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Project 11ME03071

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REPORT

on

COMPONENT - Connectors for Use in Data, Signal, Control and Power  
Applications

Tyco Electronics Corp  
Harrisburg, PA

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## DESCRIPTION

## PRODUCT COVERED:

## USR Component Connector Economy Power II Series

USR, CNR - Component Connector Economy Power II Series -Series 2213738, 1877285.

USR, CNR - Component Connector Economy Power II Series, X-2377130-Y, 2367724-X, X-2375553-Y, 2374787-X, X-2375558-Y, X-2371377-Y, X-2421885-Y, and X-2421886-Y.

USR, CNR - Component Connector, Economy Power II Series - Cat. Nos. **1744416-2, 1744416-3**, 1744416-4, 1744416-5, 1744416-6, 1744416-7, 1744416-8, 1744416-9, 1-1744416-0, 1-1744416-1, 1-1744416-2, 2132781-Y, 1-2132781-Y, 2344117-3, 1744543-Y, 1-1744543-Y, 2321042-5, 1744492-Y, 1-1744492-Y, 1-1744493-Y, 1744493-Y, 1744494-Y, 1-1744494-Y, 1744495-Y, 1-1744495-Y, 1744496-Y, 1-1744496-Y, 1744497-Y, 1-1744497-Y, 1744498-Y, 1-1744498-Y, 2132813-2, 1744482-Y, 1-1744482-Y, 1744483-Y, 1-1744483-Y, 1744484-Y, 1-1744484-Y, 1744485-Y, 1-1744485-Y, 1744486-Y, 1-1744486-Y, 1744487-Y, 1-1744487-Y, 1744490-Y, 1-1744490-Y, 1744357-2, 1744357-3, 1744357-4, 1744357-5, 1744357-6, 1744357-7, 1744357-8, 1744357-9, 2-1744357-0, 1744408-7, 1744528-3, 1744528-4, 1744528-7, 2309279-3, 2309279-5, 2309279-8, 1744544-Y, 1-1744544-Y, 1-2132782-2, 1877285

## GENERAL:

All devices except for Series 2213738 are multi-pole connectors intended for factory assembly to No. 18-22 AWG stranded copper conductors where the acceptability of combinations is determined by UL LLC. Series 2213738, 1877285, 1744490, 1744483, 1744484, 1744485, 1744486, 1744487, 2367724-X, X-2375553-Y, 2374787-X, X-2375558-Y are multi-pole connectors intended for factory assembly on printed wiring boards where the acceptability of combinations is determined by UL LLC. The devices are identified as follows:

USR - Products designated USR have been investigated using US requirements as noted in the Test Record.

CNR - Products designated CNR have been investigated using Canadian requirements as noted in the Test Record.

## RATINGS:

Economy Power II Series (except for Series 2213738, 1877285)

Wire Range (AWG)	Ampere (A)- USR	Ampere (A)- CNR (1)	Voltage (V ac/dc)
18	10	3	600
20	9	3	600
22	9	3	600

Cat. No.	Max. No. Poles	Contact Cat. No.	Wire Range	Ampere (A) USR	Ampere (A) CNR	Voltage Vac/dc
1744416, 2132781, 1744543, 1744492, 1744493, 1744494, 1744495, 1744496, 1744497, 1744498, 1744482, 1744483, 1744484, 1744485, 1744486, 1744487, 1744490	2-3	1744201	16	11	11	600
	4-6	1744201	16	9	9	600
	7-9	1744201	16	8	8	600
	10-12	1744201	16	7	7	600
	2-3	1744144	22	7	7	600
	4-9	1744144	22	6	6	600
	10-12	1744144	22	5	5	600
	2344117-3	3	1744201	16	11	11
	3	1744144	22	7	7	600
2312042-5	5	1744201	16	9	9	600
	5	1744144	22	6	6	600
2132813-2	2	1744201	16	11	11	600
	2	1744144	22	7	7	600
1744357-X	2-3	1744201	16	11	11	600
	4-6	1744201	16	9	9	600
	7-9	1744201	16	8	8	600
	2-3	1744144	22	7	7	600
	4-9	1744144	22	6	6	600

**RATINGS CON'T:**

Cat. No.	Max. No. Poles	Contact Cat. No.	Wire Range	Ampere (A) USR	Ampere (A) CNR	Voltage Vac/dc
2-1744357-0	4	1744201	16	9	9	600
	4	1744144	22	6	6	600
1744408-7	7	1744201	16	8	8	600
		1744144	22	6	6	600
1744528-3	2	1744201	16	11	11	600
	2	1744144	22	7	7	600
1744528-4	2	1744201	16	11	11	600
	2	1744144	22	7	7	600
1744528-7	4	1744201	16	9	9	600
	4	1744144	22	6	6	600
2309279-3	2	1744201	16	11	11	600
	2	1744144	22	7	7	600
2309279-5	4	1744201	16	9	9	600
	4	1744144	22	6	6	600
2309279-8	7	1744201	16	8	8	600
	7	1744144	22	6	6	600

