

Centaurus 5

- 64 PWM Power Outputs
- Configurable output grouping
- Expandable I/O with EtherCAT™
- Ultimate in power control & configuration



Image is for illustration purpose only

Centaurus 5 offers 64 power outputs operating at fixed currents, all with PWM capability, delivering a greater amount of power outputs and configurability than its predecessors. Outputs and LED indicators can be grouped and controlled to meet user specific requirements, configured using an intuitive and simple to use software interface, and pin assignment is made quick and easy to understand using a graphical representation on each connector — all within Cosworth Toolset. New for Cosworth's power box range is support for ethernet driven displays (CDU4.3, 7 & 10.3) and I/O expansion via EtherCAT™, providing market leading levels of synchronicity with the SJU (Synchronous Junction Unit). Cosworth's Auto-Coding platform is available on the Centaurus 5, allowing for custom strategies to be developed in a MATLAB/Simulink® environment then deployed on the Centaurus 5.

Electrical Data	
Operating Voltage	6 to 31.5V
Current Consumption	925mA @ 14
Load Dump Protection	ISO 16750-2:2012 pulse 5a, R _i (min) = 1Ω"
Operating Temp	-20°C to + 70°C
Storage Temp	-20°C to + 80°C

Communication	
Ethernet	2x 100MB/s
CAN Ports	2x Independent CAN Ports Max BAUD rate; 1MBit/s 128x Message Buffers Per Port Selectable 120Ω termination
LIN Ports	2x LIN Bus Master
EtherCAT	1x EtherCAT Master
Serial Debug Ports	1x Bi-Directional RS232 Fixed @ 115200 BAUD Rate

Mechanical Data	
Size	235 x 172 x 33.55 mm
Weight	1250 grams
Environmental	IP66
Material	6802-T2 Anodized
Vibration	Cosworth DV-V(c)

I/O	
HSD Outputs	16x 2.5A 488Hz PWM
	32x 7.5A 244Hz PWM
	5x 12A 122Hz PWM
	7x 25A 122Hz PWM
	2x 25A 122Hz PWM with Wiper
LSD Outputs	2x 25A 244Hz PWM with Hi-Surge
	5x 488Hz @ 0.2A
Switch Inputs	6x Switch Inputs to VBatt or GND
Analogue Inputs	4x 0 - 5V
	Filtered 3dB freq of ~15.9kHz
	2.1M Ω Impedance 12 bit Resolution
Sensor Supplies	4x Selectable 5/12V
	100mA @ 5V 700mA @ 12V
Motion Sensor	3-Axis Accelerometer ±16g
Internal Monitoring	Battery Voltage
	Box Temperature
	Internal PSU's
	Excitation Voltage
	Power Output Voltage
	Power Output Current
LEDs	Power Output Status
	6x System Status LEDs 64x Power Output Status LEDs



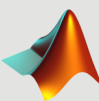
Document: 29I-610100-P	Template: CEL-TE014	Page 1
Rev: 0N DRAFT	Doc Issue: 1	All Information in this document is correct as of 2021-10-04

Product Information

Variant Matrix—Token Logging Options			
Variant	520	540	560
Part Number	01P-610100-520	01P-610100-540	01P-610100-560
Capacity (MB)	1,024	1,024	6,140
Bandwidth (bytes/sec)	50,000	50,000	250,000
Cont. Sampling Rate (Hz)	500	500	1,000
Burst Sampling Rates (Hz)	500	500	1,000
Total no. of Channels	2,048	2,048	2,048
Maths Channels	500	500	750
Logic Channels	Enabled	Enabled	Enabled
Analogue Inputs	4	4	4
Digital Inputs	6 (level)	6 (level)	6 (level)
CAN Ports	2	2	2
LIN Ports	2	2	2
Ethernet (100MB/s)	2	2	2
EtherCAT Ports	-	-	1
Ethernet Displays	-	48	48
Auto Coding Customer	Enabled	Enabled	Enabled
Auto Coding Developer	Upgrade Option	Upgrade Option	Upgrade Option

