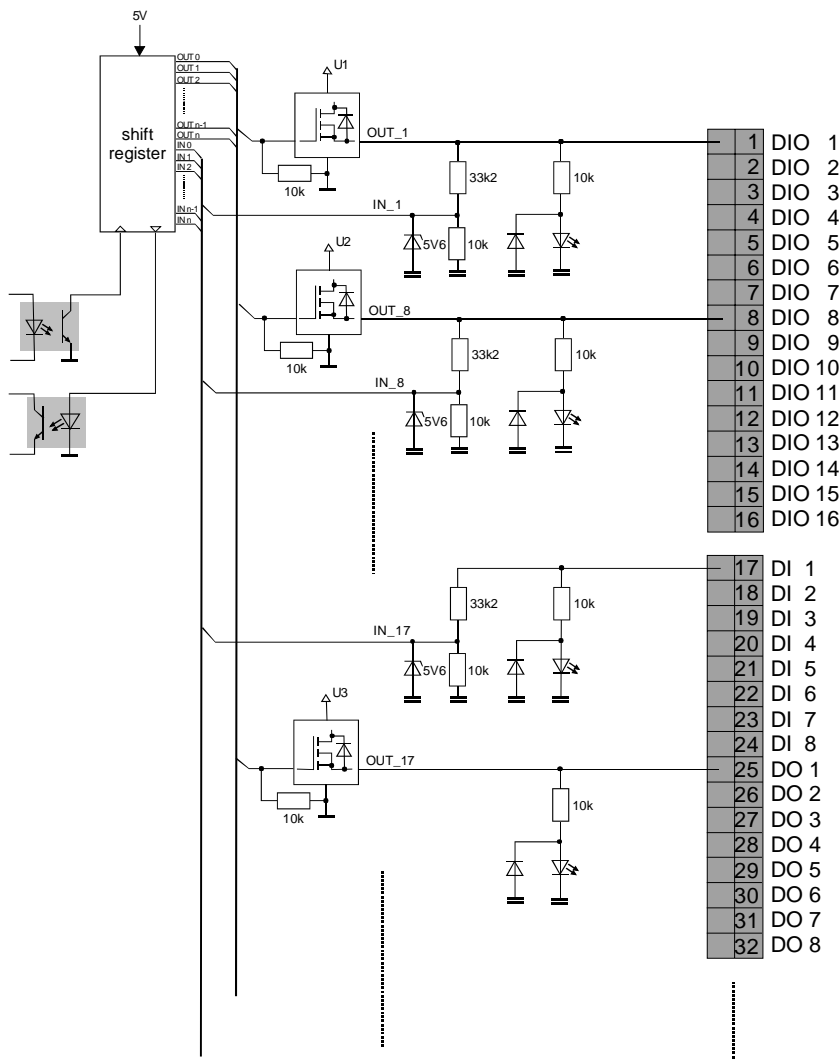
### Order Codes for Modules and Accessories

Order Code	Order #	Description
RMDIO216.4	0067560.001	Digital Input/Output Module 16x DIO 24V/1A, 4 groups, isolated, 3-wire technology
RMDIO248	0067564.001	Digital Input/Output Module 16x DIO / 16x DI / 16x DO, 24V/0,5A, 4 groups, isolated
RMKZDIO216.4	0067561.001	Terminal set Phönix cage clamp (3x KZ51/12, 1x KZ51/02)
RMKZDIO248	0067565.001	Terminal set Phönix cage clamp (4x KZ35/16)

# Input-/Output Circuit DIO216/4



# Input-/Output Circuit DIO248



Rittmeyer AG  
Grienbachstr. 39  
Postfach 2558  
CH-6302 Zug

Rittmeyer GmbH  
Postfach 1908  
DE-70709 Fellbach  
Raiffeisenplatz 6  
DE-70736 Fellbach

Rittmeyer Ges.m.b.H  
Walkürengasse 11/2/1  
Postfach 73  
AT-1152 Wien

Rittmeyer Italiana s.r.l.  
Via Valbona 43  
IT-24010 Ponteranica (BG)

Rittmeyer S.A.  
Calle Julián Camarillo 26-3º  
Apartado 35145  
ES-28037 Madrid