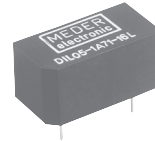


### DESCRIPTION

Several pin out options are possible with the 14 pin DIL series. Suitable for telecommunication applications where breakdown voltages up to 4.25 kVDC and the EN60950 approval are required.



### FEATURES

### CHARACTERISTICS

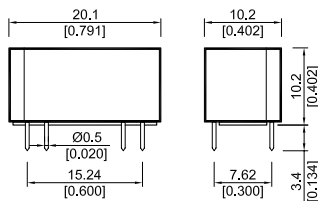
- Compatible with DIL socket
- Coil resistance up to 11 kΩ
- Diode option

- EN60950 approved
- 1 Form C available
- High resistance available
- Up to 4 Form A switches available
- Magnetic shield available
- 4.25 kVDC breakdown voltage available
- High power switching available

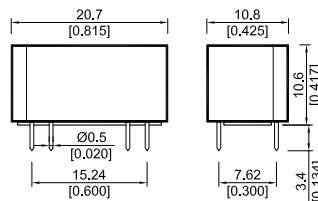
### DIMENSIONS

All dimensions in mm [inches]

Without magnetic shield



With magnetic shield



### ORDER INFORMATION

#### Part Number Example

DIL12 - 1A81 - 10LHR

12 is the nominal voltage  
 1A is the contact form  
 81 is the switch model  
 10 is the pin out  
 L is the option  
 HR is the high resistance version

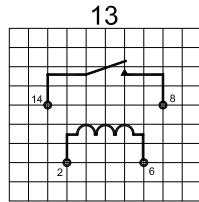
RELAY SERIES	NOMINAL VOLTAGE	CONTACT FORM	SWITCH MODEL	PIN OUT	OPTION ( ) VERSION WITH MAGNETIC SHIELD	VERSION
<b>DIL</b>	<b>XX -</b>	<b>XX</b>	<b>XX -</b>	<b>XX</b>	<b>X</b>	<b>XX</b>
<b>OPTIONS</b>	05, 12, 24	1A	66, 72, 75	13**, 15	L (M), D (Q), E (R) <sup>†</sup> , F (S) <sup>†*</sup>	HR***, L
		81*	88	13**		L
	2A	66, 72, 75, 88	21	HR***, L		
	05, 12	1C	90	51**		L
05, 12, 24	2C	90	62, 63			

\* The 81 switch is not available with a nominal voltage of 24 V. † Not available with pin out 62.  
 \*\* When HR is selected, 24 V nominal voltage is not available. ‡ Not available with pin outs 62 and 63.  
 \*\*\* 81 and 90 switch only.  
 L = No Option.

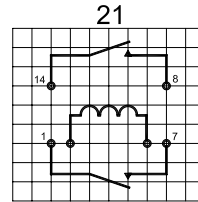
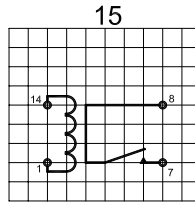
## Sealed DIL Version w/ up to 4.25 kVDC Breakdown Voltage Option

### PIN OUT

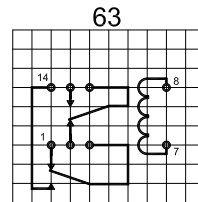
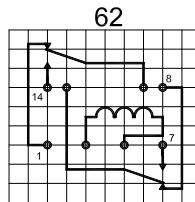
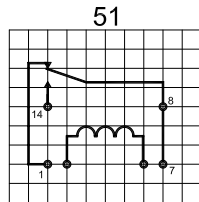
View from top of component  
2.54mm [0.10"] pitch grid