Note: Limited to Cat. Nos. 1744416-2 and 1744416-3

Economy Power II Series when assembled with contact 1744201 and 2356981

Contact P/N	Wire Range (AWG)	Ampere (A)- USR	Ampere (A)- CNR	Voltage (V ac/dc)
1744201	16-20	11	3	600
2356981	24-26	3	3	600

Series 2213738 - No electrical ratings

\* Economy Power II Series models assembled with **connector Cat. Nos. X-2377130-Y, X-2371377-Y, X-2421885-Y, and X-2421886-Y.**

Contact P/N	Wire Range (AWG)	Ampere (A)- USR	Ampere (A)- CNR	Voltage (V ac/dc)
*2377991-1	18-20	10	3	600
	<b>20-22</b>	<b>9</b>	<b>3</b>	<b>600</b>
*2377997-1	<b>20-16</b>	<b>11</b>	3	600

\*

Economy Power II Series models assembled with contact 2367724-X, X-2375553-Y, 2374787-X, and X-2375558-Y

Ampere (A)- USR	Ampere (A)- CNR (1)	Voltage (V ac/dc)
10	3	600

## Economy Power II Series, series 1877285

Ampere (A) - USR(®)	Ampere (A) - CNR	Voltage (V ac/dc)
11	3	600

(®) Note: Limited to series 1877285, up to 3 position.

Economy Power II Series, series 1744490, 1744483, 1744484, 1744485,  
1744486, 1744487

Ampere (A) - USR	Ampere (A) - CNR	Voltage (V ac/dc)
9	3	600

\* Disconnecting Use - see Sec Gen for required marking.

NOMENCLATURE: The Cat Nos. X-2421885-Y are designated as follows:

Example:	X	2421885	Y
	I	II	III

I: - X can be omitted, or X = 1-7 and indicates color and number of positions

II: - Base Cat. No.

III: - Y = 0-9 and indicates color and number of positions.

The Cat Nos. X-2421886-Y are designated as follows:

Example:	X	2421886	Y
	I	II	III

I: - X can be omitted, or X = 1-5 and indicates color and number of positions

II: - Base Cat. No.

III: - Y = 0-9 and indicates color and number of positions.

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

\*Use - For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC.

\*Conditions of Acceptability - The following are among the considerations to be made when evaluating the device in the end-use product.

## Interruption of Current

1. These devices have not been tested for interrupting the flow of current by connecting or disconnecting the mating connector. These devices should be used only where they will not interrupt the flow of current.



## Current-Carrying Capability and Current Ratings

2. These devices have been subjected to the Temperature test with the rated currents and maximum temperature rise and recorded temperature) values tabulated below:

Series	Current, A		Maximum Temperature , °C - USR	Maximum Temperature, °C - CNR	
	USR(1)	CNR(2)		Rise	Recorded Temperature
Economy Power II with contact 1744144 mated to Economy Power header x-1744057-x with a 1.14 mm by 1.14 mm pin with 18 AWG conductors.	10	3	67.3	0.7	25.7
Economy Power II with contact 1744144 mated to Economy Power header x-1744057-x with a 1.14 mm by 1.14 mm pin with 22 AWG conductors. (Represents assembly with 20 AWG wire)	9	3	77.4	1.0	26.0
Economy Power II with contact 1744144 mated to Economy Power header x-1744057-x with a 1.14 mm by 1.14 mm pin with 22 AWG conductors.	--	3	--	1.3	26.3

Note: (1) - Cat. No 1744416-12 tested to represent all devices.

(2) - Cat. No. 1744416-2 tested to represent 1744416-3.

1744416-3 is identical to 1744416-2 except the middle pole is not populated for the former.

Connector Cat. No. 1744416-9 molded of RM No. 1573697 was tested with header Cat. No. 1744428-9 also molded of RM No. 1573697 for the following electrical ratings.

Cat. Nos.	Wire size, AWG	Ampere (A) - USR	Ampere (A) - CNR (1)	Maximum Temperature Rise, °C	Voltage (V ac/dc)
1744416-9 with 1744428-9	20	6	6	21.6	600

2A. These devices have been subjected to the USR Temperature test with the rated currents and maximum recorded temperature (adjusted to 25°C ambient) values tabulated below:

Series	Current A	Wire Size AWG	Maximum Recorded Temperature °C
Economy Power II with contact 1744201 mated to Economy Power header x-1744057-x with a 1.14 mm by 1.14 mm pin	11	20	92.6
Economy Power II with contact 2356981 mated to Economy Power header x-1744057-x with a 1.14 mm by 1.14 mm pin	3	26	38.0
Economy Power II Series, Cat. No. 1877285-3	11	16	40.3
Economy Power II Series, Cat. No. 1-1744490-2	9	22	90.3

2B. These devices have been subjected to the CNR Temperature test with the rated currents and maximum temperature rise and recorded temperature (adjusted to 25°C ambient) values tabulated below:

