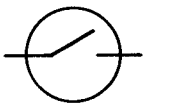
Electrical cylinder switch (reed contact) for cable connection

with and without LED (twin conductor)



Characteristic data		
Working position		Optional
Ambient temperature	ϑ_U	− 20 °C to + (see diagram)
Switching-point accuracy		±0.1 mm (at t = constant)
max. shock resistance		50 g/11 ms (contact closes)
Resistance to vibration		35 g (50–1000 Hz)
Electrical data		
Contact		1 n.o. contact
Voltage	$U_{max.}$	240 V≅ + 10 %
Power	$P_{max.}$	20 W/32 VA
Voltage drop	Δ_U	with LED at DC: 2.1 V + I · R_s at AC: 1.4 V + I · R_s without LED at AC: I · R_s
Constant current	$I_{max.}$	see Table
Min. current with LED	$I_{min.}$	10 mA
Service life		in excess of 10 · 10^6 switching cycles (at specified load)
Switching time On/Off	t_E/t_A	approx. 1.5 ms/approx. 3 ms
Electrical connection, shockproof, 2-pole		Cable 2 x 0.34 mm² (19-strand), OD 5 mm, PVC insulation
Degree of protection		IP 66 (P 54 S)

- The electronic circuitry is enclosed in an epoxy-resin housing
- The switch is connected by a cable
- LED incorporated for indication of operation
- High switching capacity
- High switching-point accuracy
- Very long service life due to limitation of maximum current (protective resistor)
- Cable exit with strain-relief device
- Flexible cable, also suitable for continuous strain
- Fitted Varistor provides protection against over-voltage
- Suitable for parallel connection

Selection

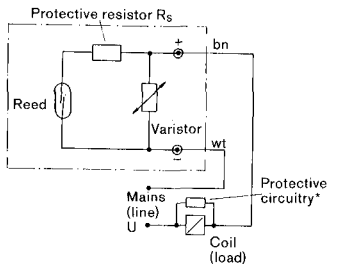
Basically, every cylinder switch is applicable for the voltage range 0–240 V DC/AC, if the limit values for current ($I_{max.}$) and power ($P_{max.}$) are not exceeded. In addition, in order to achieve the maximum possible service life, the individual types incorporate various sizes of protective resistor in addition to a Varistor:

Varistor
– protects against over-voltage
Protective resistor (R_s)
– limits the switch-on current ($I_{max.}$)
(refer to the selection diagrams).

Designation	U (V)	R_s (Ω)	$I_{max.}$ (A)	Cable-length	kg	⊖
Electrical cylinder switch (reed contact) for cable connection without LED, twin conductor	0–240	27	0,13≅*	3 m	0,110	⊖ 0830100300
		6,8	0,27≅			⊖ 0830100301
		1,3	0,6 ≅			⊖ 0830100302
		0,33	1,21≅	3 m		⊖ 0830100303
				5 m		⊖ 0830100304
		–	1,5 ≅**	3 m		⊖ 0830100310
Electrical cylinder switch (reed contact) for cable connection with LED, twin conductor		27	0,13≅*	3 m		⊖ 0830100350
				5 m		⊖ 0830100355
				3 m***		⊖ 0830100356
		6,8	0,27≅	3 m		⊖ 0830100351
		1,3	0,5 ~	3 m		⊖ 0830100353
			0,38 =	5 m		⊖ 0830100354
		0,33	0,57 ~**	3 m***		⊖ 0830100352
			0,47 = **			⊖ 0830100357