UP ←  
ONLY WHEN USING A MERCURY WETTED (88) SWITCH



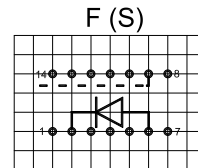
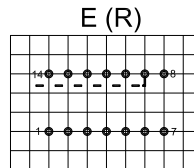
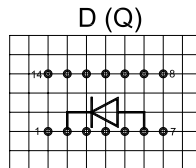
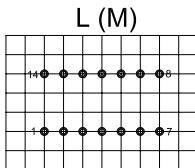
UP ←  
ONLY WHEN USING A MERCURY WETTED (88) SWITCH



### OPTIONS

( ) Versions with magnetic shield

View from top of component  
2.54mm [0.10"] pitch grid



Please note:

Any option can affect the coil resistance, the breakdown voltage or other electrical data. Please contact us.

Special performance:

The following special options are available on request:

- Low height versions available (5 and 8 mm)
- Other pinning layouts
- Other coil resistance values
- Other switches available

**COIL DATA**

CONTACT FORM	SWITCH MODEL	COIL VOLTAGE		COIL RESISTANCE			PULL-IN VOLTAGE		DROP-OUT VOLTAGE		NOMINAL COIL POWER
		VDC		Ω			VDC		VDC		mW
All data at 20 °C *											
		Nom.	Max.	Min.	Typ.	Max.	Min.	Max.	Min.	Max.	Typ.
<b>1A</b>	<b>66 72 75</b>	5	7.5	405	450	495	0.85	3.5	0.75	3.4	55
		12	16	1620	1800	1980	1.9	8.4	1.8	8.3	80
		24	30	4050	4500	4950	3.7	16.8	3.6	16.7	130
	<b>88 Hg wetted</b>	5	7.5	153	170	187	0.85	3.5	0.75	3.4	145
		12	16	630	700	770	1.9	8.4	1.8	8.3	205
		24	30	1530	1700	1870	3.7	16.8	3.6	16.7	340
	<b>81</b>	5	7.5	2700	3000	3300	0.85	3.5	0.75	3.4	10
		12	16	9000	10000	11000	1.9	8.4	1.8	8.3	115
	<b>2A</b>	<b>66 72 75</b>	5	7.5	180	200	220	0.85	3.5	0.75	3.4
12			16	612	680	748	1.9	8.4	1.8	8.3	210
24			30	1800	2000	2200	3.7	16.8	3.6	16.7	290
<b>88 Hg wetted</b>		5	7.5	54	60	66	0.85	3.5	0.75	3.4	415
		12	16	315	350	385	1.9	8.4	1.8	8.3	410
		24	30	1215	1350	1485	3.7	16.8	3.6	16.7	425
<b>1C</b>	<b>90</b>	5	7.5	180	200	220	0.85	3.5	0.75	3.4	125
		12	16	900	1000	1100	1.9	8.4	1.8	8.3	145
		24	30	2700	3000	3300	3.7	16.8	3.6	16.7	190
<b>2C</b>		5	7.5	117 (145)	130 (150)	143 (165)	0.85	3.5	0.75	3.4	190 (165)
		12	16	477 (612)	530 (680)	583 (748)	1.9	8.4	1.8	8.3	270 (210)
		24	30	1800	2000	2200	3.7	16.8	3.6	16.7	290

\* The pull-in / drop-out voltage and coil resistance will change at the rate of 0.4% per °C.  
 ( ) Values in parenthesis are for pin out 63.

