

ADC100M Series

100 Amp PSA Main DC/DC Converter

Preliminary Data Sheet

Total Power: 100 W, 180 W
 (1.0 V @ 100 A)
 (1.8 V @ 100 A)
Input Voltage: 40 - 60 Vdc
Single Output Versions:
 0.6 - 1.2 V
 1.6 - 2.0 V



SPECIAL FEATURES

- 100A TDC current
- PSA compliant
- Up to 93% efficient
- Low ripple and noise
- Data center 48 Vdc input range
- Open frame optimized for air cooling
- Surface mount termination
- Fixed switching frequency
- High capacitive load capability
- Pre-bias startup capability
- High reliability
- RoHS 6 compliant
- UL94 V-0 materials
- Two year warranty (consult factory for extended terms)

SAFETY

- EN60950
- UL/CSA60950
- CE

Electrical Specifications

Input	
Input voltage	40 to 60 Vdc
Input surge	80 V for 10 mSec
Input undervoltage shutdown/startup	39 Vdc startup 37 Vdc shutdown
Efficiency	93% (target for -04Y variant)
I/O insulation	Operational insulation
I/O isolation	500 Vdc
Output	
Output voltage	1.0 V nominal (-04X variant) 1.8 V nominal (-04Y variant)
Output voltage adjustment	0.6 V to 1.2 V (-04X variant) 1.6 V to 2.0 V (-04Y variant)
Output current maximum	1.0 V at 100 Amps (-04X variant) 1.8 V at 100 Amps (-04Y variant)
Noise and ripple	1% Vout
Overtemperature protection (Open frame)	120 °C hot spot Non-latching protection
Overvoltage protection method/OVP operation	120% of nominal Vout Latching protection
Overcurrent protection method/OCP operation	115% of max lout Non-latching protection
Control	
Enable	Negative enable
Control	AVSBus commands supported SVID control supported
Remote sense	Provided
Columbus™ communication	All control provided for up to 5 satellite stamps supported
Switching frequency	TBD



Ordering Information

Model Number	Input Voltage	Output Voltage	Output Current	Structure
ADC100M-04X	40 - 60 Vdc	1.0 Vdc	100 A	Open frame, surface mount
ADC100M-04Y	40 - 60 Vdc	1.8 Vdc	100 A	Open frame, surface mount

ADC = Artesyn Direct Conversion

X = 1.0 V output version

100 = 100 A rated

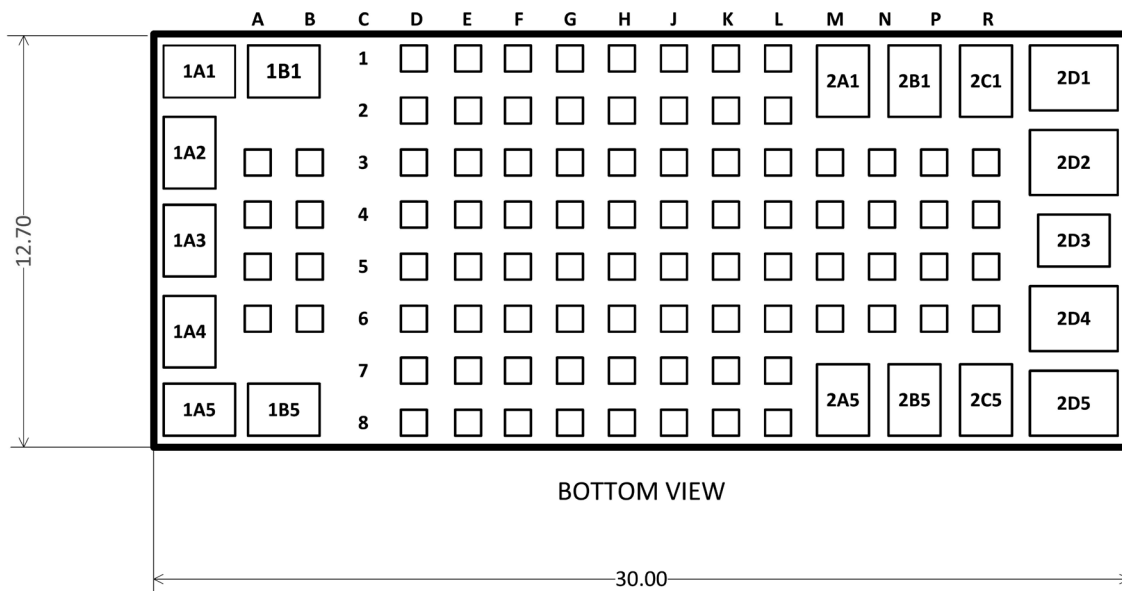
Y = 1.8 V output version

04 = 40-60 Vin

Environmental Specifications

Storage temperature	-40 to +105 °C
Ambient operating temperature	-40 to +85 °C
Baseplate operating temperature	-40 to +100 °C (no power derating)
MTBF	500 k hours at 40 °C, 70% load, nominal input

