



Certificate Number: 0117022-5

Date: 2013-06-17

UL CONDITIONS OF ACCEPTABILITY

Company Name: TRACO ELECTRONIC AG

File-CCN: E188913- QQQQ2, QQQQ8

Product Description: DC-DC Converter

Models: TEN 8-1210, TEN 8-1211, TEN 8-1212, TEN 8-1213, TEN 8-1221, TEN 8-1222, TEN 8-1223, TEN 8-2410, TEN 8-2411, TEN 8-2412, TEN 8-2413, TEN 8-2421, TEN 8-2422, TEN 8-2423, TEN 8-4810, TEN 8-4811, TEN 8-4812, TEN 8-4813, TEN 8-4821, TEN 8-4822, TEN 8-4823, THD 12-1209, THD 12-1210, THD 12-1211, THD 12-1212, THD 12-1213, THD 12-1221, THD 12-1222, THD 12-1223, THD 12-2409, THD 12-2410, THD 12-2411, THD 12-2412, THD 12-2413, THD 12-2421, THD 12-2422, THD 12-2423, THD 12-4809, THD 12-4810, THD 12-4811, THD 12-4812, THD 12-4813, THD 12-4821, THD 12-4822, THD 12-4823, THD 12-2410WI, THD 12-2411WI, THD 12-2412WI, THD 12-2413WI, THD 12-2421WI, THD 12-2422WI, THD 12-2423WI, THD 12-4810WI, THD 12-4811WI, THD 12-4812WI, THD 12-4813WI, THD 12-4821WI, THD 12-4822WI, THD 12-4823WI, TEN 8-2410WI, TEN 8-2411WI, TEN 8-2412WI, TEN 8-2413WI, TEN 8-2421WI, TEN 8-2422WI, TEN 8-2423WI, TEN 8-4810WI, TEN 8-4811WI, TEN 8-4812WI, TEN 8-4813WI, TEN 8-4821WI, TEN 8-4822WI, TEN 8-4823WI, TEN 8-7210Wiz1z1z1z1z1z1, TEN 8-7211Wiz1z1z1z1z1z1, TEN 8-7212Wiz1z1z1z1z1z1, TEN 8-7213Wiz1z1z1z1z1z1, TEN 8-7221Wiz1z1z1z1z1z1, TEN 8-7222Wiz1z1z1z1z1z1, TEN 8-7223Wiz1z1z1z1z1z1

Conditions Of Acceptability: When installed in the end-product, consideration shall be given to the following:

1. This component has been judged on the basis of required spacing in the Standard for Safety of Information Technology Equipment, UL 60950-1, 2nd Edition, 2011-12-19 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-07, 2nd Edition, 2011-12 (Information Technology Equipment - Safety - Part 1: General Requirements), which would cover the component itself if submitted for Listing.
2. The products were tested on a 6.3A time delay fuse protection circuit. If used on a protection circuit greater than this, additional testing may be necessary.
3. All secondary output circuits are SELV and are not hazardous energy levels.
4. The terminals and connectors are suitable for factory wiring only.
5. The equipment has been evaluated for use in a Pollution Degree 2 environment.
6. A suitable Electrical and Fire enclosure shall be provided.
7. The component is intended to be connected to isolated secondary circuit which is separated from primary circuit by Reinforced or Double insulation.
8. PWB shall not exceed 105°C during heating test end-product installation.
9. The product was investigated for functional insulation and complies with 2.2.4 under single fault conditions.
10. The product was investigated to the following additional standards: IEC 60950-1:2005 (2nd Edition); Am 1:2009 and/or EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 (which includes all European national differences, including those specified in this test report). CB report no. 1212084-CB, CB cert. no. DK-31311-UL.

Ratings:

Model	Input (dc)		Output(dc)	
	V	mA	V	mA
TEN 8-4810	36~75 or 48	254	3.3	2000
THD 12-1209	9 ~18 or 12	1314	2.5	3500
THD 12-1210	9 ~ 18 or 12	1688	3.3	3500
THD 12-1211	9 ~ 18 or 12	1743	5.1	2400
THD 12-1212	9 ~ 18 or 12	1708	12	1000
THD 12-1213	9 ~ 18 or 12	1708	15	800
THD 12-1221	9 ~ 18 or 12	1801	± 5	± 1200
THD 12-1222	9 ~ 18 or 12	1688	± 12	± 500
THD 12-1223	9 ~ 18 or 12	1688	± 15	± 400
THD 12-2409	18 ~ 36 or 24	647	2.5	3500
THD 12-2410	18 ~ 36 or 24	833	3.3	3500
THD 12-2411	18 ~ 36 or 24	860	5.1	2400
THD 12-2412	18 ~ 36 or 24	843	12	1000
THD 12-2413	18 ~ 36 or 24	843	15	800
THD 12-2421	18 ~ 36 or 24	889	± 5	± 1200
THD 12-2422	18 ~ 36 or 24	832	± 12	± 500
THD 12-2423	18 ~ 36 or 24	832	± 15	± 400
THD 12-4809	36 ~ 75 or 48	324	2.5	3500
THD 12-4810	36 ~ 75 or 48	416	3.3	3500
THD 12-4811	36 ~ 75 or 48	430	5.1	2400
THD 12-4812	36 ~ 75 or 48	421	12	1000
THD 12-4813	36 ~ 75 or 48	421	15	800
THD 12-4821	36 ~ 75 or 48	443	± 5	± 1200
THD 12-4822	36 ~ 75 or 48	415	± 12	± 500
THD 12-4823	36 ~ 75 or 48	415	± 15	± 400

