

## DESCRIPTION

## PRODUCT COVERED:

\*USR, CNR - DC / DC converter, Models EC3AXXH/HM, EC4AYYH/HM, EC3ABXXH/HM, EC4ABYYH/HM, EC4AYY-HL, EC4AYYM-HL, EC4ABYYHMT and EC4ABYYHT, where XX = 01 - 37, YY = 01 -27. EC4AYYHMS, EC4ABYYHMS, EC3AXXHMS, EC3ABYYHMS where X, Y can be 0-9, A-Z or blank. EC3AB24HM-01.

## ELECTRICAL RATINGS:

Model	DC Input		DC Output	
	Voltage (V)	Current (mA)	Voltage (V)	Current (mA)
EC4AB01HM	9 - 18 V dc	545	5.0	1000
EC4AB01HMT	9 - 18 V dc	545	5.0	1000
EC4AB02HM	9 - 18 V dc	585	12.0	470
EC4AB02HMT	9 - 18 V dc	585	12.0	470
EC4AB03HM	9 - 18 V dc	625	15.0	400
EC4AB04HM	9 - 18 V dc	575	+ 12.0	+ 230
EC4AB05HM	9 - 18 V dc	590	+ 15.0	+ 190
EC4AB06HM	9 - 18 V dc	545	+ 5.0	+ 500
EC4AB07HM	9 - 18 V dc	393	3.3	1000
EC4AB07HMT	9 - 18 V dc	393	3.3	1000
EC4AB11HM	18 - 36 V dc	265	5.0	1000
EC4AB11HMT	18 - 36 V dc	265	5.0	1000
EC4AB12HM	18 - 36 V dc	285	12.0	470
EC4AB12HMT	18 - 36 V dc	285	12.0	470
EC4AB13HM	18 - 36 V dc	305	15.0	400
EC4AB13HMT	18 - 36 V dc	305	15.0	400
EC4AB14HM	18 - 36 V dc	285	+ 12.0	+ 230
EC4AB15HM	18 - 36 V dc	295	+ 15.0	+ 190
EC4AB16HM	18 - 36 V dc	265	+ 5.0	+ 500
EC4AB17HM	18 - 36 V dc	197	3.3	1000
EC4AB17HMT	18 - 36 V dc	197	3.3	1000
EC4AB21HM	36 - 72 V dc	133	5.0	1000
EC4AB21HMT	36 - 72 V dc	133	5.0	1000
EC4AB22HM	36 - 72 V dc	145	12.0	470
EC4AB22HMT	36 - 72 V dc	145	12.0	470
EC4AB23HM	36 - 72 V dc	154	15.0	400
EC4AB23HMT	36 - 72 V dc	154	15.0	400
EC4AB24HM	36 - 72 V dc	142	+ 12.0	+ 230
EC4AB25HM	36 - 72 V dc	147	+ 15.0	+ 190
EC4AB26HM	36 - 72 V dc	133	+ 5.0	+ 500
EC4AB27HM	36 - 72 V dc	98	3.3	1000
EC4AB27HMT	36 - 72 V dc	98	3.3	1000
EC4AB01H	9 - 18 V dc	545	5.0	1000
EC4AB01HT	9 - 18 V dc	545	5.0	1000
EC4AB02H	9 - 18 V dc	585	12.0	470
EC4AB02HT	9 - 18 V dc	585	12.0	470
EC4AB03H	9 - 18 V dc	625	15.0	400
EC4AB03HT	9 - 18 V dc	625	15.0	400