Termination Descriptions



Pin 1-18 Functions					
Pad #	Pin Name	Pin Function	Pad #	Pin Name	Pin Function
1A1	+IN	Positive Input voltage supply connection	2B1	No connection	Pad present, no connection made
1A2	PWM_Y	PWM input Y connection	2B5	VCC	Secondary side Auxiliary voltage supply
1A3	VDD	Primary Auxiliary voltage supply	2C1	No connection	Pad present, no connection made
1A4	PWM_X	PWM input X connection	2C5	No connection	Pad present, no connection made
1A5	+IN	Positive input voltage supply connection	2D1	GND	Secondary side ground connection
1B1	-IN	Primary side ground connection	2D2	VOUT	Positive output voltage connection
1B5	-IN	Primary side ground connection	2D3	No connection	Pad present, no connection made
2A1	No connection	Pad present, no connection made	2D4	VOUT	Positive output voltage connection
2A5	No connection	Pad present, no connection made	2D5	GND	Secondary side ground connection

Signal Location Identification

	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	
1	N/A	N/A	N/A	PFAULT_IN#	PUC DTO	PUCDTI	PWM1Y	PWM2Y	PWM3Y	PWM4Y	PWM5Y	N/A	N/A	N/A	N/A	1
2	N/A	N/A	N/A	VSR MON	PUCCS	PUCCK	PWM1X	PWM2X	PWM3X	PWM4X	PWM5X	N/A	N/A	N/A	N/A	2
3	-IN	-IN	N/A	TMP5	CSP5	CSN5	GND	GND	GND	GND	PWM6X	PWM6Y	START5	GND	GND	3
4	-IN	-IN	N/A	TMP3	CSP3	CSN3	GND	GND	GND	GND	FAULT#	START6	START3	GND	GND	4
5	-IN	-IN	N/A	TMP2	CSP2	CSN2	GND	GND	GND	GND	VR_RDY	VREG	START2	GND	GND	5
6	-IN	-IN	N/A	TMP4	CSP4	CSN4	GND	GND	GND	GND	EN	VCTRL	START4	GND	GND	6
7	N/A	N/A	N/A	TMP6	CSP6	CSN6	SALERT	SDA	SVDAT/ AVSAMDAT	VR_HOT#	VCCIO_ OK	N/A	N/A	N/A	N/A	7
8	N/A	N/A	N/A	TMN	+S	-S	SADDR	SCL	SVCLK/ AVSCLK	SV_ALERT/ AVSSDAT	PAD_ ALERT#	N/A	N/A	N/A	N/A	8
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	

- The areas for 0 V connection through the center line of the module.
- The relative group of similar signals (by color in the grid-matrix above).
- The group of -In and GND pads.
- The grid above does NOT include the power connections.