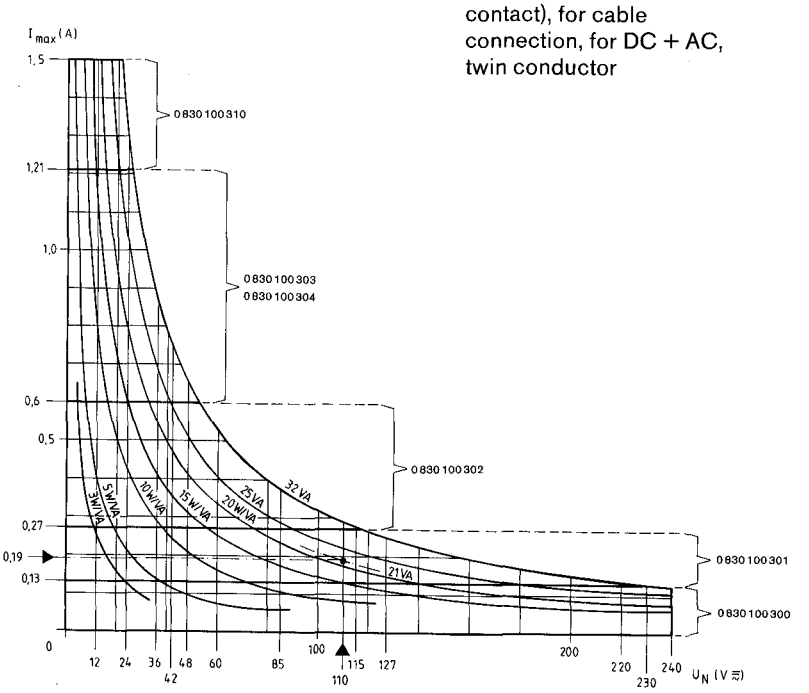
* Preferable for **low** switching currents (e.g. electronics) and long cable lengths (> 3 m)
** Preferable for **higher** switching currents (e.g. relays, contactors, solenoid valves)
*** Highly flexible (180-strand) and resistant to chemical attack

Electrical circuitry without LED
Polarity optional with DC and AC

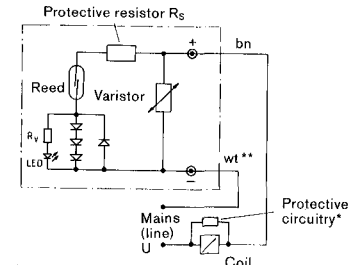


Selection examples:
Data of the solenoid to be switched:
Voltage U_N = 110 V AC
Pull-in power P_{20} = 21 VA
or switching current $I_{max.}$ = 0.19 A
Selected cylinder switch:
Part Number 0 830 100 301

Electrical cylinder switch (reed contact), for cable connection, for DC + AC, twin conductor



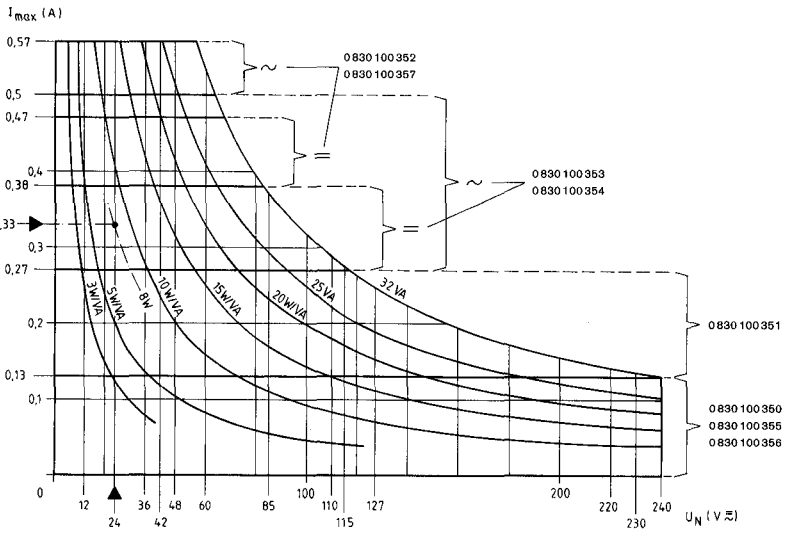
Electrical circuitry without LED
Observe correct polarity when connecting DC



** Black 0 830 100 356
0 830 100 357

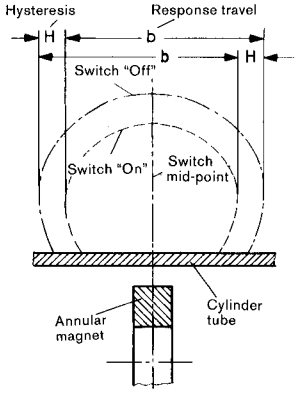
Selection examples:
Data of the solenoid to be switched:
Voltage U_N = 24 V DC
Pull-in power P_{20} = 8 W
or switching current $I_{max.}$ = 0.33 A
Selected cylinder switch:
Part Number 0 830 100 353

