



Choose one component from each of the coloured sections to assemble a complete switch.
For other options or further information please contact your local sales office.

Product Profile

The Series 84 consists of indicators, pushbuttons and low depth monoblock Emergency-stop switches. The indicators and pushbuttons are a modular system of lens, actuator and switching element with connections using plug-in terminals.

Within the many different colours, the lenses are available either in plastic or anodised aluminium.

Technical data see pages 103-105

Technical drawings see pages 106-107

- IP67 Protection (Switches and Indicators)
- IP65 Protection (Emergency-stop switches)
- Flush Mounting into 22.5mm cut out
- Illumination using Single or Multi-LED's in red, orange, yellow, green, blue or white
- Switching elements with solder or plug-in terminals or ribbon cable with 300mm length
- Switch Rating for indicator and pushbutton: 10µA - 100mA, 50mVAC/VDC - 42VAC/VDC
- Switch Rating for Emergency-stop switch: 3A/120VAC, 1.5A/240VAC
- LED Voltage for Emergency-stop switch: 5-30VDC
- All standard plastic lenses with the exception of black are transparent with translucent diffuser
- Compact Emergency-stop meets EN 60947-5-1, EN 60947-5-5 and EN 418

Indicator



Indicator body for flush mount, black plastic, IP67 front protection, 22.5mm mounting

Part No.	Material
84-0100.0	Plastic
84-0200.7	Metal

For complete indicator order indicator element 84-800X.XXXX

For complete switch also order **A**

Illuminated pushbutton



Pushbutton actuator for flush mount, black plastic, IP67 front protection, 22.5mm mounting

Part No.	Momentary/Maintained	Material
84-1101.0	Momentary	Plastic
84-1201.7	Momentary	Metal

For complete pushbutton order switch element 84-851X.XXXX

For complete switch also order **A**

Illuminated Emergency-stop switch



Emergency-stop red LED illuminated, plug-in terminals, twist release, 32mm diameter for 22.5mm mounting, foolproof to EN 60947-5-5

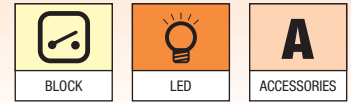
Part No.	Contact type
84-5021.2B20	1NC
84-5041.2B20	2NC
84-5031.2B20	1NC/1NO



Emergency-stop red LED illuminated, ribbon cable, twist release, 32mm diameter for 22.5mm mounting, foolproof to EN 60947-5-5

Part No.	Contact type
84-5021.2B40	1NC
84-5041.2B40	2NC
84-5031.2B40	1NC/1NO

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Emergency-stop switch

Indicator element



Emergency-stop non illuminated, plug-in terminals, twist release, 32mm diameter for 22.5mm mounting, foolproof to EN 60947-5-5



Emergency-stop non illuminated, ribbon cable, twist release, 32mm diameter for 22.5mm mounting, foolproof to EN 60947-5-5



Indicator element, 24VDC LED, plug-in terminals

Part No.	Contact type	Part No.	Contact Type	Colour	Part No.	Comment
84-5020.0020	1NC	84-5020.0040	1NC	Red	84-8002.2620	Multi-chip LED
84-5040.0020	2NC	84-5040.0040	2NC	Yellow	84-8002.4620	Multi-chip LED
84-5030.0020	1NC/1NO	84-5030.0040	1NC/1NO	Green	84-8002.5620	Multi-chip LED
				Blue	84-8001.6620	Single-chip LED
				White	84-8001.9620	Single-chip LED

For complete switch also order **A**

Switch element



Switching element, 24VDC LED, plug-in terminals, 1NO



Switching element, 24VDC multi-chip LED, ribbon cable, 1NO

Colour	Part No.	Comment	Colour	Part No.	Comment
Red	84-8512.2620	Multi-chip LED	Red	84-8512.2640	Multi-chip LED
Yellow	84-8512.4620	Multi-chip LED	Yellow	84-8512.4640	Multi-chip LED
Green	84-8512.5620	Multi-chip LED	Green	84-8512.5640	Multi-chip LED
Blue	84-8511.6620	Single-chip LED	Blue	84-8511.6640	Single-chip LED
White	84-8511.9620	Single-chip LED	White	84-8511.9640	Single-chip LED
	84-8510.0020	No LED - switching element only		84-8510.0040	No LED - switching element only