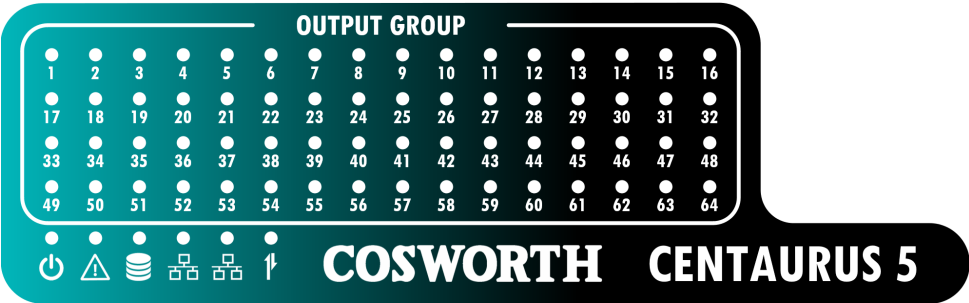
Ordering Information	
Centaurus 5	01I-610100
520 Token	01P-610100-520
540 Token	01P-610100-540
560 Token	01P-610100-560
Auto Coding Developer Token	01P-610110-AC-DEV
Carry Case	N/A

Compatible Devices	
CDU4.3	01D-640040
CDU7.0	01D-640040
CDU10.3	01D-640060
Badenia 5	01L-650080
CLU	01L-650001
RSP10	01D-620120-C
RSP20	01D-620130-C
SJU	01L-650050
Antares 8	01E-501120

Software Information		
	Pi Toolset	Configuration software for power control and logging (v8 and above)
	Pi Toolbox	Professional Data Analysis
	Auto-Coding via MATLAB/Simulink®	Customer auto-coding area available via MATLAB/Simulink® and Cosworth Workspace Editor

Document: 29I-610100-P	Template: CEL-TE014	Page 2
Rev: 0N DRAFT	Doc Issue: 1	All Information in this document is correct as of 2021-10-04