Ratings: (continued)

Model	Input (dc)		Output(dc)	
	V	mA	V	mA
TEN 8-2411WI	9-36	1046	5	1600
TEN 8-2412WI	9-36	1045	12	666
TEN 8-2413WI	9-36	1045	15	533
TEN 8-2421WI	9-36	1084	± 5	±800
TEN 8-2422WI	9-36	1045	± 12	±333
TEN 8-2423WI	9-36	1047	± 15	±267
TEN 8-4813WI	18-75	523	5	1600
TEN 8-4812WI	18-75	522	12	666
TEN 8-4811WI	18-75	523	15	533
TEN 8-4821WI	18-75	542	± 5	±800
TEN 8-4822WI	18-75	522	± 12	±333
TEN 8-4823WI	18-75	524	± 15	±267
THD 12-2410WI	9-36	1528	3.3	3500
THD 12-2411WI	9-36	1600	5.1	2400
THD 12-2412WI	9-36	1569	12	1000
THD12-2413WI	9-36	1569	15	800
THD 12-2421WI	9-36	1355	±5	±1000
THD 12-2422WI	9-36	1569	±12	±500
THD 12-2423WI	9-36	1569	±15	±400
THD 12-4810WI	18-75	764	3.3	3500
THD 12-4811WI	18-75	800	5.1	2400
THD 12-4812WI	18-75	784	12	1000
THD 12-4813WI	18-75	784	15	800
THD 12-4821WI	18-75	678	±5	±1000
THD 12-4822WI	18-75	784	±12	±500
THD 12-4823WI	18-75	784	±15	±400
TEN 8-7210Wlz1z1z1z1z1	43-160	220	3.3	2400
TEN 8-7211Wlz1z1z1z1z1	43-160	218	5	1600
TEN 8-7212Wlz1z1z1z1z1	43-160	216	12	666
TEN 8-7213Wlz1z1z1z1z1	43-160	216	15	533
TEN 8-7221Wlz1z1z1z1z1	43-160	226	±5	±800
TEN 8-7222Wlz1z1z1z1z1	43-160	218	±12	±333
TEN 8-7223Wlz1z1z1z1z1	43-160	219	±15	±267

Nomenclature: N/A



Certificate Number: 0307022-7

Date: 2013-06-17

UL CONDITIONS OF ACCEPTABILITY

Company Name: TRACO ELECTRONIC AG

File-CCN: E188913- QQGQ2, QQGQ8

Product Description: DC-DC Converter

Models: TES 20-4809, TES 20-4810, TES 20-4811, TES 20-4812, TES 20-4813

Conditions Of Acceptability: When installed in the end-product, consideration shall be given to the following:

1. This component has been judged on the basis of required spacing in the Standard for Safety of Information Technology Equipment, CSA/UL 60950, Third Edition, including revisions through revision date March 15, 2002, Sub-clause 2.10, which would cover the component itself if submitted for Listing.
2. The products were tested on a 5 A time delay fuse protection circuit. If used on a protection circuit greater than this, additional testing may be necessary.
3. All secondary output circuits are SELV and are not hazardous energy levels.
4. The terminals and connectors are suitable for factory wiring only.
5. The equipment has been evaluated for use in a Pollution Degree 2 environment.
6. A suitable Electrical and Fire enclosure shall be provided.
7. The component is intended to be connected to isolated secondary circuit which is separated from primary circuit by Reinforced or Double insulation.

Ratings:

Model	Input (dc)		Output (dc)		
	V	mA	V		mA
TES 20-4809	36~75 or 48	292	2.0		4000
TES 20-4810	36~75 or 48	470	3.3		4000
TES 20-4811	36~75 or 48	678	5		4000
TES 20-4812	36~75 or 48	679	12		1670
TES 20-4813	36~75 or 48	684	15		1330

