

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: <100 mohms
- Insulation resistance: >10 Gohms at 500 VDC
- Dielectric strength: 1000 Vrms 50 Hz min.
- 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



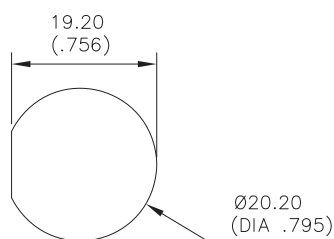
MATERIALS

- Contacts : Gold alloy
- Case : PBT
- Actuator : PA6-6
- Overmoulding: Polyamide
- Output wires (flying leads terminals): AWG24, section 0.23 mm^2

APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.

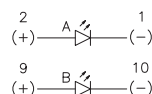
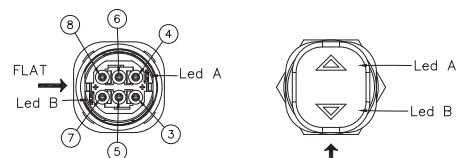


PANEL CUT-OUT

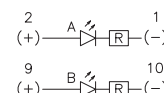


WIRING DIAGRAM

WIRING DIAGRAM



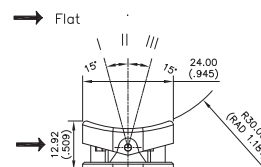
Without resistor



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

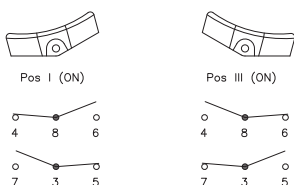


ELECTRICAL FUNCTIONS AND CONNECTIONS

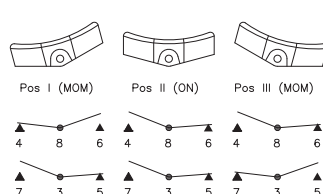
In the tables below, terminal connections as viewed from bottom of switch. Only the contact area is represented.

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

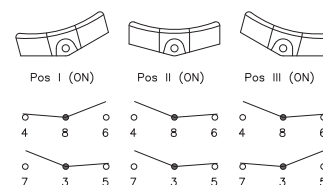
2 POSITIONS



3 POSITIONS MOM-ON-MOM



3 POSITIONS ON-ON-ON



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BUILD YOUR PART NUMBER

BASIC PART NUMBER				
FNR				
SERIES	ACTUATOR SHAPE	ELECTRICAL FUNCTIONS	CONTACT MATERIALS	TERMINALS
	C Curved	6 ON - ON M MOM ON MOM F ON ON ON	4 Gold plated Silver	C Flying leads + Connector F Flying leads S Solder lug

OPTIONS				
Side A	Side B			
LEDS		ACTUATOR COLOR	MARKING ORIENTATION	MARKING STYLE/COLOR
X None A LED 6 V red B LED 6 V green C LED 6 V yellow M LED 6 V blue R LED 6 V white D LED 12 V red E LED 12 V green etc.	F LED 12 V yellow N LED 12 V blue S LED 12 V white J LED 24 V red K LED 24 V green L LED 24 V yellow P LED 24 V blue T LED 24 V white etc.	2 Black	X No marking N North S South E East W West	Blank No marking 1 White hot stamping* 2 Laser * for non illuminated models only
				SYMBOLS
				See end of the series.



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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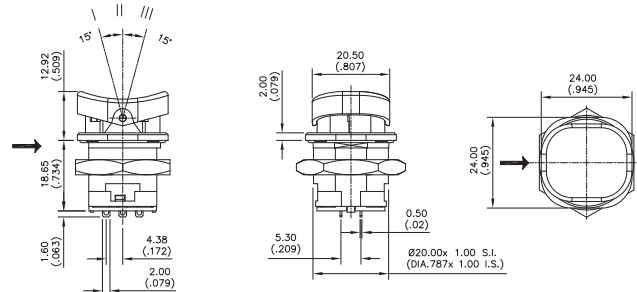
SOLDER LUG TERMINALS



CURVED ACTUATOR

FNRC64S	ON	ON	
FNRCM4S	MOM	ON	MOM
FNRCF4S	ON	ON	ON

→ Flat



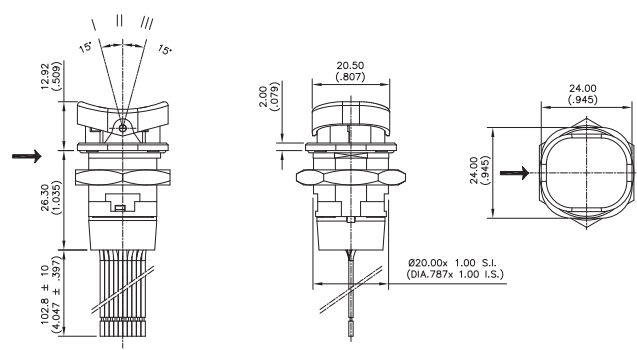
FLYING LEADS TERMINALS



CURVED ACTUATOR

FNRC64F	ON	ON	
FNRCM4F	MOM	ON	MOM
FNRCF4F	ON	ON	ON

→ Flat



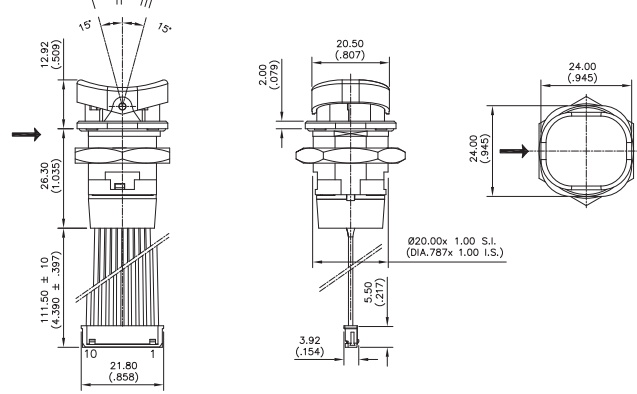
FLYING LEADS + CONNECTOR TERMINALS



CURVED ACTUATOR

FNRC64C	ON	ON	
FNRCM4C	MOM	ON	MOM
FNRCF4C	ON	ON	ON

→ Flat



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LEDS

BASIC P/N Side A Side B

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

X Without LED

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

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

BASIC P/N

2 Black

MARKING ORIENTATION

BASIC P/N

X No marking
N North
S South
E East
W West

MARKING STYLE /COLOR

BASIC P/N

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

SYMBOLS

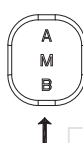
BASIC P/N Area A Area M Area B

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