For complete switch also order **A**

For complete switch also order **A**

Complete switch



Features

- IP67 front sealed
- Modular switching system
- Pole mount pushbutton assembly options
- Pole mount housing options
- Intensive LED illumination
- Symbol options
- Ribbon cable or plug in terminal connections
- Short travel switching system for good tactile feel
- Low back panel depth
- World wide approvals



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A Accessories



Lens, plastic for flush mount, round indicator and pushbutton bodies

Colour	Part No.	Comment
Red	84-7111.200	
Yellow	84-7111.400	
Green	84-7111.500	
Blue	84-7111.600	
Clear	84-7111.700	
Black	84-7121.000	Not for illumination



Pole mounted housing for stop request pushbutton

Colour	Part No.	Pole Dimension
Yellow	84-9500.4	35mm Ø
Yellow	84-9600.4	38mm Ø
Grey	84-9500.8	35mm Ø
Grey	84-9600.8	38mm Ø

*To reduce pole mounted housing from 35mm to 25mm Ø or 38mm to 35mm Ø please refer to the adaptor in the accessories section.



Wall mounted housing for stop request pushbutton

Colour	Part No.
Yellow	84-9800.4
Grey	84-9800.8

For complete switch also order **A**

A Accessories



Adaptor to reduce pole mounted housing from 35mm to 25mm Ø or 38mm to 35mm Ø

Colour	Part No	Pole dimension reduction
Yellow	84-9300.4	35-25mm Ø
Yellow	84-9700.4	38-35mm Ø
Grey	84-9300.8	35-25mm Ø
Grey	84-9700.8	38-35mm Ø



Lens remover for flush mount, mounting tool and switch element remover

Image	Part No.	Product description
1	61-9730.0	Lens remover for flush mount
2	84-997	Mounting tool
3	84-998	Switch element remover
	84-996	Mounting tool for E-stop



Emergency stop

Switching system

The double-break switching system can be supplied for the following switching functions :

1 Normally closed, 2 Normally closed,
1 Normally closed + 1 Normally open.

The Normally closed contacts have forced opening according to EN IEC 60947-5-1

Material

Connection cable

Polyvinylchlorid (PVC), operating temperature up to +70 °C.
Degression curve for higher current and temperature on request

Lens

Polybutylenterephthalat (PBT), as per UL94 V0 (red items)

Actuator housing

Polyamid (PA66), as per UL94 V0, Flat ribbon cable cover
Polyamid (PA 6.6), as per UL94 V0

Material of contacts

Silver alloy gold plated

Mechanical characteristics

Mounting hole

22.5 mm dia. as per EN IEC 60947-5-1 with anti-twist device

Terminals

Terminals 2.8 x 0.8 mm (solderable) CuSn6 tin-plated
Flat ribbon cable 2, 4 or 6 wires 0.5mm² (AWG 22)₂

Tightening torque

Fixing nut 80 Ncm

Actuation force

22 N ±4 N

Actuation travel

Approx. 4 mm to release the internal operation part

Mechanical life

≥50.000 cycles of operations

Panel strength

Standard mounting 1-4mm
With protection collar 1-3mm

Electrical characteristics

Standards

The devices comply with: EN IEC 60947-5-1, EN IEC 60947-5-5 (Emergency-stop), EN 418, EN IEC 60204, DIN IEC 60512-2

Illumination

LED red with pole reversal, constant current source

Operation voltage: 5 VDC ... 30 VDC
Current consumption: 11.4 mA ... 12.8 mA

Rated operational voltage

U_e = 250 VAC, as per EN IEC 60947-1

Rated insulation voltage

U_i = 250 V, as per EN IEC 60947-1

Rated impulse withstand voltage

U_{imp} = 2.5 kV, as per EN IEC 60947-1

Contact resistance

New state: 50 mΩ, as per DIN IEC 60512-2-3

Isolation resistance

>10¹¹ Ω between the opened contacts at 500 VDC, as per DIN IEC 60512-2-10

Electrical life

Inductive: ≥50.000 cycles of operations, as per EN IEC 60947-5-1

Voltage: 120 VAC	240 VAC	125 VDC	250 VDC
Current: 3 A	1.5 A	0.55 A	0.27 A

Resistive: >50.000 cycles, reduced load

Voltage: 1 VAC/DC	42 VAC/DC
Current: 100 mA	200 mA

Conventional free air thermal current

I_{th} = 5 A, as per EN IEC 60947-5-1
the maximum current in continuous operation and at ambient temperature must not exceed the quoted maximum values