Signal Pin Assignments

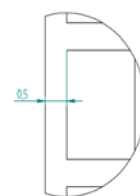
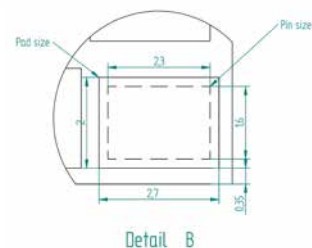
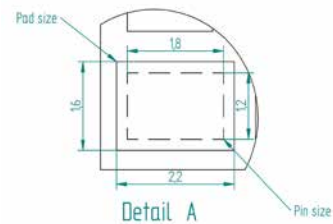
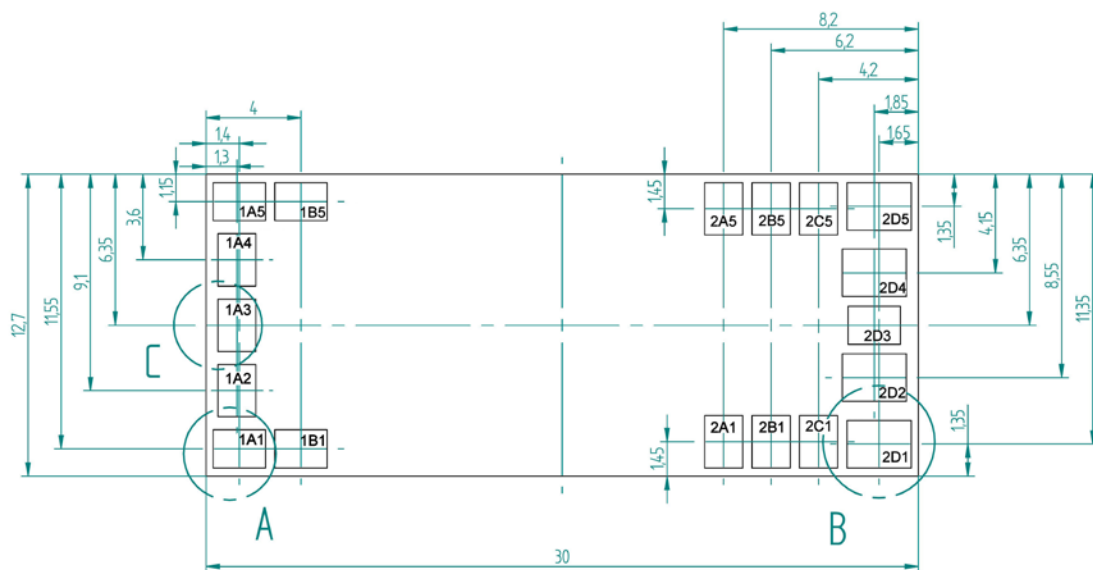
Pad #	Pad Name	Pad Function	Pad #	Pad Name	Pad Function
A1	N/A	No Pad present	A4	N/C (-In)	Pad present, N/C, Thermal via
B1	N/A	No Pad present	B4	N/C (-In)	Pad present, N/C, Thermal via
C1	N/A	No Pad present	C4	N/A	No Pad present
D1	PFAULT_IN#	Primary side fault indicator	D4	TMP3	Temperature sense Satellite 3
E1	PUCDTO	Primary side microcontroller data output	E4	CSP3	Current sense +ve Satellite 3
F1	PUCDTI	Primary side microcontroller data input	F4	CSN3	Current sense -ve Satellite 3
G1	PWM1Y	PWM signal for Satellite 1	G4	GND	Secondary side ground
H1	PWM2Y	PWM signal for Satellite 2	H4	GND	Secondary side ground
J1	PWM3Y	PWM signal for Satellite 3	J4	GND	Secondary side ground
K1	PWM4Y	PWM signal for Satellite 4	K4	GND	Secondary side ground
L1	PWM5Y	PWM signal for Satellite 5	L4	FAULT#	Programable fault indicator
M1	N/A	No Pad present	M4	START6	Start for Satellite 6
N1	N/A	No Pad present	N4	START3	Start for Satellite 3
P1	N/A	No Pad present	P4	GND	Secondary side ground
R1	N/A	No Pad present	R4	GND	Secondary side ground
A2	N/A	No Pad present	A5	N/C (-In)	Pad present, N/C, Thermal via
B2	N/A	No Pad present	B5	N/C (-In)	Pad present, N/C, Thermal via
C2	N/A	No Pad present	C5	N/A	No Pad present
D2	VSRMON	Feed-forward sensor input	D5	TMP2	Temperature sense Satellite 2
E2	PUCCS	Primary side microcontroller chip-select	E5	CSP2	Current sense +ve Satellite 2
F2	PUCCK	Primary side u-controller clk	F5	CSN2	Current sense -ve Satellite 2
G2	PWM1X	PWM signal for Satellite 1	G5	GND	Secondary side ground
H2	PWM2X	PWM signal for Satellite 2	H5	GND	Secondary side ground
J2	PWM3X	PWM signal for Satellite 3	J5	GND	Secondary side ground
K2	PWM4X	PWM signal for Satellite 4	K5	GND	Secondary side ground
L2	PWM5X	PWM signal for Satellite 5	L5	VR_RDY	Voltage regulator ready signal
M2	N/A	No Pad present	M5	VREG	Optional regulator input
N2	N/A	No Pad present	N5	START2	Start for Satellite 3