Model	DC Input		DC Output	
	Voltage (V)	Current (mA)	Voltage (V)	Current (mA)
EC4AB04H	9 - 18 V dc	575	+ 12.0	+ 230
EC4AB05H	9 - 18 V dc	590	+ 15.0	+ 190
EC4AB06H	9 - 18 V dc	545	+ 5.0	+ 500
EC4AB07H	9 - 18 V dc	393	3.3	1000
EC4AB07HT	9 - 18 V dc	393	3.3	1000
EC4AB11H	18 - 36 V dc	265	5.0	1000
EC4AB11HT	18 - 36 V dc	265	5.0	1000
EC4AB12H	18 - 36 V dc	285	12.0	470
EC4AB12HT	18 - 36 V dc	285	12.0	470
EC4AB13H	18 - 36 V dc	305	15.0	400
EC4AB13HT	18 - 36 V dc	305	15.0	400
EC4AB14H	18 - 36 V dc	285	+ 12.0	+ 230
EC4AB15H	18 - 36 V dc	295	+ 15.0	+ 190
EC4AB16H	18 - 36 V dc	265	+ 5.0	+ 500
EC4AB17H	18 - 36 V dc	197	3.3	1000
EC4AB17HT	18 - 36 V dc	197	3.3	1000
EC4AB21H	36 - 72 V dc	133	5.0	1000
EC4AB21HT	36 - 72 V dc	133	5.0	1000
EC4AB22H	36 - 72 V dc	145	12.0	470
EC4AB22HT	36 - 72 V dc	145	12.0	470
EC4AB23H	36 - 72 V dc	154	15.0	400
EC4AB23HT	36 - 72 V dc	154	15.0	400
EC4AB24H	36 - 72 V dc	142	+ 12.0	+ 230
EC4AB25H	36 - 72 V dc	147	+ 15.0	+ 190
EC4AB26H	36 - 72 V dc	133	+ 5.0	+ 500
EC4AB27H	36 - 72 V dc	98	3.3	1000
EC4AB27HT	36 - 72 V dc	98	3.3	1000
EC4A01HM, EC4A01M-HL	9 - 18 V dc	545	5.0	1000
EC4A02HM, EC4A02M-HL	9 - 18 V dc	585	12.0	470
EC4A03HM, EC4A03M-HL	9 - 18 V dc	625	15.0	400
EC4A04HM, EC4A04M-HL	9 - 18 V dc	575	+ 12.0	+ 230
EC4A05HM, EC4A05M-HL	9 - 18 V dc	590	+ 15.0	+ 190
EC4A06HM, EC4A06M-HL	9 - 18 V dc	545	+ 5.0	+ 500
EC4A07HM, EC4A07M-HL	9 - 18 V dc	393	3.3	1000
EC4A11HM, EC4A11M-HL	18 - 36 V dc	265	5.0	1000
EC4A12HM, EC4A12M-HL	18 - 36 V dc	285	12.0	470
EC4A13HM, EC4A13M-HL	18 - 36 V dc	305	15.0	400
EC4A14HM, EC4A14M-HL	18 - 36 V dc	285	+ 12.0	+ 230
EC4A15HM, EC4A15M-HL	18 - 36 V dc	295	+ 15.0	+ 190
EC4A16HM, EC4A16M-HL	18 - 36 V dc	265	+ 5.0	+ 500
EC4A17HM, EC4A17M-HL	18 - 36 V dc	197	3.3	1000
EC4A21HM, EC4A21M-HL	36 - 72 V dc	133	5.0	1000
EC4A22HM, EC4A22M-HL	36 - 72 V dc	145	12.0	470
EC4A23HM, EC4A23M-HL	36 - 72 V dc	154	15.0	400

Model	DC Input		DC Output	
	Voltage (V)	Current (mA)	Voltage (V)	Current (mA)
EC4A24HM, EC4A24M-HL	36 - 72 V dc	142	+ 12.0	+ 230
EC4A25HM, EC4A25M-HL	36 - 72 V dc	147	+ 15.0	+ 190
EC4A26HM, EC4A26M-HL	36 - 72 V dc	133	+ 5.0	+ 500
EC4A27HM, EC4A27M-HL	36 - 72 V dc	98	3.3	1000
EC4A01H, EC4A01-HL	9 - 18 V dc	545	5.0	1000
EC4A02H, EC4A02-HL	9 - 18 V dc	585	12.0	470
EC4A03H, EC4A03-HL	9 - 18 V dc	625	15.0	400
EC4A04H, EC4A04-HL	9 - 18 V dc	575	+ 12.0	+ 230
EC4A05H, EC4A05-HL	9 - 18 V dc	590	+ 15.0	+ 190
EC4A06H, EC4A06-HL	9 - 18 V dc	545	+ 5.0	+ 500
EC4A07H, EC4A07-HL	9 - 18 V dc	393	3.3	1000
EC4A11H, EC4A11-HL	18 - 36 V dc	265	5.0	1000
EC4A12H, EC4A12-HL	18 - 36 V dc	285	12.0	470
EC4A13H, EC4A13-HL	18 - 36 V dc	305	15.0	400
EC4A14H, EC4A14-HL	18 - 36 V dc	285	+ 12.0	+ 230
EC4A15H, EC4A15-HL	18 - 36 V dc	295	+ 15.0	+ 190
EC4A16H, EC4A16-HL	18 - 36 V dc	265	+ 5.0	+ 500
EC4A17H, EC4A17-HL	18 - 36 V dc	197	3.3	1000
EC4A21H, EC4A21-HL	36 - 72 V dc	133	5.0	1000
EC4A22H, EC4A22-HL	36 - 72 V dc	145	12.0	470
EC4A23H, EC4A23-HL	36 - 72 V dc	154	15.0	400
EC4A24H, EC4A24-HL	36 - 72 V dc	142	+ 12.0	+ 230
EC4A25H, EC4A25-HL	36 - 72 V dc	147	+ 15.0	+ 190
EC4A26H, EC4A26-HL	36 - 72 V dc	133	+ 5.0	+ 500
EC4A27H, EC4A27-HL	36 - 72 V dc	98	3.3	1000
EC3AB11H	9 - 18 V dc	340	5.0	600
EC3AB12H	9 - 18 V dc	320	12.0	250