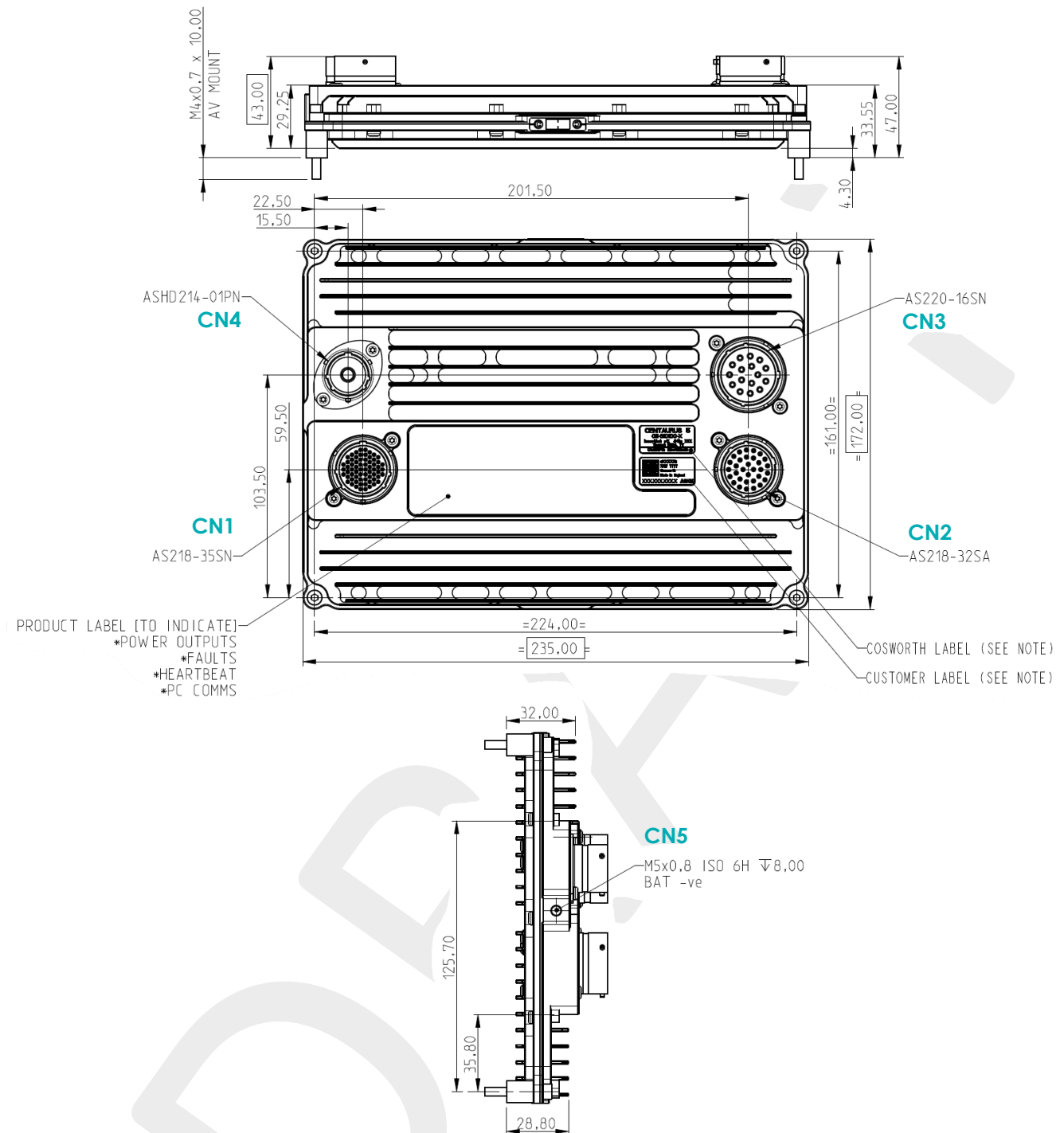
LED Indicator Definitions



Legend	Function	Sequence	
	No Power to the Unit	Off	
	Initialising, waiting for clock sync	On	
	Unit operational	50% Flash (1Hz)	
	During startup a single flash LED test	Long Single Pulse	
	Normal running operation	Off	
	Logger error or no dataset loaded	On	
	During startup a single flash LED test	Long Single Pulse	
	Normal running operation	Off	
	Logger full and overwriting data	On	
	100Base T, No connection established	Off	
	Connection established	50% Flash (1Hz)	
	Communication active	Flickering	
	100Base T, No connection established	Off	
	Connection established	50% Flash (1Hz)	
	Communication active	Flickering	
	EtherCAT, No connection established	Off	
	Connection established	50% Flash (1Hz)	
	Communication active	Flickering	

Legend	Function	Sequence	
● 1	Output group Off	Off	
	Output group On	On	
	Output group fault	50% Flash (5Hz)	

DIMENSIONS



Installation

- Ensure unit is protected against severe vibrations by mounting using supplied AV mounting kit. Also ensure unit is not fouling other structures which may experience severe vibrations.
- Ensure unit is positioned in an area with sufficient cooling air flow to prevent overheating as per specification
- Ensure unit is mounted away from sources of electrical interference.
- Ensure unit is mounted in position where unit will not come into contact with water.
- Ensure the case is connected to ground via CN5 with size cable.

Document: 29I-610100-P	Template: CEL-TE014	Page 4
Rev: 0N DRAFT	Doc Issue: 1	All Information in this document is correct as of 2021-10-04

Connector Information

Please note, pin allocation is in functional order not pin number order.

CN1

Connector	Mating Connector
AS218-35SN-943B	AS618-35PN

Connector Pinout

Connector		Function		Description
Pin #	Pin Current	520/540	560	
34	5A	DBatt+VE	DBatt+VE	Digital supply +VE ¹
43	5A	DBatt-VE	DBatt-VE	Digital Supply -VE ²
28	5A	Shutdown#	Shutdown#	Active Low System Shutdown ³
41	5A	ETH1-RX+	ETH1-RX+	Ethernet 1 100BaseT for PC / expansion comms
42	5A	ETH1-RX-	ETH1-RX-	
39	5A	ETH1-TX+	ETH1-TX+	
40	5A	ETH1-TX-	ETH1-TX-	
23	5A	ETH2-RX+	ETH2-RX+	Ethernet 2 100BaseT for PC / expansion comms
24	5A	ETH2-RX-	ETH2-RX-	
16	5A	ETH2-TX+	ETH2-TX+	
15	5A	ETH2-TX-	ETH2-TX-	
2	5A	N/A	ECAT-TX+	EtherCAT 100BaseT for system expansion
6	5A	N/A	ECAT-TX-	
7	5A	N/A	ECAT-RX+	
3	5A	N/A	ECAT-RX-	
47	5A	CANH1	CANH1	CAN port 1 with 120Ohm software selectable termination
48	5A	CANL1	CANL1	
50	5A	CANH2	CANH2	CAN port 2 with 120Ohm software selectable termination
49	5A	CANL2	CANL2	
32	5A	LIN1	LIN1	LIN bus master 1
33	5A	LIN2	LIN2	LIN bus master 2
29	5A	DEBTX	DEBTX	Debug comms
38	5A	DEBRX	DEBRX	
17	5A	AIN1	AIN1	4x 0-5V
27	5A	AIN2	AIN2	
10	5A	AIN3	AIN3	
18	5A	AIN4	AIN4	
26	5A	Switch Input 1	Switch Input 1	6x Switch Inputs Software selectable for switch to Gnd or VBatt
25	5A	Switch Input 2	Switch Input 2	
35	5A	Switch Input 3	Switch Input 3	
36	5A	Switch Input 4	Switch Input 4	
45	5A	Switch Input 5	Switch Input 5	
44	5A	Switch Input 6	Switch Input 6	

