

# FNR series

Sealed rocker switches



## DISTINCTIVE FEATURES

- Ideal for front / neutral / reverse selection
- Easy to install
- Excellent front panel sealing
- Backlit logos
- SIL2 capable



## ENVIRONMENTAL SPECIFICATIONS

- Operating temperature : -40 °C to +85 °C (-40 °F to +185 °F)
- Panel sealing; IP69K according to DIN 40050-9



## ELECTRICAL SPECIFICATIONS

- Maximum voltage rating with resistive load: 24 VDC
- Current rating with resistive load: 0.03 to 1 A
- Initial contact resistance: Max. 100 mΩ
- Insulation resistance: Min. 100 MΩ at 500 VDC/minute
- Dielectric strength:
  - Min. 500 VAC (50-60 HZ)/minute between Live parts
  - Min. 1500 VAC (50-60 HZ)/minute between Live parts and dead metal parts
- Electrical life: 1.000.000 cycles at 100 mA  
100.000 cycles at 1 A

### LED COMPONENT SPECIFICATIONS

LED color	Forward current	Typ. forward voltage	Max. forward voltage
Blue	20 mA	3.3 V	4 V
Green	20 mA	2.1 V	2.5 V
Red	20 mA	1.9 V	2.5 V
Yellow	20 mA	2 V	2.5 V
White	20 mA	3.3 V	4 V
Red/green	20 mA	Red: 1.9 V / green: 2.1 V	2.5 V

A resistor must be series-connected by the user.

Resistor value =  $\frac{\text{supply voltage} - \text{LED forward voltage}}{\text{LED forward current}}$

LED forward current

The company reserves the right to change specifications without notice.



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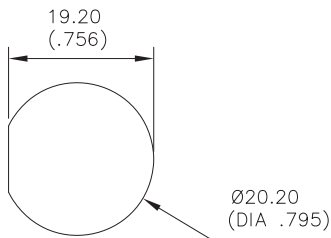
## GENERAL SPECIFICATIONS

- Total travel:  $\pm 15^\circ$ .
- Typical operating force at center:  $5\text{ N} \pm 1$
- Mechanical life: 1.000.000 cycles
- B10d : 1.000.000
- Torque: 1Nm min. 2Nm max. applied to nut

## MATERIALS

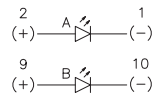
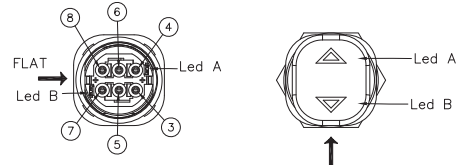
- Contacts : Gold alloy
  - Case : PBT
  - Actuator : PA6-6
  - Overmoulding: Polyamide
  - Output wires (flying leads terminals): AWG24, section  $0.23\text{ mm}^2$
- APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.

## PANEL CUT-OUT

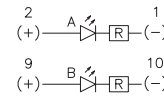


## WIRING DIAGRAM

WIRING DIAGRAM



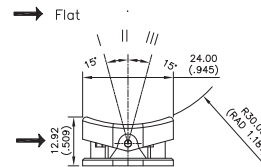
Without resistor



With resistor

Wire colors (F & C output)	
10	Brown
9	Orange
8	White
7	Black
6	Blue
5	Yellow
4	Red
3	Green
2	Purple
1	Grey

POSITION



CONNECTOR FOR C OUTPUT

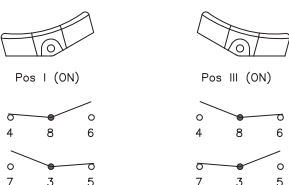
- Illuminated : Molex 510651000
- Non-illuminated : Molex 510650600

## ELECTRICAL FUNCTIONS AND CONNECTIONS

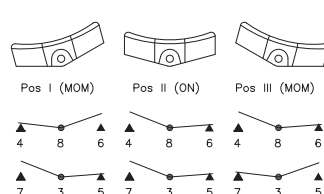
In the tables below, terminal connections as viewed from bottom of switch. Only the contact area is represented.

