

8.5 DO650 / DO750

8.5.1 General Information

The DO650 and DO750 are standard digital output modules.

8.5.2 Order Data

Model Number	Short Description	Image
3DO650.6	2005 digital output module, 16 relay outputs 120 VAC / 24 VDC, 2 A, 4 electrically isolated output groups. Order TB170 terminal block separately.	
3DO750.6	2005 digital output module, 8 relay outputs 230 VAC / 24 VDC, 3 A, 2 electrically isolated output groups. Order TB170 terminal block separately.	
3TB170.9	2005 terminal block, 20-pin, screw clamps	
3TB170.91	2005 terminal block, 20-pin, cage clamps	
3TB170:90-02	2005 terminal block, 20-pin, 20 pcs., screw clamps	
3TB170:91-02	2005 terminal block, 20-pin, 20 pcs., cage clamps	
Terminal blocks not included in the delivery (see "Accessories").		

Table 152: DO650 / DO750 order data

8.5.3 Technical Data

Product ID	DO650	DO750
C-UL-US Listed	Yes	Yes
B&R ID Code	\$03	\$04
Number of Outputs Total in 4/2 Groups of	16 4	8 4
Design	Relay / N.O.	
Electrical Isolation Output - PLC Group - Group Output - Output	Yes / max. 144 VAC Yes / max. 250 VAC No	Yes / max. 250 VAC Yes / max. 430 VAC No
Switching Voltage Nominal Maximum	120 VAC / 24 VDC 144 VAC / 30 VDC	230 VAC / 24 VDC 250 VAC / 30 VDC

Table 153: DO650 / DO750 technical data

Product ID	DO650	DO750
Continuous Current per Output Group Module	Max. 2 A Max. 8 A Max. 32 A	Max. 3 A Max. 8 A Max. 16 A
Starting Current	Max. 12 A / Channel	Max. 12 A / Channel
Switching Capacity Minimum Maximum	0.1 mA / 0.1 VDC 300 VA / 90 W	10 mA / 5 VDC 500 VA / 150 W
Switching Delay Log. 0 - Log. 1 Log. 1 - Log. 0	Typ. 5.6 ms / max. 10 ms Typ. 2.5 ms / max. 5 ms	Typ. 4 ms / max. 6 ms Typ. 6 ms / max. 8 ms
Short Circuit Protection (external)	Fuse 8 A time lag per group (on COM connection)	
External Protective Circuit	Generally required	
Voltage Limitations on the Relay Contacts (internal)	400 V _{SS}	
Contact Resistance at Maximum Load	100 mΩ	
Switching Frequency (nominal load)	Max. 10 Hz	
Operating Cycles Mechanical Electrical (nominal load) Per Hour (nominal load)	>2 x 10 ⁷ >1 x 10 ⁵ Max. 600	
Dielectric Strength Contact Contact - Coil	280 VAC (due to voltage limitations) 2000 VAC / 1 min	
Power Consumption 5 V 24 V Total	Max. 0.7 W Max. 3.3 W Max. 4 W	Max. 0.7 W Max. 2.3 W Max. 3 W
Dimensions	B&R 2005 single-width	

Table 153: DO650 / DO750 technical data (cont.)

8.5.4 Status LEDs

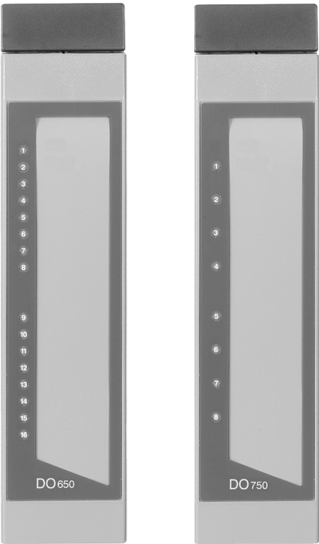
Image	LED	Description
	1 - 16 / 1 - 8	Status LEDs indicate the logic status of the corresponding output, also when the terminal block is not connected and there is no voltage to the terminal block. The LED is lit when the relay contact is closed.

Table 154: DO650 / DO750 status LEDs

8.5.5 Pin Assignments

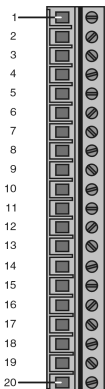
	Connection	DO650	Group	DO750	Group
 TB170	1	COM for Output 1 -4	1	COM for Output 1 -4	1
	2	Output 1		---	
	3	Output 2		Output 1	
	4	Output 3		---	
	5	Output 4		Output 2	
	6	Output 5	2	---	
	7	Output 6		Output 3	
	8	Output 7		---	
	9	Output 8		Output 4	
	10	COM for Output 5 - 8		---	
	11	COM for Output 9 -12	3	---	2
	12	Output 9		Output 5	
	13	Output 10		---	
	14	Output 11		Output 6	
	15	Output 12		---	
	16	Output 13	4	Output 7	
	17	Output 14		---	
	18	Output 15		Output 8	
	19	Output 16		---	
	20	COM for Output 13 -16		COM for Output 5 - 8	

Table 155: DO650 / DO750 pin assignments

For the connection of the terminal block, it is important to ensure that any potential difference does not exceed 50 V. This is valid for:

Potential Difference Between	DO650	DO750
Group ↔ Group	250 VAC	430 VAC
COM x ↔ PLC Ground	144 VAC	250 VAC
COM x ↔ Ground	144 VAC	250 VAC

Table 156: DO650 / DO750 maximum potential difference not exceeded

8.5.6 Output Circuit Diagram

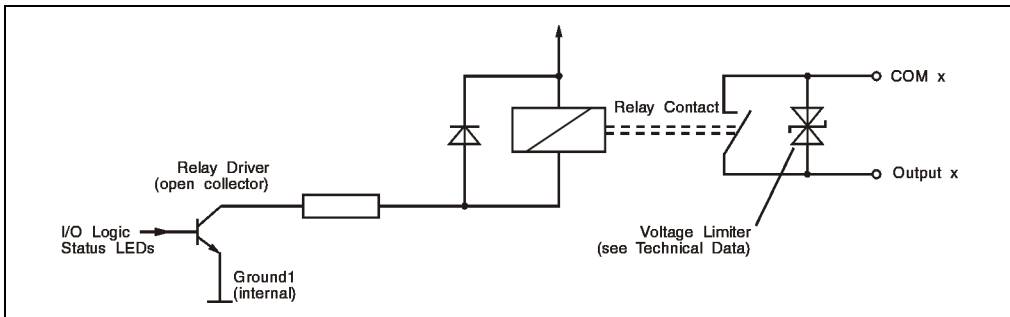


Figure 109: DO650 / DO750 output circuit diagram

8.5.7 Variable Declarations

The variable declaration is made in B&R Automation Studio™:

Function	Variable Declarations				
	Scope	Data Type	Length	Module Type	Chan.
Single digital output (channel x)	tc_global	BOOL	1	Digit. Out	1 ... 8/16

Table 157: DO650 / DO750 variable declaration