Document: 29I-610100-P	Template: CEL-TE014	Page 5
Rev: 0N DRAFT	Doc Issue: 1	All Information in this document is correct as of 2021-10-04

Connector Information

Please note, pin allocation is in functional order not pin number order.

CN1 Continued

Connector	Mating Connector
AS218-35SN-943B	AS618-35PN

Connector Pinout

Connector		Output				Description
Pin #	Pin Current	Name	Current	PWM	Surge Time	
1	5A	EXT5/12PSU1	100mA @5V 700mA @12V		N/A	4x Sensor Excitations
8	5A	EXT5/12PSU2				
14	5A	EXT5/12PSU3				
9	5A	EXT5/12PSU4				
5	5A	Sensor Gnd	700mA	N/A	N/A	4x Sensor Gnds ⁴
13	5A	Sensor Gnd				
37	5A	Sensor Gnd				
46	5A	Sensor Gnd				
65	5A	Output 1	2.5A	488Hz	2ms	Output Set 2 16x 2.5A Standard Outputs
60	5A	Output 2				
64	5A	Output 3				
59	5A	Output 4				
58	5A	Output 5				
61	5A	Output 6				
56	5A	Output 7				
55	5A	Output 8				
53	5A	Output 9				
51	5A	Output 10				
66	5A	Output 11				
57	5A	Output 12				
63	5A	Output 13				
54	5A	Output 14				
52	5A	Output 15				
62	5A	Output 16				
19	5A	PWM LSD1	200mA	488Hz	N/A	5x Low Side Drive Outputs
11	5A	PWM LSD2				
4	5A	PWM LSD3				
12	5A	PWM LSD4				
20	5A	PWM LSD5				
21	5A	N/A	
22	5A	N/A				
30	5A	N/A				
31	5A	N/A				

Document: 29I-610100-P	Template: CEL-TE014	Page 6
Rev: 0N DRAFT	Doc Issue: 1	All Information in this document is correct as of 2021-10-04

Connector Information

Please note, pin allocation is in functional order not pin number order.

CN2

Connector	Mating Connector
AS218-32SA-943B	AS618-32PA

Connector Pinout

Connector		Output				Description
Pin #	Pin Current	Name	Current	PWM	Surge Time	
X	7.5	Output 17	7.5A	244Hz	2ms	Output Set 1 32x 7.5A Standard Outputs
E	7.5	Output 18				
W	7.5	Output 19				
V	7.5	Output 20				
B	7.5	Output 21				
N	7.5	Output 22				
U	7.5	Output 23				
M	7.5	Output 24				
A	7.5	Output 25				
b	7.5	Output 26				
T	7.5	Output 27				
c	7.5	Output 28				
C	7.5	Output 29				
L	7.5	Output 30				
f	7.5	Output 31				
a	7.5	Output 32				
D	7.5	Output 33				
K	7.5	Output 34				
g	7.5	Output 35				
h	7.5	Output 36				
R	7.5	Output 37				
J	7.5	Output 38				
d	7.5	Output 39				
Z	7.5	Output 40				
P	7.5	Output 41				
H	7.5	Output 42				
j	7.5	Output 43				
Y	7.5	Output 44				
S	7.5	Output 45				
G	7.5	Output 46				
e	7.5	Output 47				
F	7.5	Output 48				

Document: 29I-610100-P	Template: CEL-TE014	Page 7
Rev: 0N DRAFT	Doc Issue: 1	All Information in this document is correct as of 2021-10-04

Connector Information

Please note, pin allocation is in functional order not pin number order.

