

CERTIFICATE OF COMPLIANCE

Certificate Number 20161206-E64388
Report Reference E64388-20061121
Issue Date 2016-DECEMBER-06


Issued to: SCHAFFNER EMV AG
TEST CENTER
NORDSTRASSE 11
4542 LUTERBACH SWITZERLAND

This is to certify that representative samples of COMPONENT - ELECTROMAGNETIC INTERFERENCE FILTERS
SEE ADDENDUM PAGE FOR MODELS

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 1283 - Standard for Electromagnetic Interference Filters.
Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

The UL Recognized Component Mark generally consists of the manufacturer's identification and catalog number, model number or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark: , may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual recognitions.

Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program
UL LLC

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This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

USR, Component - Appliance Filters, Model Series FN28xy-zz-06-#-@, where 'x' may be a number from 1 to 6; 'y' may be blank or A, A1, B, E, or R; 'zz' may be 1, 2, 4, 6 or 10; '#' may be G, H, I, K, L, M, N or P; '@' may be blank or B, C, E or F; may be followed by additional numbers or letters. See nomenclature breakdown for details.

USR, Component - Appliance Filters, Models FS4951-4-06 and FS35072B-10-06.



Bruce Mahrenholz, Director North American Certification Program

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DESCRIPTION

PRODUCT COVERED:

* USR, Component - Appliance Filters, Model **Series** FN28XY-ZZ-06-#-@, where 'X' **may be** a number from 1 to 6; 'Y' may be blank or A, A1, B, E, or R; 'ZZ' **may be** 1, 2, 4, 6 or 10; '#' may be G, H, I, K, L, M, N or P; '@' **may be blank or** B, C, E or F; may be followed by additional numbers or letters. **See nomenclature breakdown for details.**

USR, Component - Appliance Filters, Models FS4951-4-06 and FS35072B-10-06.

GENERAL:

These devices are Electromagnetic Interference (EMI) Filter intended for incorporation in appliances or similar equipment. They are provided with plastic housing and terminals for factory wiring.

ELECTRICAL RATINGS:

*Model No.	Voltage (Vac)	Maximum Rated Current (A)	Rated Frequency (Hz)	Number of Phases	Maximum Ambient Temperature (°C)
FN28XY-1-#-@	250	1	50/60	1	40
FN28XY-2-#-@	250	2	50/60	1	40
FN28XY-4-#-@	250	4	50/60	1	40
FS4951-4-#-@	250	4	50/60	1	40
FN28XY-6-#-@	250	6	50/60	1	40
FN28XY-10-#-@	250	10	50/60	1	40
FS35072B-10-06	250	10	50/60	1	40

*ENGINEERING CONSIDERATIONS (NOT FOR UL REPRESENTATIVE'S USE):

* USR indicates the filters have been evaluated to the Standard for Electromagnetic Interference Filters, UL 1283, Fifth Edition.

NOMENCLATURE BREAKDOWN FOR FN 28X SERIES:

