

DESCRIPTION:

PRODUCT COVERED:

* USR, CNR - Component - Class 2 Transformer, Models F10 and F12 Series is single primary rated 115 V, 50/60 Hz, and the FS10 and FS12 Series is dual primary rated 115/230 V, 50/60 Hz. See Table below for specific model numbers, class type and electrical ratings.

GENERAL:

These transformers are provided with single or dual secondary windings isolated from the primary windings and single or dual primary windings. Transformers with dual primary and/or secondary windings are designed to be connected either in parallel or series for the ratings noted below.

ELECTRICAL RATINGS:

Model	Class	Primary Voltage (V)	Secondary Voltage (V)	Frequency (Hz)	Power (VA)	Current (A)
#F10-110-C2	2	115	5/10	50/60	1.1	0.22/0.11
#F10-250-C2					2.5	0.5/0.25
F10-600-C2					6	1.2/0.6
F10-1200-C2					12	2.4/1.2
F10-2000-C2					20	4.0/2.0
F10-3600-C2					36	7.2/3.6
#FS10-110-C2	2	115/230	5/10	50/60	1.1	0.22/0.11
#FS10-250-C2					2.5	0.5/0.25
FS10-600-C2					6	1.2/0.6
FS10-1200-C2					12	2.4/1.2
FS10-2000-C2					20	4.0/2.0
FS10-3600-C2					36	7.2/3.6
#F12-090-C2	2	115	6.3/12.6	50/60	1.1	0.18/0.09
#F12-200-C2					2.5	0.4/0.2
F12-500-C2					6	1.0/0.5
F12-1000-C2					12	2.0/1.0
F12-1600-C2					20	3.2/1.6
F12-2850-C2					36	5.7/2.85
#FS12-090-C2	2	115/230	6.3/12.6	50/60	1.1	0.18/0.09
#FS12-200-C2					2.5	0.4/0.2
FS12-500-C2					6	1.0/0.5
FS12-1000-C2					12	2.0/1.0
FS12-1600-C2					20	3.2/1.6
FS12-2850-C2					36	5.7/2.85

***Note: Models marked with # are Inherently Limited type and other Models are Not-Inherently Limited type.**

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

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

USR indicates investigation to the Standards for Low Voltage Transformers - Part 1: General Requirements and Low Voltage Transformers - Part 3: Class 2 and Class 3 Transformers, UL 5085-1 and UL **5085-3**, respectively..

CNR indicates investigation to the Canadian standards for Low Voltage Transformers - Part 1: General Requirements and Low Voltage Transformers - Part 3: Class 2 and Class 3 Transformers, CSA C22.2 No. 66.1 and CSA C22.2 No. 66.3, respectively..

Conditions of Acceptability -

1. For Not-Inherently Limited models, the windings employ a Class B (130) or Class F (155) insulation system; for Inherently Limited models, the windings employ a Class F (155) insulation system.
2. The suitability mounting and grounding means shall be determined in the end-use product.
3. All tests were conducted on the full secondary winding.
4. This device shall be provided with a suitable enclosure in the end-use product.
5. The suitability of the pin terminals and mounting means shall be determined in the end-use product.
6. For all Not-Inherently Limited Models, the primary shall be provided with one of the following fuses within a suitably rated R/C (IZLT2) fuse holder, e.g. 250mA, 250VAC or 500mA, 120VAC per the fuse types below:
 - A. Littlefuse, Type 313, rated 250 mA, 250 V for 240 V connections.
 - B. Cooper/Bussmann, Type MDL, rated 500 mA, 250 V for 120 V connections.

DESCRIPTION:

PRODUCT COVERED:

USR, CNR - Component - Class 2 Transformer, Models F16, F20, F24, and F28 Series is single primary rated 115 V, 50/60 Hz, and the FS16, FS20, FS24, and FS28 Series is dual primary rated 115/230 V, 50/60 Hz. See Table below for specific model numbers, class type and electrical ratings.