Signal Pin Assignments - Continued

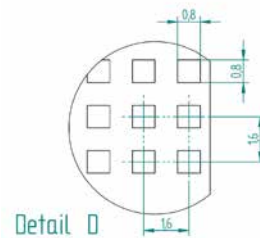
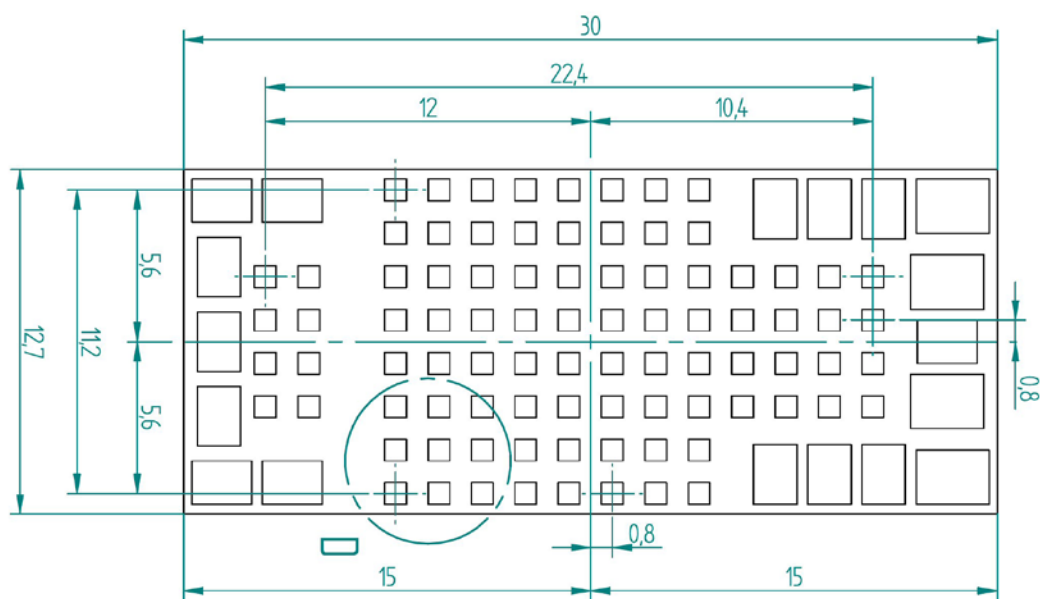
Pin #	Pin Name	Termination Pin Function	Pin #	Pin Name	Pin Function
P2	N/A	No Pad present	P5	GND	Secondary side ground
R2	N/A	No Pad present	R5	GND	Secondary side ground
A3	N/C (-In)	Pad present, N/C, Thermal via	A6	N/C (-Vin)	Pad present, N/C, Thermal via
B3	N/C (-In)	Pad present, N/C, Thermal via	B6	N/C (-Vin)	Pad present, N/C, Thermal via
C3	N/A	No Pad present	C6	N/A	No Pad present
D3	TMP5	Temperature sense Satellite 5	D6	TMP4	Temperature sense Satellite 4
E3	CSP5	Current sense +ve Satellite 5	E6	CSP4	Current sense +ve Satellite 4
F3	CSN5	Current sense -ve Satellite 5	F6	CSN4	Current sense -ve Satellite 4
G3	GND	Secondary side ground	G6	GND	Secondary side ground
H3	GND	Secondary side ground	H6	GND	Secondary side ground
J3	GND	Secondary side ground	J6	GND	Secondary side ground
K3	GND	Secondary side ground	K6	GND	Secondary side ground
L3	PWM6X	PWM signal for Satellite 6	L6	EN	Enable Pad
M3	PWM6Y	PWM signal for Satellite 6	M6	VCTRL	Controller supply voltage
N3	START5	Start for Satellite 5	N6	START4	Start for Satellite 4
P3	GND	Secondary side ground	P6	GND	Secondary side ground
R3	GND	Secondary side ground	R6	GND	Secondary side ground
A7	N/A	No Pad present	A8	N/A	No Pad present
B7	N/A	No Pad present	B8	N/A	No Pad present
C7	N/A	No Pad present	C8	N/A	No Pad present
D7	TMP6	Temperature sense Satellite 6	D8	TMN	Temp sense -ve common for TMN of all Satellites.
E7	CSP6	Current sense +ve Satellite 6	E8	+S	Remote sense +ve
F7	CSN6	Current sense -ve Satellite 6	F8	-S	Remote sense -ve
G7	SALERT	PMBus Alert	G8	SADDR	PMBus address setting
H7	SDA	PMBus data	H8	SCL	PMBus clock
J7	SVDAT / AVSMDAT	SVID data / AVS MData	J8	SVCLK / AVSCLK	SVID clock / AVS clock
K7	VR_HOT#	SVI VR hot	K8	SVALRT / AVSSDAT	SVID alert / AVS SData
L7	VCCIO_OK	VCC fault shutdown – immediate unit shutdown	L8	PAD_ALERT#	SVI Pad Alert #
M7	N/A	No Pad present	M8	N/A	No Pad present
N7	N/A	No Pad present	N8	N/A	No Pad present
P7	N/A	No Pad present	P8	N/A	No Pad present
R7	N/A	No Pad present	R8	N/A	No Pad present

