



UNDERWRITERS LABORATORIES INC.
NORTHBROOK, IL · MELVILLE, NY · SANTA CLARA, CA · TAMPA, FL

an independent, not-for-profit organization testing for public safety

File E63615
Project 85NK16099

January 6, 1986

REPORT

on

COMPONENT - INDUSTRIAL CONTROL EQUIPMENT,
SWITCHES, INDUSTRIAL CONTROL

Fujitsu Ltd., Component Div.
Kawasaki, Japan

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D E S C R I P T I O N

PRODUCT COVERED:

Series 161 or 163, with or without Prefix FBR, followed by C, E, SC, SE, NC, or NE, followed by -D, followed by 001 through 048, followed by U, may or may not be followed by K, H, or W, HB, or WB, may or may not be followed by additional suffixes, may be followed by -X.

GENERAL:

These devices are open type magnetically operated switches with printed circuit board type terminals. They are intended to be used in nonindustrial applications where the suitability of the combination has been determined by Underwriters Laboratories Inc.

Ratings - Contact ratings:

<u>Position No. V Nomenclature System</u>	<u>Contact Arrangement</u>	<u>Contact Material</u>	<u>*Ratings, Maximum</u>
No Suffix	SPST or SPDT	Silver, Silver Clad Copper Nickel	3 A resistive, 120 V ac, 1.5 A COS phase=0.4, 120 V ac, 1.5 A L/R = 7 ms, 30 V dc, 3 A resistive, 30 V dc
Suffix "-K"	SPST or SPDT	Silver Cadmium Oxide, Clad Copper Nickel	3 A resistive, 120 V ac, 1.5 A COS phase=0.4, 120 V ac, 1.5 A L/R=7 ms, 30 V dc, 3 A resistive, 30 V dc
Suffix "-H"	SPST or SPDT	Silver Cadmium Oxide, Clad Copper Nickel	5 A resistive, 120 V ac, 2.5 COS phase=0.4, 120 V ac, 2.5 A L/R=35 ms, 30 V dc, 5 A resistive, 30 V dc 4 FLA/4 LRA (N.O.), 4 FLA/4LRA (N.C.) Inductive COS ϕ = 0.45, 120 V ac, 105°C ambient 100,000 c
Suffix "-W"	SPST or SPDT	Silver Tin Oxide, Indium, Clad Copper Nickel	5 A resistive, 120 V ac 2.5 COS phase = 0.4, 120 V ac, 2.5 A L/R = 35 ms, 30 V dc, 5 A resistive, 28 V dc 4 FLA/4 LRA (N.O.), 4 FLA/4LRA (N.C.) Inductive COS ϕ = 0.45, 120 V ac, 105°C ambient 100,000 c

<u>Position No. V Nomenclature System</u>	<u>Contact Arrangement</u>	<u>Contact Material</u>	<u>*Ratings, Maximum</u>
Suffix "-HB"	SPST or SPDT	Silver	10 A resistive (N.O.)
		Cadmium oxide	7 A resistive (N.C.) 125 V ac, 250 V ac, 5 A COS phase = 0.4, 125 V ac, 5 A L/R = 35 ms, 30 V dc
Suffix "-WB"	SPST or SPDT	Silver Cadmium oxide Clad copper	10 A resistive, 30 V dc
		Silver Tin Oxide	10 A resistive (N.O.) 7 A resistive (N.C.) 125 V ac, 250 V ac 5 A COS phase = 0.4, 125 V ac, 5 A L/R = 35 ms, 30 V dc
		Indium, Silver Tin Indium oxide clad copper	10 A resistive, 30 V dc

Coil ratings: 1 through 48 V dc.

NOMENCLATURE:

They are designated:

<u>FBR161</u>	<u>SC</u>	<u>D</u>	<u>012U</u>	<u>K</u>	<u>01</u>	<u>*-X</u>
I	II	III	IV	V	VI	VII

I. Basic type.

FBR161 - SPDT.
FBR163 - SPST.

II. Relay series.

C - Standard type.
SC - Dip soldering capability, standard type.
NC - Immersion cleanable, standard type (hermetically sealed).
E - High sensitive coil
SE - Dip soldering capability, high sensitive coil
NE - Immersion cleanable, high sensitive coil

III. Coil input.

D - Direct current.

IV. Coil voltage.

001U through 048U - 1 V dc through 48 V dc.

V. Contact material.

No marking - Silver.
K - Silver cadmium oxide.
H - Silver cadmium oxide.
W - Silver tin oxide indium.
HB - Silver cadmium oxide.
WB - Silver tin oxide indium.

VI. Additional suffix.

01 through 999 - Mean special characteristics, for example, coil resistance, pick-up and drop-out voltages, etc., required by customers.

*VII. Additional letter.

Blank - Standard Insulation System (Class A)
-X - R/C Class 130(B) Insulation System

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DE/APZ:OCR
PC Lbry:jds

ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

Use - For use only in complete equipment and applications where the acceptability of the combination is determined by Underwriters Laboratories Inc.

This component (other identification if necessary) has been judged on the basis of the required spacings in the Standard for Office Appliances and Business Machines, UL 114, which would cover the component itself if submitted for unrestricted Listing.

Conditions Of Acceptability -

1. These devices should be used within their Recognized ratings as specified above.
2. These devices should be mounted in enclosures with adequate strength and thickness in the intended manner and with provisions for acceptable spacings.
3. When these devices are mounted in enclosures, it should be determined if tests need to be repeated, giving particular attention to heating tests.
4. All terminals are to be factory wired or factory connected and the suitability of the connection including the spacings between factory connectors shall be determined in the end application.
5. These devices are for use in nonindustrial applications only. The suitability of the devices for any specific application shall be determined in the end application.
6. These devices have not been investigated for their immersion cleanability or dip soldering capability. The acceptability of these features in any application shall be determined.

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