Model	DC Input		DC Output	
	Voltage (V)	Current (mA)	Voltage (V)	Current (mA)
EC3AB13H	9 - 18 V dc	329	15.0	200
EC3AB14H	9 - 18 V dc	340	+ 5.0	+ 300
EC3AB15H	9 - 18 V dc	329	+ 12.0	+ 125
EC3AB16H	9 - 18 V dc	333	+ 15.0	+ 100
EC3AB17H	9 - 18 V dc	236	3.3	600
EC3AB21H	18 - 36 V dc	168	5.0	600
EC3AB22H	18 - 36 V dc	156	12.0	250
EC3AB23H	18 - 36 V dc	156	15.0	200
EC3AB24H	18 - 36 V dc	168	+ 5.0	+ 300
EC3AB25H	18 - 36 V dc	156	+ 12.0	+ 125
EC3AB26H	18 - 36 V dc	160	+ 15.0	+ 100
EC3AB27H	18 - 36 V dc	113	3.3	600
EC3AB31H	36 - 72 V dc	82	5.0	600
EC3AB32H	36 - 72 V dc	82	12.0	250
EC3AB33H	36 - 72 V dc	82	15.0	200
EC3AB34H	36 - 72 V dc	82	+ 5.0	+ 300
EC3AB35H	36 - 72 V dc	82	+ 12.0	+ 125
EC3AB36H	36 - 72 V dc	82	+ 15.0	+ 100
EC3AB37H	36 - 72 V dc	58	3.3	600
EC3AB11HM	9 - 18 V dc	340	5.0	600
EC3AB12HM	9 - 18 V dc	320	12.0	250
EC3AB13HM	9 - 18 V dc	329	15.0	200
EC3AB14HM	9 - 18 V dc	340	+ 5.0	+ 300
EC3AB15HM	9 - 18 V dc	329	+ 12.0	+ 125
EC3AB16HM	9 - 18 V dc	333	+ 15.0	+ 100
EC3AB17HM	9 - 18 V dc	236	3.3	600
EC3AB21HM	18 - 36 V dc	168	5.0	600
EC3AB22HM	18 - 36 V dc	156	12.0	250
EC3AB23HM	18 - 36 V dc	156	15.0	200
EC3AB24HM	18 - 36 V dc	168	+ 5.0	+ 300
EC3AB25HM	18 - 36 V dc	156	+ 12.0	+ 125
EC3AB26HM	18 - 36 V dc	160	+ 15.0	+ 100
EC3AB27HM	18 - 36 V dc	113	3.3	600
EC3AB31HM	36 - 72 V dc	82	5.0	600
EC3AB32HM	36 - 72 V dc	82	12.0	250
EC3AB33HM	36 - 72 V dc	82	15.0	200
EC3AB34HM	36 - 72 V dc	82	+ 5.0	+ 300
EC3AB35HM	36 - 72 V dc	82	+ 12.0	+ 125
EC3AB36HM	36 - 72 V dc	82	+ 15.0	+ 100
EC3AB37HM	36 - 72 V dc	58	3.3	600
EC3A01H	4.5 - 6.0 V dc	850	5.0	600
EC3A02H-02	4.5 - 6.0 V dc	850	9.0	333
EC3A02H	4.5 - 6.0 V dc	800	12.0	250
EC3A03H	4.5 - 6.0 V dc	800	15.0	200
EC3A04H	4.5 - 6.0 V dc	850	+ 5.0	+ 300
EC3A05H	4.5 - 6.0 V dc	800	+ 12.0	+ 125
EC3A06H	4.5 - 6.0 V dc	800	+ 15.0	+ 100
EC3A07H	4.5 - 6.0 V dc	619	3.3	600
EC3A11H	9 - 18 V dc	340	5.0	600
EC3A12H	9 - 18 V dc	320	12.0	250
EC3A13H	9 - 18 V dc	320	15.0	200
EC3A14H	9 - 18 V dc	340	+ 5.0	+ 300
EC3A15H	9 - 18 V dc	320	+ 12.0	+ 125