1. VSRMON; should have a local pull down resistor (perhaps in parallel with a capacitor) to GND, also connected to Vin via a resistor in non-isolated applications.
2. All CSP* and CSN*; As an option it should be possible to mount a capacitor between the CSxP and the CSxN pads. If not used CSxP should be shorted to CSxN and then to Vout.
3. PM_ADDR; Should have a local pull-down resistor to GND
4. VDAT and SVCLK; Should have a local pull-up resistor to 5V

Mechanical Outline, Pin Locations and Dimensions

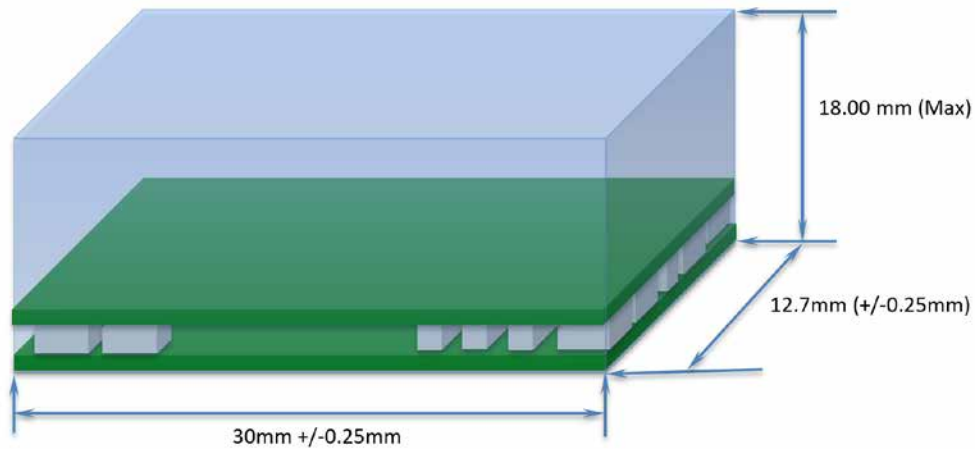


Detail C



Detail D

PSA Standard Product Envelop Definition



Module Address Settings

PMBus Address	Resistor_down (on the Host board)		Resistor_up (inside the Main unit)	
	Resistor Series	Pin Function	Resistor Series	Pin Name
B8	E12	OPEN	E12	10,000
B4	E12	220,000	E12	10,000
B2	E12	120,000	E12	10,000
B0	E12	82,000	E12	10,000
E8	E24	62,000	E12	10,000
E4	E96	48,700	E12	10,000
E2	E12	39,000	E12	10,000
E0	E12	33,000	E12	10,000
D8	E48	27,400	E12	10,000
D4	E48	23,700	E12	10,000
D2	E96	20,500	E12	10,000
D0	E48	17,800	E12	10,000
C8	E96	15,800	E12	10,000
C4	E96	13,700	E12	10,000
C2	E48	12,100	E12	10,000
C0	E96	10,700	E12	10,000

WORLDWIDE OFFICES

Americas

2900 S.Diablo Way
Tempe, AZ 85282
USA
+1 888 412 7832

Europe (UK)

Barberry House, 4 Harbour Bldgs,
Waterfront West, Brierly Hill
West Midlands, DY5 1LX
United Kingdom
+44 (0) 1384 842 211

Asia (HK)

14/F, Lu Plaza
2 Wing Yip Street
Kwun Tong, Kowloon
Hong Kong
+852 2176 3333

ARTESYN[™]
EMBEDDED TECHNOLOGIES

www.artesyn.com

Artesyn Embedded Technologies, Artesyn and the Artesyn Embedded Technologies logo are trademarks and service marks of Artesyn Embedded Technologies, Inc. All other names and logos referred to are trade names, trademarks, or registered trademarks of their respective owners. Specifications are subject to change without notice. © 2019 Artesyn Embedded Technologies, Inc. All rights reserved. For full legal terms and conditions, please visit www.artesyn.com/legal.

For more information: www.artesyn.com/power
For support: productsupport.ep@artesyn.com

ADC100M DS 22Feb2019