



Certificate Number: 030717X2-A79

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## UL CONDITIONS OF ACCEPTABILITY

**Company Name:** TRACO ELECTRONIC AG

**File-CCN:** E188913 - QQGQ2, QQGQ8, QQJQ2, QQJQ8

**Product Description:** DC/DC Converters

**Models:** TMR 2-0511WISM, TMR 2-0512WISM, TMR 2-0513WISM, TMR 2-0515WISM, TMR 2-0522WISM, TMR 2-0523WISM, TMR 2-2411WISM, TMR 2-2412WISM, TMR 2-2413WISM, TMR 2-2415WISM, TMR 2-2422WISM, TMR 2-2423WISM, TMR 2-4811WISM, TMR 2-4812WISM, TMR 2-4813WISM, TMR 2-4815WISM, TMR 2-4822WISM, TMR 2-4823WISM, TMR 3-0511WISM, TMR 3-0512WISM, TMR 3-0513WISM, TMR 3-0515WISM, TMR 3-0522WISM, TMR 3-0523WISM, TMR 3-2411WISM, TMR 3-2412WISM, TMR 3-2413WISM, TMR 3-2415WISM, TMR 3-2422WISM, TMR 3-2423WISM, TMR 3-4811WISM, TMR 3-4812WISM, TMR 3-4813WISM, TMR 3-4815WISM, TMR 3-4822WISM, TMR 3-4823WISM

**Conditions Of Acceptability:** For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following:

- The end-product Electric Strength Test is to be based upon a maximum working voltage of: 96 Vrms, 200 Vpk
- The following secondary output circuits are SELV: Output terminal of all models. (and also been evaluated as ES1 circuit for UL/CSA 62368-1 2nd edition)
- The following secondary output circuits are at non-hazardous energy levels: Output terminal of all models.
- The power supply terminals and/or connectors are: Suitable for factory wiring only
- The investigated Pollution Degree is: 3
- The following end-product enclosures are required: Mechanical, Fire, Electrical
- Input test and all thermal related tests should be considered in end product investigation.
- The outputs of this component DC-to-DC converter has been evaluated for PS1 and ES1 (SELV circuit); the ES classification of circuits and parts that are accessible to ordinary persons should be reconsidered when it's employed in the end-use equipment.
- Upon request, an Electric Strength test voltage of 2,500 Vdc has been applied between inputs and outputs according to manufacturer's specification.
- Tests for Abnormal operating and Single Fault conditions were carried out with an external, Fast-Acting fuse having a current rating of 1 A maximum for MSCWI02-xy series; 1.5A maximum for MSCWI03-xy series. Tests should be repeated when it's employed in the end-use equipment with a differently rated overcurrent protective device.

- This component DC-to-DC converter has been evaluated for Functional Insulation and is intended to be installed in an isolated (non-mains) ES3 circuit (hazardous voltage secondary circuit) which is separated from a.c. mains ES3 circuit (primary circuit) by Double or Reinforce Insulation.