GENERAL:

These transformers are provided with single or dual secondary windings isolated from the primary windings and single or dual primary windings. Transformers with dual primary and/or secondary windings are designed to be connected either in parallel or series for the ratings noted below.

Transformers with dual secondary windings may also be used independently.

ELECTRICAL RATINGS:

Model	Class	Primary Voltage (V)	Secondary Voltage (V)	Frequency (Hz)	Power (VA)	Current (A)
#F16-070-C2	2 not wet, class 3 wet	115	8/16	50/60	1.1	0.14/0.07
#F16-150-C2					2.5	0.3/0.15
F16-400-C2					6	0.8/0.4
F16-800-C2					12	1.6/0.8
F16-1250-C2					20	2.5/1.25
F16-2250-C2					36	4.5/2.25
#FS16-070-C2	2 not wet, class 3 wet	115/230	8/16	50/60	1.1	0.14/0.07
#FS16-150-C2					2.5	0.3/0.15
FS16-400-C2					6	0.8/0.4
FS16-800-C2					12	1.6/0.8
FS16-1250-C2					20	2.5/1.25
FS16-2250-C2					36	4.5/2.25
#F20-055-C2	2 not wet, class 3 wet	115	10/20	50/60	1.1	0.11/0.055
#F20-120-C2					2.5	0.24/0.12
F20-300-C2					6	0.6/0.3
F20-600-C2					12	1.2/0.6
F20-1000-C2					20	2.0/1.0
F20-1800-C2					36	3.6/1.8
#FS20-055-C2	2 not wet, class 3 wet	115/230	10/20	50/60	1.1	0.11/0.055
#FS20-120-C2					2.5	0.24/0.12
FS20-300-C2					6	0.6/0.3
FS20-600-C2					12	1.2/0.6
FS20-1000-C2					20	2.0/1.0
FS20-1800-C2					36	3.6/1.8

ELECTRICAL RATINGS:

Model	Class	Primary Voltage (V)	Secondary Voltage (V)	Frequency (Hz)	Power (VA)	Current (A)
#F24-045-C2	2 not wet, class 3 wet	115	12/24	50/60	1.1	0.09/0.045
#F24-100-C2					2.5	0.2/0.1
F24-500-C2					12	1.0/0.5
F24-800-C2					20	1.6/0.8
F24-1500-C2					36	3.0/1.5
#FS24-045-C2	2 not wet, class 3 wet	115/230	12/24	50/60	1.1	0.09/0.045
#FS24-100-C2					2.5	0.2/0.1
FS24-250-C2					6	0.5 / 0.25
FS24-500-C2					12	1.0/0.5
FS24-800-C2					20	1.6/0.8
FS24-1500-C2	36	3.0/1.5				
#F28-040-C2	2 not wet, class 3 wet	115	14/28	50/60	1.1	0.08/0.04
#F28-085-C2					2.5	0.17/0.085
F28-200-C2					6	0.4/0.2
F28-420-C2					12	0.84/0.42
F28-700-C2					20	1.4/0.7
F28-1300-C2	36	2.6/1.3				
#FS28-040-C2	2 not wet, class 3 wet	115/230	14/28	50/60	1.1	0.08/0.04
#FS28-085-C2					2.5	0.17/0.085
FS28-200-C2					6	0.4/0.2
FS28-420-C2					12	0.84/0.42
FS28-700-C2					20	1.4/0.7
FS28-1300-C2	36	2.6/1.3				

Note: Models marked with # are Inherently Limited type And other Models are Not-Inherently Limited type.

Note: When transformers' dual secondary windings are being used independently, each secondary winding has the same voltage rating as when secondary windings are connected in parallel and each secondary winding has the same current rating as when secondary windings are connected in series. The other ratings remain the same. For example:

Model	Class	Primary Voltage (V)	Frequency (Hz)	Secondary Voltage (V)	Current (A)	Power (VA)
F16-070-C2	2 not wet, class 3 wet	115	50/60	8	0.07	1.1
				8	0.07	

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

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

USR indicates investigation to the Standards for Low Voltage Transformers - Part 1: General Requirements and Low Voltage Transformers - Part 3: Class 2 and Class 3 Transformers, UL 5085-1 and UL 5085-3, respectively.