Nomenclature: N/A



Certificate Number: 0411022-8

Date: 2013-06-17

UL CONDITIONS OF ACCEPTABILITY

Company Name: TRACO ELECTRONIC AG

File-CCN: E188913- QQQQ2, QQQQ8

Product Description: DC-DC Converter

Models: TEN 40-1207, TEN 40-1208, TEN 40-1209, TEN 40-1210, TEN 40-1211, TEN 40-1212, TEN 40-1213, TEN 40-1220, TEN 40-1222, TEN 40-1223, TEN 40-1231, TEN 40-1232, TEN 40-1233, TEN 40-1234, TEN 40-2407, TEN 40-2408, TEN 40-2409, TEN 40-2410, TEN 40-2411, TEN 40-2412, TEN 40-2413, TEN 40-2420, TEN 40-2422, TEN 40-2423, TEN 40-2433, TEN 40-2434, TEN 40-2431, TEN 40-2432, TEN 40-4807, TEN 40-4808, TEN 40-4809, TEN 40-4810, TEN 40-4811, TEN 40-4812, TEN 40-4813, TEN 40-4820, TEN 40-4822, TEN 40-4823, TEN 40-4833, TEN 40-4834, TEN 40-4831, TEN 40-4832

Conditions Of Acceptability: When installed in the end-product, consideration shall be given to the following:

1. This component has been judged on the basis of the required spacings in the Standard for Safety of Information Technology Equipment, Including Electrical Business Equipment, CAN/CSA C22.2 No. 60950-1 and UL 60950-1 First Edition, dated April 1, 2003.
2. The products were tested on a 5 A time delay fuse protection circuit. If used on a protection circuit greater than this, additional testing may be necessary.
3. All secondary output circuits are SELV and are not hazardous energy levels.
4. The terminals and connectors are suitable for factory wiring only.
5. The equipment has been evaluated for use in a Pollution Degree 2 environment.
6. A suitable Electrical and Fire enclosure shall be provided.
7. The component is intended to be connected to isolated secondary circuit which is separated from primary circuit by Reinforced or Double insulation.
8. If the input meets all the requirements for ELV, then the output may be considered ELV.
9. If the input meets all the requirements for SELV: (Voltage less than 60Vdc), the output may be considered SELV. Output voltage remains within SELV. Single component Failure and Operational Insulation by pass Tests were performed in the Power Converters.

Ratings:

Model	Input (dc)		Output (dc)	
	V	A	V	A
TEN 40-1207	9-18 or 12	1.754	1.5	8
TEN 40-1208	9-18 or 12	2.162	1.8	8
TEN 40-1209	9-18 or 12	2.924	2.5	8
TEN 40-1210	9-18 or 12	3.761	3.3	8
TEN 40-1211	9-18 or 12	5.698	5	8
TEN 40-1212	9-18 or 12	5.697	12	3.333
TEN 40-1213	9-18 or 12	5.624	15	2.666
TEN 40-1222	9-18 or 12	6.234	±12	±1.8
TEN 40-1223	9-18 or 12	6.061	±15	±1.4
TEN 40-1220	9-18 or 12	4.791	3.3/5	4/4
TEN 40-1231	9-18 or 12	5.641	5/±12	6/±0.4
TEN 40-1232	9-18 or 12	5.556	5/±15	6/±0.3
TEN 40-2407	18-36 or 24	0.913	1.5	8
TEN 40-2408	18-36 or 24	1.067	1.8	8
TEN 40-2409	18-36 or 24	1.425	2.5	8
TEN 40-2410	18-36 or 24	1.857	3.3	8
TEN 40-2411	18-36 or 24	2.743	5	8
TEN 40-2412	18-36 or 24	2.778	12	3.33
TEN 40-2413	18-36 or 24	2.743	15	2.66
TEN 40-2422	18-36 or 24	3.038	±12	±1.8
TEN 40-2423	18-36 or 24	2.954	±15	±1.4
TEN 40-2420	18-36 or 24	2.365	3.3/5	4/4
TEN 40-2433	18-36 or 24	2.121	3.3 ±12	6 ±0.4
TEN 40-2434	18-36 or 24	2.078	3.3 ±15	6 ±0.3
TEN 40-2431	18-36 or 24	2.785	5 ±12	6 ±0.4
TEN 40-2432	18-36 or 24	2.743	5 ±15	6 ±0.3
TEN 40-4807	36-75 or 48	0.45	1.5	8
TEN 40-4808	36-75 or 48	0.526	1.8	8
TEN 40-4809	36-75 or 48	0.712	2.5	8
TEN 40-4810	36-75 or 48	0.917	3.3	8
TEN 40-4811	36-75 or 48	1.355	5	8
TEN 40-4812	36-75 or 48	1.372	12	3.33
TEN 40-4813	36-75 or 48	1.371	15	2.66
TEN 40-4822	36-75 or 48	1.519	±12	±1.8
TEN 40-4823	36-75 or 48	1.477	±15	±1.4
TEN 40-4820	36-75 or 48	1.153	3.3/5	4/4
TEN 40-4833	36-75 or 48	1.047	3.3 ±12	6 ±0.4
TEN 40-4834	36-75 or 48	1.026	3.3 ±15	6 ±0.3
TEN 40-4831	36-75 or 48	1.375	5 ±12	6 ±0.4
TEN 40-4832	36-75 or 48	1.354	5 ±15	6 ±0.3

Nomenclature: N/A