Switch rating

Switch rating AC with silver contact (gold plated), service category AC-15, as per EN IEC 60947-5-1

Voltage: 120 VAC	240 VAC
Current: 3 A	1.5 A

Switch rating DC for silver contact (gold plated), service category DC-13, as per EN IEC 60947-5-1 (inductive)

Voltage: 12 VDC	24 VDC	48VDC	60VDC	125VDC	250VDC
Current: 5 A	4 A	2.1 A	1.7 A	0.55 A	0.27 A

Recommended minimum operational data

Silver contacts (gold plated)

Voltage: 1 VAC/DC
Current: 1 mA

Electric strength

500 VAC, 50 Hz, 1 min, as per DIN IEC 60512-2/A1

Rated conditional short-circuit current

1000 A, type of short-circuit unit 6 A gL/gG, as per EN IEC 60947-5-1

Protection class

Class II, as per EN IEC 61058-1

Overvoltage category

Class II, as per EN IEC 60947-1/H.1

Degree of pollution

Class 3, as per EN IEC 60947-1

Environmental conditions

Storage temperature

-40 °C ... +85 °C

Operating temperature

-25 °C ... +60 °C

Front protection

IP 65, as per EN IEC 60529

Shock resistance

(semi-sinusoidal)

max. 150 m/s², pulse width 11 ms, 3-axis, as per EN IEC 60068-2-27**Vibration resistance**

(sinusoidal)

max. 100 m/s² at 10 Hz...500 Hz, 10 cycles, 3-axis, as per EN IEC 60068-2-6/Fc**Climate resistance**

Damp heat, cyclic :

96 hours, +25°C / 97% +55°C / 93% relative humidity, as per EN IEC 60068-2-2

Damp heat, steady:

58 days, +40°C / 93% relative humidity, as per EN IEC 60068-2-78

Dry heat:

96 hours, +70°C as per EN IEC 60068-2-2

Low temperature:

96 hours, -40°C as per EN IEC 60068-2-1

Saline mist:

96 hours, +35°C in chemical solution NaCl, as per EN IEC 60068-2-11

Approvals

CE Declaration of Conformity

UL

SEV

Indicator / Illuminated Pushbutton**Switching element****Switching system**

Short-travel switching system with 2 independent contact points and tactile operation.

Guarantees reliable switching even of very light loads.

Fitted with 1 normally open contact

Material**Connection cable**

Polyvinylchlorid (PVC), short-time heat-resistant up to 105°C

Material of contacts

Silver alloy gold plated

Switching element

Thermoplastic polyester (PET, PBT), as per UL94 V0 and Polyacetale (POM), as per UL94 HB

Mechanical characteristics**Terminals**

Plug-in/soldering terminals 2.8 x 0.8 mm (solderable)

Flat ribbon cable 0.5²mm₂

PCB terminal

Actuating force

4.0 N ±0.2 N (measured at the lens)

Actuating travel

~0.5 mm

Rebound time

1 ms

Resistance to heat of soldering

260 °C, 5 s (PCB assembly)

350 °C, 10 s (when using a soldering iron)