CNR indicates investigation to the Canadian standards for Low Voltage Transformers - Part 1: General Requirements and Low Voltage Transformers - Part 3: Class 2 and Class 3 Transformers, CSA C22.2 No. 66.1 and CSA C22.2 No. 66.3, respectively.

Conditions of Acceptability -

1. For Not-Inherently Limited models, the windings employ a Class B (130) or Class F (155) insulation system; for Inherently Limited models, the windings employ a Class F (155) insulation system.
2. The suitability mounting and grounding means shall be determined in the end-use product.
3. This device shall be provided with a suitable enclosure in the end-use product.
4. The suitability of the pin terminals shall be determined in the end-use product.
5. For all Not-Inherently Limited Models, the primary shall be provided with one of the following R/C (JDYX2) fuses within a suitably rated R/C (IZLT2) fuse holder, e.g. 250mA, 250VAC or 500mA, 120VAC per the fuse types below:
 - *A. **Littelfuse Inc.**, Type 313 or 315, rated 250 mA, 250 V for 240 V connections. **When Type 315 is provided, the Fuse Holder is not required.**
 - B. Cooper/Bussmann, Type MDL, rated 500 mA, 250 V for 120 V connections.
6. Since these transformers exceed 15 V rms, but not 30 V rms, these transformers are considered to supply "Class 2 Not Wet, Class 3 Wet." This indicates that Class 3 wiring is required to be used, in accordance with Article 725 of the National Electrical Code, if the wiring extends into areas where wet contact is likely.

DESCRIPTION:

PRODUCT COVERED:

* USR - Component -Class 3 Transformer, Model F36, F48, and F56 Series is single primary rated 115 V, 50/60 Hz, and the FS36, FS48, and FS56 Series is dual primary rated 115/230 V, 50/60 Hz. See Table below for specific model numbers, class type and electrical ratings.

GENERAL:

These transformers are provided with single or dual secondary windings isolated from the primary windings and single or dual primary windings. Transformers with dual primary and/or secondary windings are designed to be connected either in parallel or series for the ratings noted below. Transformers with dual secondary windings may also be used independently.

ELECTRICAL RATINGS:

Model	Class	Primary Voltage (V)	Secondary Voltage (V)	Frequency (Hz)	Power (VA)	Current (A)
#F36-030-C2	3	115	18/36	50/60	1.1	0.06/0.03
#F36-065-C2					2.5	0.13/0.065
F36-170-C2					6	0.34/0.17
F36-350-C2					12	0.7/0.35
F36-550-C2					20	1.1/0.55
F36-1000-C2					36	2.0/1.0
#FS36-030-C2	3	115/230	18/36	50/60	1.1	0.06/0.03
#FS36-065-C2					2.5	0.13/0.065
FS36-170-C2					6	0.34/0.17
FS36-350-C2					12	0.7/0.35
FS36-550-C2					20	1.1/0.55
FS36-1000-C2					36	2.0/1.0
#F48-023-C2	3	115	24/48	50/60	1.1	0.046/0.023
#F48-050-C2					2.5	0.1/0.05
F48-125-C2					6	0.25/0.125
F48-250-C2					12	0.5/0.25
F48-400-C2					20	0.8/0.4
F48-750-C2					36	1.5/0.75
#FS48-023-C2	3	115/230	24/48	50/60	1.1	0.046/0.023
#FS48-050-C2					2.5	0.1/0.05
FS48-125-C2					6	0.25/0.125
FS48-250-C2					12	0.5/0.25
FS48-400-C2					20	0.8/0.4
FS48-750-C2					36	1.5/0.75

ELECTRICAL RATINGS:

Model	Class	Primary Voltage (V)	Secondary Voltage (V)	Frequency (Hz)	Power (VA)	Current (A)
#F56-020-C2	3	115	28/56	50/60	1.1	0.04/0.02
#F56-045-C2					2.5	0.09/0.045
F56-110-C2					6	0.22/0.11
F56-220-C2					12	0.44/0.22
F56-350-C2					20	0.7/0.35
F56-650-C2					36	1.3/0.65
#FS56-020-C2	3	115/230	28/56	50/60	1.1	0.04/0.02
#FS56-045-C2					2.5	0.09/0.045
FS56-110-C2					6	0.22/0.11
FS56-220-C2					12	0.44/0.22
FS56-350-C2					20	0.7/0.35
FS56-650-C2					36	1.3/0.65

Note: Models marked with # are Inherently Limited type and all other Models are Not-Inherently Limited type.

Note: When transformers' dual secondary windings are being used independently, each secondary winding has the same voltage rating as when secondary windings are connected in parallel and each secondary winding has the same current rating as when secondary windings are connected in series. The other ratings remain the same. For example:

Model	Class	Primary Voltage (V)	Frequency (Hz)	Secondary Voltage (V)	Current (A)	Power (VA)
F36-030-C2	3	115	50/60	18	0.03	1.1
				18	0.03	

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

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

USR indicates investigation to the Standards for Low Voltage Transformers - Part 1: General Requirements and Low Voltage Transformers - Part 3: Class 2 and Class 3 Transformers, UL 5085-1 and UL 5085-3, respectively.

CNR indicates investigation to the Canadian standards for Low Voltage Transformers - Part 1: General Requirements and Low Voltage Transformers - Part 3: Class 2 and Class 3 Transformers, CSA C22.2 No. 66.1 and CSA C22.2 No. 66.3, respectively.

Conditions of Acceptability -

1. For Not-Inherently Limited models, the windings employ a Class B (130) or Class F (155) insulation system; for Inherently Limited models, the windings employ a Class F (155) insulation system.
2. The suitability mounting and grounding means shall be determined in the end-use product.
- *
- *3. This device shall be provided with a suitable enclosure in the end-use product.
- *4. The suitability of the pin terminals shall be determined in the end-use product.
- *5. For all Not-Inherently Limited Models, the primary shall be provided with one of the following fuses within a suitably rated R/C (IZLT2) fuse holder, e.g. 250mA, 250VAC or 500mA, 120VAC per the fuse types below:
 - A. Littlefuse, Type 313, rated 250 mA, 250 V for 240 V connections.
 - B. Cooper/Bussmann, Type MDL, rated 500 mA, 250 V for 120 V connections.

DESCRIPTION:

PRODUCT COVERED:

USR, CNR - Component - Not-Inherently Limited, Class 2 Transformer,
Model F24-250-C2.

GENERAL:

This transformer is provided with the secondary windings isolated from the primary windings. Taps are provided on secondary windings. The secondaries are identical with their parallel / series connection ratings indicated below.

ELECTRICAL RATINGS:

Model	Primary Voltage (V)	Secondary Voltage (V)	Frequenc y (Hz)	Power (VA)	Current (A)
F24-250-C2	115 V	12 V (Parallel) 24 V (Series)	50/60 Hz	6	0.5 A (Parallel) 0.25 A (Series)

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

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

USR indicates investigation to the Standard for Class 2 and Class 3 Transformers, UL 1585.

CNR indicates investigation to the Canadian standard for Specialty Transformer, CSA C22.2 No. 66.

Conditions of Acceptability -

1. The windings employ a Class B (130) insulation system.
2. The suitability mounting and grounding means shall be determined in the end-use product.
3. All tests were conducted on the full secondary winding.
4. This device shall be provided with a suitable enclosure in the end-use product.
5. The suitability of the pins and leads shall be determined in the final application.
6. The primary shall be provided with a fuse, Type 313 by Littelfuse, rated 100 mA, 250 V in the end product. The fuse shall be provided in a UL Listed fuse holder.