Series	Current A	Wire Size AWG	Maximum Temperature °C	
			Rise	Recorded Temperature
Economy Power II with contact 1744201 mated to Economy Power header x-1744057-x with a 1.14 mm by 1.14 mm pin	3	20	6.5	31.5
Economy Power II with contact 2356981 mated to Economy Power header x-1744057-x with a 1.14 mm by 1.14 mm pin	3	26	13.0	38.0
Economy Power II Series, Cat. No. 1-1877285-2	3	16	2.0	27.0
Economy Power II Series, Cat. No. 1-1744490-2	3	22	8.5	33.5

3. Adjacent poles may be used at potentials not exceeding 600 V based on the results of a Dielectric Voltage Withstand Test performed at 2200 Vac.
4. Connectors, Cat. Nos. x-1744416-y, where x is either "1" or omitted and y can be any number from 0-9, and 2344117-3 shall only be molded of Tyco Raw Material P/N 1573697.

## Insulating Materials

5. These devices employ insulating materials with properties as tabulated below at the minimum thickness employed in the connector housing, the suitability of the insulating materials based on the documented values shall be determined in the end-use application. Please note the values specified in the table when multiple materials are indicated represent the minimum values for the group of materials.

Series No.	Insulating Material (#)	Measured Minimum Thickness	Flame Class	HWI	HAI	RTI Elec	Max Operating Temp, °C
Economy Power II	A	0.56 mm	V-0	5	1	95	95
Economy Power II	B	0.56 mm	V2	4	0	130	130
Economy Power II	C	0.56 mm	V0	4	0	140	130
Economy Power II	D	0.56 mm	V0	4	1	130	130
2213738	E	0.56 mm	V0	4	0	130	130
1877285	H	1.00 mm	V0	3	0	130	130
1744490 1744483 1744484 1744485 1744486 1744487	L	1.00 mm	V0	3	0	130	130
Economy Power II	F	0.56 mm	V0	4	0	150	130
Economy Power II	G	0.56 mm	V0	0	0	130	130
*X-2377130-Y, <b>X-2421885-Y,</b> <b>X-2421886-Y</b>	I	0.56 mm	V-0	4	2	120	120
Cat. Nos. 2367724-X, X- 2375553-Y, 2374787-X, X- 2375558-Y,	J	0.30 mm	V-0	4	3	130	130
Cat. Nos. X- 2371377-Y	K	0.40 mm	V-0	-	-	130	130

(#) - Code for Insulating Body Material.

Series No.	Insulating Material (#)	Measured Minimum Thickness	Flame Class	HWI	HAI	RTI Elec	Max Operating Temp, °C
1744416	C	0.56	V-0	4	0	140	130
2344117	C	0.56	V-0	4	0	140	130
1744543	C	0.56	V-0	4	0	140	130
2312042	C	0.56	V-0	4	0	140	130
2132781	D	0.56	V-0	4	1	130	130
1744492	D	0.56	V-0	4	1	130	130
1744493	D	0.56	V-0	4	1	130	130
1744494	D	0.56	V-0	4	1	130	130
1744495	D	0.56	V-0	4	1	130	130
1744496	D	0.56	V-0	4	1	130	130
1744497	D	0.56	V-0	4	1	130	130
1744498	D	0.56	V-0	4	1	130	130
2132813	D	0.56	V-0	4	1	130	130
1744482	L	1.0	V-0	3	0	130	130
1744357	L	1.0	V-0	3	0	130	130
1744408	L	1.0	V-0	3	0	130	130
1744528	L	1.0	V-0	3	0	130	130
2309279	L	1.0	V-0	3	0	130	130

\*

- A. Tyco 703762-1**  
1. Dielectric strength (kV/mm): 31  
2. CTI: 0
- B. Tyco 705304**  
1. Dielectric strength (kV/mm): -  
2. CTI: 2
- C. Tyco 1573697**  
1. Dielectric strength (kV/mm): -  
2. CTI: 2
- D. Tyco 2136278**  
1. Dielectric strength (kV/mm): 25  
2. CTI: 0
- E. Tyco 1573878**  
1. Dielectric strength (kV/mm): 39  
2. CTI: 4
- F. Tyco 2136682**  
1. Dielectric strength (kV/mm): 20  
2. CTI: 0
- G. Tyco 2136488**  
1. Dielectric strength (kV/mm): 8  
2. CTI: 1
- H. Tyco 2-1573755-1**  
1. Dielectric strength (kV/mm): 27  
2. CTI: 3
- I. Tyco Raw Material P/N 2136578**  
1. Dielectric strength (kV/mm): 17  
2. CTI: 0
- J. Tyco Raw Material P/N 2401706**  
1. Dielectric strength (kV/mm): - 28  
2. CTI: 2
- K. Tyco Raw Material P/N 1573789**  
1. Dielectric strength (kV/mm):  
2. CTI: 2
- L. Tyco 1573755**  
1. Dielectric strength (kV/mm): 27  
2. CTI: 3