CN3

Connector	Mating Connector
AS220-16SN-943B	AS620-16PN

Connector Pinout

Connector		Output				Description
Pin #	Pin Current	Name	Current	PWM	Surge Time	
S	25A	Output 55	12A	122Hz	2ms	Output Set 4 5x12A Standard Outputs
R	25A	Output 59				
M	25A	Output 60				
N	25A	Output 61				
P	25A	Output 63				
D	25A	Output 51	25A	122Hz	2ms	Output Set 6 2x 25A Outputs with Wiper Support ⁵
B	25A	Output 52				
F	25A	Output 53	25A	122Hz	2ms	Output Set 3 7x 25A Standard Outputs
G	25A	Output 54				
K	25A	Output 56				
J	25A	Output 57				
H	25A	Output 58				
C	25A	Output 62				
E	25A	Output 64				
A	25A	Output 49	25A	244Hz	2ms	Output Set 5 2x 25A Outputs with High Surge Support ⁶
L	25A	Output 50				

Connector Information

Please note, pin allocation is in functional order not pin number order.

CN4

Connector	Mating Connector
ASHD214-1PN-974C	ASHD614-1SN-C35

Connector Pinout

Connector		Input			Description
Pin #	Pin Current	Name	Surge Current		
			3hrs	2min	
1	150A	Batt+	200A	250A	35mm ² Cable must be used to achieve ^{1,7}

CN5

Connector	Mating Connector
M5x0.8x8mm	M5 Bolt

Connector Pinout

Connector		Input			Description
Pin #	Pin Current	Name	Surge Current		
			3hrs	2min	
1	150A	Batt-	200A	250A	35mm ² Cable must be used to achieve ⁸

Recycling and Environmental Protection

Cosworth Electronics is committed to conducting its business in an environmentally responsible manner and strive for high environmental standards.

- **Manufacture**

Cosworth products comply with the appropriate requirements of the Restriction of Hazardous Substance (RoHS)

- **Disposal**

Electronic equipment should be disposed of on accordance with the regulations in force and in particular on accordance with the Waste in Electrical and Electronic Equipment directive. (WEEE).

- **Battery**

This equipment contains a rechargeable battery (Manganese Silicon Lithium).

The equipment may be returned to Cosworth Electronics for a replacement battery. A charge will be made for this service.

To remove the battery for recycling:

Remove the case(s).

Remove printed circuit boards from the case.

Remove the battery from the printed circuit board.

Dispose of the battery in accordance with the regulations in force.

Removal of the battery will result in the warranty of the unit being void.

- 1 CN1 Pin 34 DBatt+ will only supply power to the processor leaving the outputs unpowered, This can be used for a bench supply when loading code or alternatively a backup battery can be connected to allow the processor to remain powered in the event of a main battery Supply shutdown.
- 2 CN1 Pin 43 DBatt- is common with CN5 Batt- this pin can be used for a bench supply when loading code, this pin is not intended for main power Gnd.
- 3 CN1 Pin 28 Shutdown# is designed allow the user to shutdown the unit via a single switch to Gnd.
- 4 CN1 Pin 5, 13, 37, 46 Sensor Gnd are all common within the unit and connected to case.
- 5 CN3 Pin D, B Output 51 and 52 are both fitted with additional circuitry to allow for the direct connection to wiper motors allowing for "Freewheel" and "Park".
- 6 CN3 Pin A, L Output 49 and 50 are both fitted with additional circuitry to allow for high surge conditions with capacitance loads, eg 10000uf
- 7 CN4 Pin 1 Batt+ will supply power to both the processor and outputs. This should be connected to a 35mm² cable to ensure the full rating is achieved.
- 8 CN5 Pin 1 Batt- is required for load dump situations and should be connected to 35mm² cable to ensure the full rating is achieved.

Document: 29I-610100-P	Template: CEL-TE014	Page 10
Rev: 0N DRAFT	Doc Issue: 1	All Information in this document is correct as of 2021-10-04