x = w/o terminal  
o = with terminal  
▲ = momentary

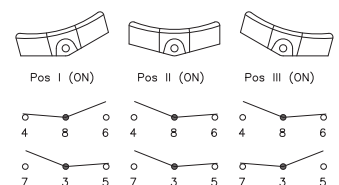
2 POSITIONS



3 POSITIONS MOM-ON-MOM



3 POSITIONS ON-ON-ON

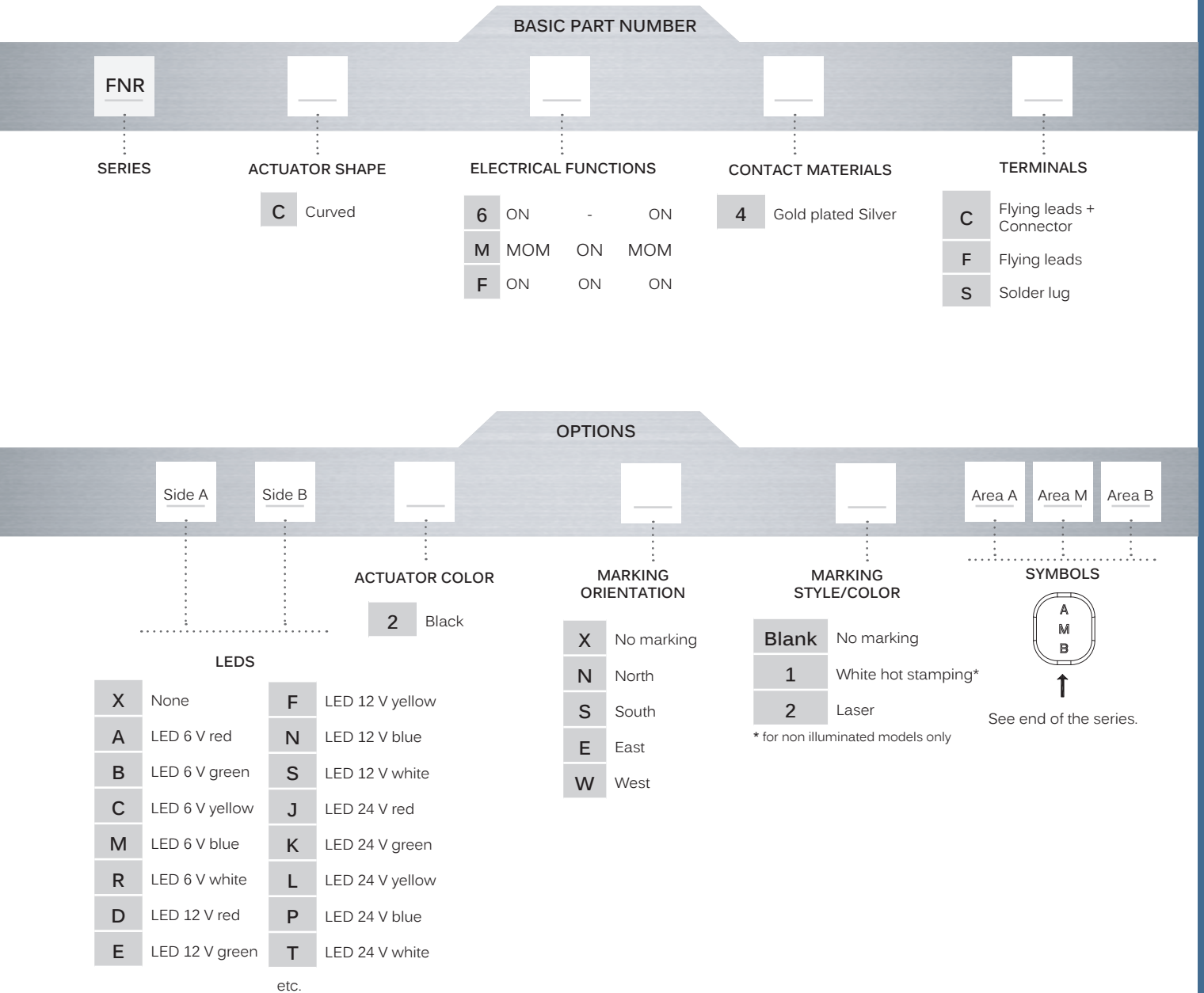


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## BUILD YOUR PART NUMBER



## ABOUT THIS SERIES

On the following pages, you will find successively basic part numbers of switches and options in the same order as in above chart.

**Notice:** please note that not all combinations of above numbers are available. Refer to the following pages for further information.