FN28	X	Y	ZZ	06	Q	D	1
I	II	III	IV	V	VI	VII	VIII

*

No.	Mark	Description																												
I	FN28	<u>Model Series:</u> FN Series																												
II	X	<u>IEC Inlet (Fixing and Fuses):</u> <table> <thead> <tr> <th>Part No.</th> <th>Style</th> <th>Fuses</th> <th>Alternate Versions</th> </tr> </thead> <tbody> <tr> <td>1 = SK 021</td> <td>narrow side fixing</td> <td>1 fuse</td> <td>220365</td> </tr> <tr> <td>2 = SK 022</td> <td>narrow side fixing</td> <td>2 fuses</td> <td>477-053</td> </tr> <tr> <td>3 = SK 023</td> <td>long side fixing</td> <td>1 fuse</td> <td>220366</td> </tr> <tr> <td>4 = SK 024</td> <td>long side fixing</td> <td>2 fuses</td> <td>477-055</td> </tr> <tr> <td>5 = SK 025</td> <td>snap-in fixing</td> <td>1 fuse</td> <td>220367</td> </tr> <tr> <td>6 = SK 026</td> <td>snap-in fixing</td> <td>2 fuses</td> <td>477-057</td> </tr> </tbody> </table>	Part No.	Style	Fuses	Alternate Versions	1 = SK 021	narrow side fixing	1 fuse	220365	2 = SK 022	narrow side fixing	2 fuses	477-053	3 = SK 023	long side fixing	1 fuse	220366	4 = SK 024	long side fixing	2 fuses	477-055	5 = SK 025	snap-in fixing	1 fuse	220367	6 = SK 026	snap-in fixing	2 fuses	477-057
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III	Y	<u>Supplementary Components/Optional:</u> A = Y2 Capacitors have 470 pF A1 = Y2 Capacitors have 220 pF B = For medical applications (without Y2 Capacitors) E = Grounding inductor provided R = Discharge resistor (only if C-x <= 0.1 uF) = or their combinations e.g. ER																												
IV	ZZ	<u>Current Rating:</u> 1 = 1 A 2 = 2 A 4 = 4 A 6 = 6 A 10 = 10 A																												
V	06	<u>Terminals:</u> 06 = Faston 6.3x0.8 (spade/soldering)																												
VI	Q	<u>X2 Capacitors rated value/Optional:</u> Q = 0.22 uF (Standard value) G = 0.01 uF H = 0.015 uF I = 0.022 uF K = 0.033 uF L = 0.047 uF M = 0.068 uF N = 0.1 uF P = 0.15 uF																												

*

NOMENCLATURE BREAKDOWN FOR FN 28X SERIES (CONT'D):

No.	Example	Description
<u>VII</u>	<u>D</u>	<u>Y2 Capacitors rated value/Optional:</u> D = 2.2 nF (Standard value) B = 1.0 nF C = 1.5 nF E = 3.3 nF F = 4.7 nF
<u>VIII</u>	<u>1</u>	<u>Safety unimportant variations (e.g. color point)/Optional:</u> 1; 2; 3...etc. Required only for the following options: E, R as above or capacitors not standard value and for non-safety critical variations

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CONDITIONS OF ACCEPTABILITY (NOT FOR UL REPRESENTATIVE'S USE) :

Use - The components covered by this Report are Component Appliance Electromagnetic Interference Filters intended to be used in the end-use product where the acceptability of the combination with the end-use product has been determined by UL LLC.

Conditions of Acceptability - The following items should be considered to determine acceptability when evaluating the end-use product.

*

1. The filter shall be installed within an overall enclosure suitable for the end product application.
2. The filter shall be installed in compliance with the mounting, terminal, spacing and segregation of the end application.
3. Leakage current measurements have been provided for reference only. The need to determine leakage current in the end application shall be considered.
4. Capacitor Discharge voltage measurements have been provided for reference only. The need to determine capacitor discharge voltages in the end application shall be considered.
5. Spacings between terminals and dead metal parts should comply with the end product requirements.
6. The terminals have not been evaluated for field wiring. The acceptability of the grounding terminal should be determined in the end-product.
- *7. The fuse selection means has not been investigated by this report and must be tested or the compliance determined in the end-use.
- *8. **These devices are provided with an appliance inlet that incorporates fusing of both supply lines. Acceptability of this arrangement shall be evaluated in the end-use application. Fuses shall not be provided in a grounded (neutral) conductor unless it opens all conductors when it operates, or is considered acceptable in the end-use application.**
- *9. **The Abnormal Operation Test has been performed on these filters and they are capable of withstanding limited short-circuit conditions up to those stated in the table below, with the correlating fuses that were used. Evaluation for Abnormal Operation test currents higher than those stated in the table, or fused higher than what is stated, shall be determined in the end-use product in which these filters are installed.**

Tested Model	Available Short circuit Current Rating (Amps, rms)	Fuse Rating, A
FN 282-1-06 FN 286-2-06 FN 282-4-06	200	
FN 284-6-06	1000	

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