as per EN IEC 60068-2-20

Mechanical life

≥1 million cycles of operations

Electrical characteristics**Illumination**

Single-Chip or Multi-Chip LED, green, orange, red, yellow, blue and white

Operation voltage: 12 VDC 24 VDC

Current consumption: 40 mA 20 mA

Contact resistance

Starting value (initial): ≤100 mΩ, as per DIN IEC 60512-2

Isolation resistance

≥1 G Ω between all terminals at 100 VDC, as per DIN IEC 60512-2

Electrical life

as per EN IEC 60512-5

5 million Cycles of operation 24 VAC, 50 mA at 480 Ω

5 million Cycles of operation 24 VAC, 100 mA at 240 Ω

2 million Cycles of operation 42 VAC, 50 mA at 840 Ω

2 million Cycles of operation 42 VAC, 100 mA at 420 Ω

300.000 Cycles of operation 42 VAC, 100 mA at cos φ 0,4

250.000 Cycles of operation 42 VAC, 200 mA at cos φ 0,395

1 million Cycles of operation 12 VDC, 250 mA at 48 Ω

1 million Cycles of operation 24 VDC, 50 mA at 480 Ω

1 million Cycles of operation 24 VDC, 100 mA at 240 Ω

5 million Cycles of operation 42 VDC, 25 mA at 1680 Ω

1.5 million Cycles of operation 42 VDC, 50 mA at 840 Ω

100.000 Cycles of operation 42 VDC, 100 mA at 420 Ω

500.000 Cycles of operation 24 VDC, 200 mA at L/R=30 ms

300.000 Cycles of operation 42 VDC, 100 mA at L/R=30 ms

100.000 Cycles of operation 42 VDC, 200 mA at L/R=30 ms

Switch rating

Voltage: 50 mVAC/DC ... 42 VAC/DC

Current: 10 μA...100 mA

Power: max. 2 W

Electric strength

500 VAC, 50 Hz, 1 min, as per DIN IEC 60512-2

Environmental conditions**Storage temperature**

-40 °C ... +85 °C

Operating temperature

-25 °C ... +70 °C

Protection degree

IP 67 or IP 40, as per IEC 60529

Shock resistance

(semi-sinusoidal)

max. 100 m/s², pulse width 11 ms, 3-axis,

as per EN IEC 60068-2-27/Ea

Vibration resistance

(sinusoidal)

max. 100 m/s² at 10 Hz...500 Hz, 10 Zyklen, 3-axis,
as per EN IEC 60068-2-6/Fc

Material

Lens

Polycarbonate (PC), as per UL94 V2 or Aluminium anodised

Actuator housing

Polyetherimid (PEI), as per UL94 V0 or Aluminium anodised

Mechanical characteristics

Mounting hole

22.5 mm dia. and 30.5 mm dia.

Tightening torque

Fixing nut max. 80 Ncm

Actuating force

4.0 N ±0.2 N (measured at the lens)

Actuating travel

Total switching travel 1.2 mm

Mechanical life

≥1 million cycles of operations

Electrical characteristics

Electrostatic breakdown value

Plastic case: ≥15 kV

Aluminium case: ≥5 kV

as per IEC 61000-4-2, mounted in plastic front panel

Environmental conditions

Storage temperature

-40°C ... +85°C

Operating temperature

-25°C ... +70°C

Front protection

IP 67, IP 65 and IP40, as per EN IEC 60529

Climate resistance

Damp heat, cyclic :

6 cycles, +25°C ... +55°C / 95% ... 100% relative humidity,

as per EN IEC 60068-2-30

Damp heat, state :

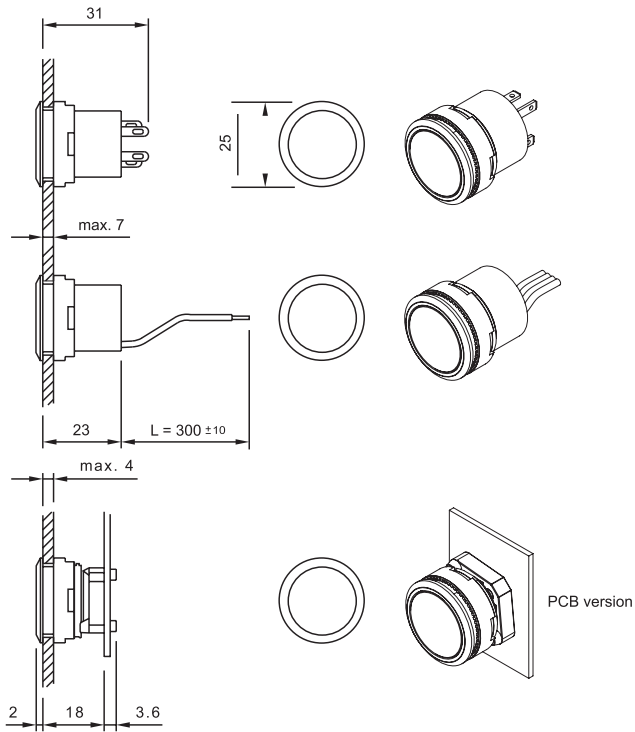
56 days, +40°C / 93% relative humidity, as per EN IEC 60068-2-78

Rapid change of temperature :