**Mounting accessories:** Standard hardware supplied : 1 hex nut and 1 O-Ring

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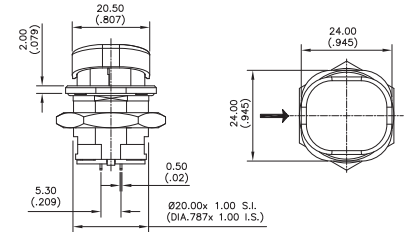
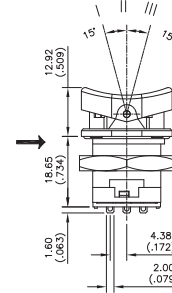
## SOLDER LUG TERMINALS



CURVED ACTUATOR

<b>FNRC64S</b>	ON	ON	ON
<b>FNRCM4S</b>	MOM	ON	MOM
<b>FNRCF4S</b>	ON	ON	ON

→ Flat



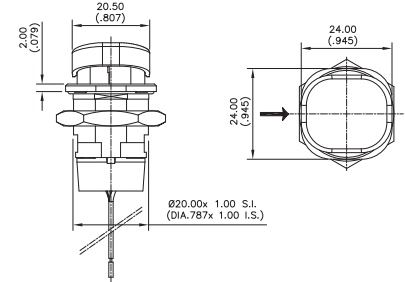
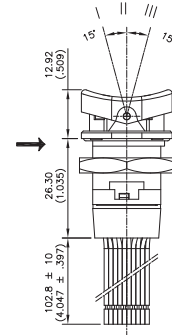
## FLYING LEADS TERMINALS



CURVED ACTUATOR

<b>FNRC64F</b>	ON	ON	ON
<b>FNRCM4F</b>	MOM	ON	MOM
<b>FNRCF4F</b>	ON	ON	ON

→ Flat



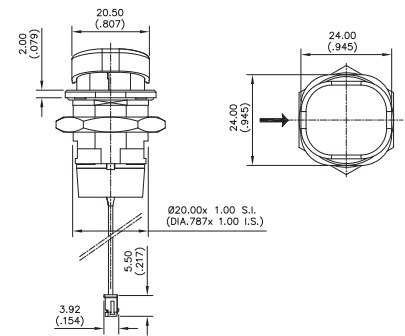
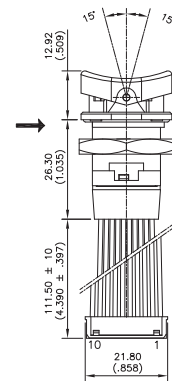
## FLYING LEADS + CONNECTOR TERMINALS



CURVED ACTUATOR

<b>FNRC64C</b>	ON	ON	ON
<b>FNRCM4C</b>	MOM	ON	MOM
<b>FNRCF4C</b>	ON	ON	ON

→ Flat



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### LEDS



Complete each enlarged box with one of the codes listed below.

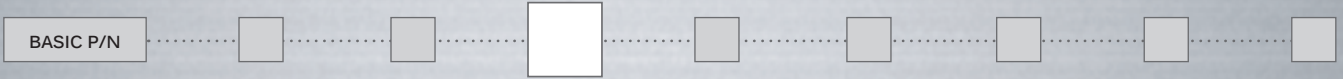
X Without LED

	Red	Green	Yellow	Blue	White	Red/green
No resistor	<b>U</b>	<b>V</b>	<b>W</b>	<b>Y</b>	<b>Z</b>	-
6 VDC	<b>A</b>	<b>B</b>	<b>C</b>	<b>M</b>	<b>R</b>	<b>1</b>
12 VDC	<b>D</b>	<b>E</b>	<b>F</b>	<b>N</b>	<b>S</b>	<b>2</b>
24 VDC	<b>J</b>	<b>K</b>	<b>L</b>	<b>P</b>	<b>T</b>	<b>3</b>

12 VDC is calibrated for 15 VDC max  
24 VDC is calibrated for 30 VDC max

Resistors can only be added in flying leads and flying leads + connector terminal option

### ACTUATOR COLOR



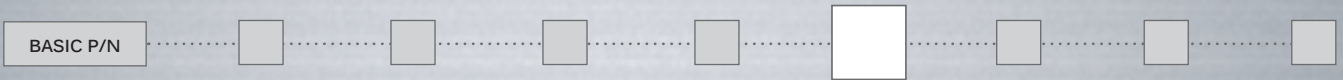
2 Black

### MARKING ORIENTATION



- X No marking
- N North
- S South
- E East
- W West

### MARKING STYLE /COLOR



- Blank No marking
- 1 White hot stamping (for non illuminated models only)
- 2 Laser

### SYMBOLS

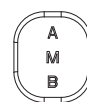


Blank No marking

**Available symbols** : Complete each enlarged box with the one of the codes listed below

- X09 Up motion
- X10 Down motion
- XPL D
- XWR F
- X53 N
- XPM R

MARKING AREA



SYMBOL						
CODE	X09	X10	XPL	XWR	X53	XPM