#### Ratings:

Model	I/P Voltage	Input Current	Output V	Output Current	Transformer P/N	PCD
TMR 2-0511WISM	5Vdc (tolerance 4.5-12Vdc)	500 mA for 5 Vdc	5 Vdc	400mA	OB-MSCWI02-05S05-TI	MSCWI03S
TMR 2-0512WISM		477 mA for 5 Vdc	12 Vdc	167 mA	OB-MSCWI02-05S12-T1	
TMR 2-0513WISM		484 mA for 5 Vdc	15 Vdc	134mA	OB-MSCWI02-05S15-TI	
TMR 2-0515WISM		474 mA for 5 Vdc	24Vdc	83mA	OB-MSCWI02-05S24-TI	
TMR 2-0522WISM		480 mA for 5 Vdc	+12 Vdc	83mA	OB-MSCWI02-05D12-T	MSCWI03D
			-12 Vdc	83mA		
TMR 2-0523WISM		490 mA for 5 Vdc	+15 Vdc	67mA	OB-MSCWI02-05D12-T	MSCWI03D
			-15 Vdc	67mA		
TMR 2-2411WISM	24 Vdc (tolerance 9- 36 Vdc)	104 mA for 24Vdc	5 Vdc	400mA	OB-MSCWI02-24S05-TI	MSCWI03S
TMR 2-2412WISM		99 mA for 24Vdc	12 Vdc	167 mA	OB-MSCWI02-24S12-T	
TMR 2-2413WISM		99 mAfor 24Vdc	15 Vdc	134mA	OB-MSCWI02-24S15-T	
TMR 2-2415WISM		98 mAfor 24Vdc	24Vdc	83mA	OB-MSCWI02-24S24-TI	
TMR 2-2422WISM		100 mA for 24Vdc	+12 Vdc	83mA	OB-MSCWI02-24D12-TI	MSCWI03D
			-12 Vdc	83mA		
TMR 2-2423WISM		101 mA for 24Vdc	+15 Vdc	67mA	OB-MSCWI02-24D1S-TI	MSCWI03D
			-15 Vdc	67mA		
TMR 2-4811WISM	48Vdc (tolerance 18-75 Vdc)	53 mA for 48Vdc	5 Vdc	400mA	OB-MSCWI02-48S05-T	MSCWI03S
TMR 2-4812WISM		51 mA for 48Vdc	12 Vdc	167 mA	OB-MSCWI02-48S12-TI	
TMR 2-4813WISM		50 mA for 48Vdc	15 Vdc	134 mA	OB-MSCWI02-48S15-TI	
TMR 2-4815WISM		49 mA for 48Vdc	24Vdc	83 mA	OB-MSCWI02-	
TMR 2-4822WISM		51 mA for 48Vdc	+12 Vdc	83mA	OB-MSCWI02-48S24-TI	MSCWI03D
			-12 Vdc	83mA		
TMR 2-4823WISM		51 mA for 48Vdc	+15 Vdc	67mA	OB-MSCWI02-48D12-TI	MSCWI03D
			-15 Vdc	67mA		

TMR 3-0511WISM	5Vdc (tolerance 4.5- 12Vdc)	741 mA for 5Vdc	5 Vdc	600 mA	OB-MSCWI03- 05S05-TI	MSCWI03S
TMR 3-0512WISM		741 mA for 5Vdc	12 Vdc	250 mA	OB-MSCWI03- 05S12-TI	
TMR 3-0513WISM		741 mA for 5Vdc	15 Vdc	200 mA	OB-MSCWI03- 05S15-TI	
TMR 3-0515WISM		741 mA for 5Vdc	24Vdc	125 mA	OB-MSCWI03- 05S24-TI	
TMR 3-0522WISM		741 mA for5Vdc	+12 Vdc	125 mA	OB-MSCWI03- 05D12-TI	MSCWI03D
			-12 Vdc	125 mA		
TMR 3-0523WISM		741 mA for5Vdc	+15 Vdc	100 mA	OB-MSCWI03- 05D15-TI	
			-15 Vdc	100 mA		
TMR 3-2411WISM	24 Vdc (tolerance 9-36 Vdc)	156 mA for 24Vdc	5 Vdc	600 mA	OB-MSCWI03- 24S05-TI	MSCWI03S
TMR 3-2412WISM		147 mA for 24Vdc	12 Vdc	250 mA	OB-MSCWI03- 24S12-TI	
TMR 3-2413WISM		147 mA for 24Vdc	15 Vdc	200 mA	OB-MSCWI03- 24S15-TI	
TMR 3-2415WISM		147 mA for 24Vdc	24Vdc	125 mA	OB-MSCWI03- 24S24-TI	
TMR 3-2422WISM		149 mA for 24Vdc	+12 Vdc	125 mA	OB-MSCWI03- 24D12-TI	MSCWI03D
			-12 Vdc	125 mA		
TMR 3-2423WISM		149 mA for 24Vdc	+15 Vdc	100 mA	OB-MSCWI03- 24D15-TI	
			-15 Vdc	100 mA		
TMR 3-4811WISM	48Vdc (tolerance 18-75 Vdc)	78 mA for 48Vdc	5 Vdc	600 mA		MSCWI03S
TMR 3-4812WISM		74 mA for 48Vdc	12 Vdc	250 mA		
TMR 3-4813WISM		74 mA for 48Vdc	15 Vdc	200 mA		
TMR 3-4815WISM		74 mA for 48Vdc	24Vdc	125 mA		
TMR 3-4822WISM		75 mA for 48Vdc	+12 Vdc	125 mA		MSCWI03D
			-12 Vdc	125 mA		
TMR 3-4823WISM		76 mA for 48Vdc	+15 Vdc	100 mA		
			-15 Vdc	100 mA		