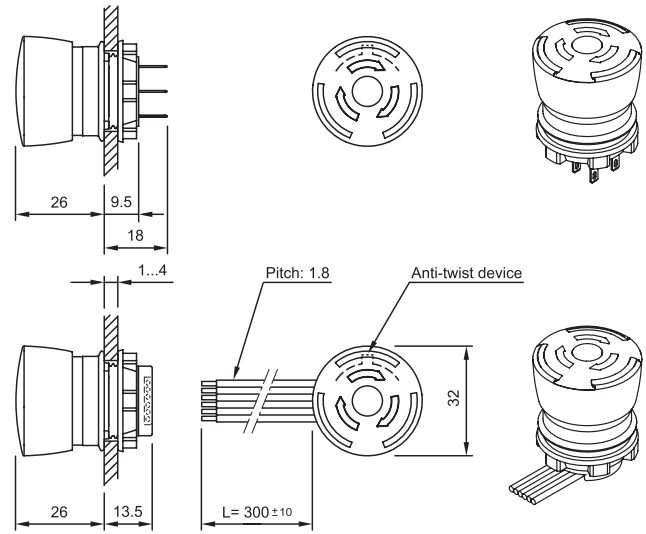
100 cycles, -40°C ... +80°C, as per EN IEC 60068-2-14

84 Complete Indicator, Complete Pushbutton

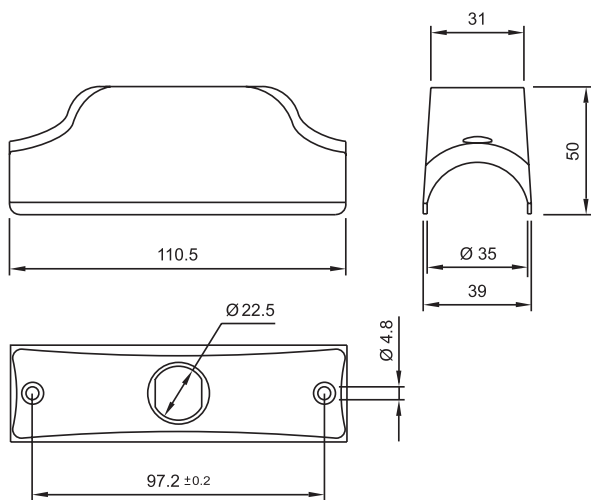
Flush, plug-in terminals



84 E-Stop

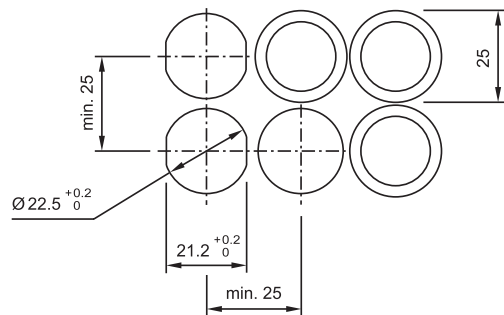


Housing, pole mounting



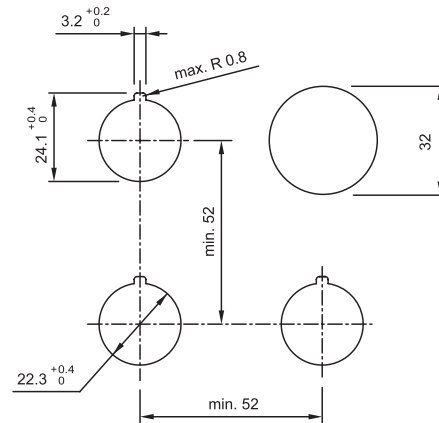
84 Cut-outs

Indicator Housing, Pushbutton Actuator



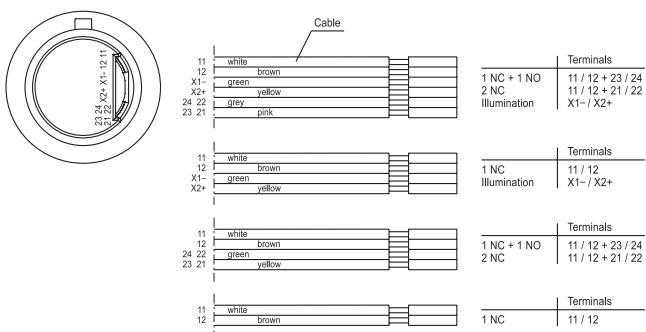
84 Cut-outs

E-Stop, EN 418 Illuminated Ribbon Cable, E-Stop EN 418 Non-Illuminated Ribbon Cable



84 E-Stop

Ribbon cable wiring



84 E-Stop

Solder wiring