Model	DC Input		DC Output	
	Voltage (V)	Current (mA)	Voltage (V)	Current (mA)
EC3A14H	9 - 18 V dc	340	+ 5.0	+ 300
EC3A15H	9 - 18 V dc	320	+ 12.0	+ 125
*EC3AB24HM-01	17-36 V dc	220	+3.3	+360

Model	DC Input		DC Output	
	Voltage (V)	Current (mA)	Voltage (V)	Current (mA)
EC3A16H	9 - 18 V dc	32	+ 15.0	+ 100
EC3A17H	9 - 18 V dc	236	3.3	600
EC3A21H	18 - 36 V dc	168	5.0	600
EC3A24H	18 - 36 V dc	168	+ 5.0	+ 300
EC3A25H	18 - 36 V dc	156	+ 12.0	+ 125
EC3A26H	18 - 36 V dc	156	+ 15.0	+ 100
EC3A27H	18 - 36 V dc	113	3.3	600
EC3A31H	36 - 72 V dc	82	5.0	600
EC3A32H	36 - 72 V dc	78	12.0	250
EC3A33H	36 - 72 V dc	78	15.0	200
EC3A34H	36 - 72 V dc	82	+ 5.0	+ 300
EC3A35H	36 - 72 V dc	80	+ 12.0	+ 125
EC3A36H	36 - 72 V dc	80	+ 15.0	+ 100
EC3A37H	36 - 72 V dc	58	3.3	600
EC3A01HM	4.5 - 6.0 V dc	850	5.0	600
EC3A02HM	4.5 - 6.0 V dc	800	12.0	250
EC3A03HM	4.5 - 6.0 V dc	800	15.0	200
EC3A04HM	4.5 - 6.0 V dc	850	+ 5.0	+ 300
EC3A05HM	4.5 - 6.0 V dc	800	+ 12.0	+ 125
EC3A06HM	4.5 - 6.0 V dc	800	+ 15.0	+ 100
EC3A07HM	4.5 - 6.0 V dc	619	3.3	600
EC3A11HM	9 - 18 V dc	340	5.0	600
EC3A12HM	9 - 18 V dc	320	12.0	250
EC3A13HM	9 - 18 V dc	320	15.0	200
EC3A14HM	9 - 18 V dc	340	+ 5.0	+ 300
EC3A15HM	9 - 18 V dc	320	+ 12.0	+ 125
EC3A16HM	9 - 18 V dc	320	+ 15.0	+ 100
EC3A17HM	9 - 18 V dc	236	3.3	600
EC3A21HM	18 - 36 V dc	168	5.0	600
EC3A22HM	18 - 36 V dc	156	12.0	250
EC3A23HM	18 - 36 V dc	156	15.0	200
EC3A24HM	18 - 36 V dc	168	+ 5.0	+ 300
EC3A25HM	18 - 36 V dc	156	+ 12.0	+ 125
EC3A26HM	18 - 36 V dc	156	+ 15.0	+ 100
EC3A27HM	18 - 36 V dc	113	3.3	600
EC3A31HM	36 - 72 V dc	82	5.0	600
EC3A32HM	36 - 72 V dc	78	12.0	250
EC3A33HM	36 - 72 V dc	78	15.0	200
EC3A34HM	36 - 72 V dc	82	+ 5.0	+ 300
EC3A35HM	36 - 72 V dc	80	+ 12.0	+ 125

Model	DC Input		DC Output	
	Voltage (V)	Current (mA)	Voltage (V)	Current (mA)
EC3A36HM	36 - 72 V dc	80	+ 15.0	+ 100
EC3A37HM	36 - 72 V dc	58	3.3	600

ENGINEERING 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 Underwriters Laboratories Inc.

Special Considerations - The following items are considerations that were used when evaluating this product.

**USR/CNR indicates investigation to the U.S. and Canadian (Bi-National) Standard for Safety of Information Technology Equipment, CAN/CSA C22.2 No. 60950-1 and UL 60950-1, First Edition, dated April 1, 2003.**

These components were submitted by the manufacturer for use in a maximum air ambient of 71°C and only for model EC3AB24HM-01 using in a maximum air ambient of 85°C.

The components covered by this report are DC to DC converter power supplies and are intended for printed wiring board mounting. They are provided with terminal pins for connection to their nominal dc input and output connections.

The transformer in the converters is provided with operational insulation only. However, the insulation withstands 500 VAC potential applied for one minute between input terminals and output terminals and from input/output terminals to case.

Output voltages remain within SELV limits, even with internally generated non-SELV voltages. This was demonstrated by performing abnormal tests including single component failure and operational insulation bypass (shorting the input circuit to the output circuit) with various grounding conditions and also with the unit floating. In no case did the output result in voltages that exceed SELV limits.