Electrical cylinder switch (reed contact), for cable connection, with LED, for DC + AC, twin conductor



* For DC:
Diode or diode and resistor
For AC:
Resistor and capacitor or Varistor

Switching characteristic

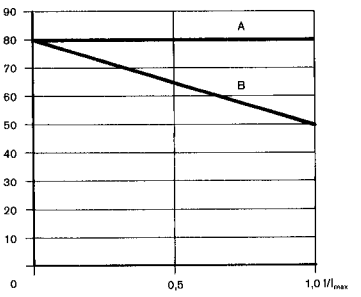


Calculation of the maximum piston speed referred to response travel "b" and the switching-time data t_1 to t_3.

Cyl. dia. (mm)	Hysteresis ~ H (mm)	Response travel ~ b (mm)	Overrun speed $V_{max.}$ (m/s) for $t_2 > t_3$	for $t_2 = t_3$
10	2	9	$V_{max.} = \frac{b \quad [m]}{t_E + t_1 + t_2 - t_3 [s]}$	$V_{max.} = \frac{b \quad [m]}{t_E + t_1 [s]}$
12	4	12		
16	3	11		
20	2	9		
25	3	9		
32	3	9		
40	4	11		
50	4	10		
63	4	12		
80	4	16		
100	4	19		
125	5	20		

$V_{max.}$: Maximum cylinder-piston speed
t_1: Switching time of the following device
t_2: Signal period of the following device
t_3: Release time of the following device
t: in ms
b: in mm
t_E: see Table

max. ambient temperature t [°C]



A = Switch without LED
B = Switch with LED

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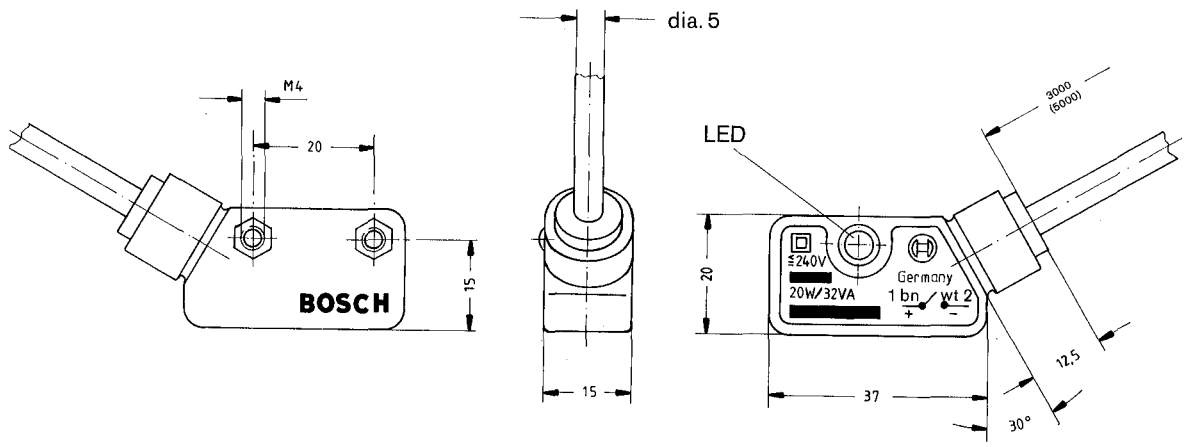

All dimensions in mm

Accessories (order separately)

Designation	For cyl. dia.	⊕	⊕ Secure against turning
Mounting for cylinder switch	10	⊕ 1 827 020 048	
	12		
	16		
	20		
	25		
	32		⊕ 1 827 020 056
	40		
	50	⊕ 1 827 020 049	⊕ 1 827 020 057
	63		
	80	⊕ 1 827 020 050	⊕ 1 827 020 058
	100		
	125	⊕ 1 827 020 051	