## Sealed DIL Version w/ up to 4.25 kVDC Breakdown Voltage Option

### RELAY DATA

All data at 20 °C	Switch Model -> Contact Form ->	Switch 66 Form A			Switch 72 Form A			Switch 81 Form A			
Contact Ratings	Conditions	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Switching Power	Any DC combination of V & A not to exceed their individual max.'s			10			20			5	W
Switching Voltage	DC or peak AC			200			200			90	V
Switching Current	DC or peak AC			0.5			1.0			0.5	A
Carry Current	DC or peak AC			1.25			1.25			1.0	A
Static Contact Resistance	w/ 0.5V & 50mA			150			150			200	mΩ
Dynamic Contact Resistance	Measured w/ 0.5V & 50mA 1.5 ms after closure			200			200			200	mΩ
Insulation Resistance (100 Volts applied)	Across contacts Contact to coil	10 <sup>10</sup> 10 <sup>12</sup>			10 <sup>12</sup> 10 <sup>12</sup>			10 <sup>9</sup> 10 <sup>12</sup>			Ω
Breakdown Voltage	Across contacts Contact to coil	225 1.5			320 1.5*			100 1.5			VDC kVDC
Operate Time, incl. Bounce	Measured w/ 100% overdrive			0.5			0.5			0.5	ms
Release Time	Measured w/ no coil suppression			0.1			0.1			0.1	ms
Capacitance	Across contacts Contact to coil		0.2 4.0			0.2 4.0			0.2 4.0		pF
<b>Life Expectancies</b>											
Switching 5 Volts@ 10mA	DC only & <10 pF stray cap.		1000			1000			100		10 <sup>6</sup> Cycles
For other load requirements please see our life test section located on page 151.											
<b>Environmental Data</b>											
Shock Resistance	1/2 sine wave duration 11ms			50			50			30	g
Vibration Resistance	From 10 - 2000 Hz			20			20			10	g
Ambient Temperature	10 °C/ minute max. allowable	-20		70	-20		70	-20		70	°C
Storage Temperature	10 °C/ minute max. allowable	-25		85	-25		85	-25		85	°C
Soldering Temperature	5 sec. dwell			260			260			260	°C

\* 4.25 kVDC / 3.0 kVRMS for pin outs 13 and 15.

**RELAY DATA**

All data at 20 °C	Switch Model → Contact Form →	Switch 75 Form A			Switch 88 Form A / Hg wetted			Switch 90 Form C			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
<b>Contact Ratings</b>	<b>Conditions</b>										
Switching Power	Any DC combination of V & A not to exceed their individual max.'s			10			35			3	W
Switching Voltage	DC or peak AC			1000			1000			175	V
Switching Current	DC or peak AC			0.5			1.0			0.25	A
Carry Current	DC or peak AC			1.0			2.0			1.2	A
Static Contact Resistance	w/ 0.5V & 50mA			200			60			150	mΩ
Dynamic Contact Resistance	Measured w/ 0.5V & 50mA 1.5 ms after closure			200			200			250	mΩ
Insulation Resistance (100 Volts applied)	Across contacts Contact to coil	10 <sup>10</sup> 10 <sup>12</sup>			10 <sup>10</sup> 10 <sup>12</sup>			10 <sup>9</sup> 10 <sup>12</sup>			Ω
Breakdown Voltage	Across contacts Contact to coil	1500 1.5			1500 1.5*			200 1.5			VDC kVDC
Operate Time, incl. Bounce	Measured w/ 100% overdrive			0.5			2.5			0.7	ms
Reset Time	Measured w/ no coil suppression			0.1			2.0			1.5	ms
Capacitance	Across contacts Contact to coil		0.4 4.0			0.4 4.0			1.0 4.0		pF
<b>Life Expectancies</b>											
Switching 5 Volts@ 10mA	DC only & <10 pF stray cap.		500			1000			100		10 <sup>6</sup> Cycles
For other load requirements please see our life test section located on page 151.											
<b>Environmental Data</b>											
Shock Resistance	1/2 sine wave duration 11ms			50			50			50	g
Vibration Resistance	From 10 - 2000 Hz			20			20			20	g
Ambient Temperature	10 °C/ minute max. allowable	-20		70	-20		55	-20		70	°C
Storage Temperature	10 °C/ minute max. allowable	-25		85	-25		85	-25		85	°C
Soldering Temperature	5 sec. dwell			260			260			260	°C
* 4.25 kVDC / 3.0 kVRMS for pin out 13 and 15.											