

CON-DSS

BIDIRECTIONAL DC-DC CONVERTER



POSITIVE PROBLEM SOLVING **+ =**

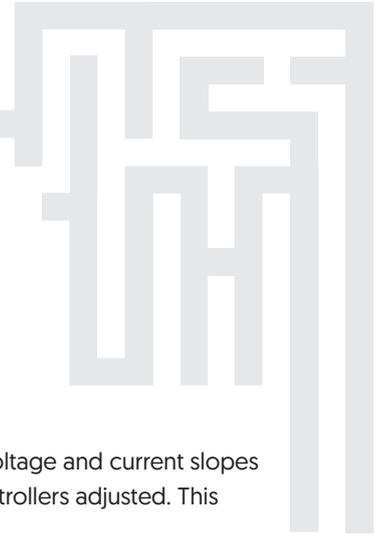
The CON-DSS is modular bidirectional DC-DC Converter. This new integrated approach features high dynamics enabling the user to switch quickly between quadrants.

The low side of the converter features a user adjustable input/output, making it extremely versatile for a broad range of applications. As standard each module is built with isolated analogue and RS-232 interfaces. Other available interfaces are detailed in the options table overleaf. A comprehensive software program is provided for operation over the serial or LAN interface.

- + Stack up to 8 Units in Master/Slave**
- + Series Operation up to 1500Vdc**
- + GUI with Built-in Scope Function**
- + Adjustable Internal Resistance**
- + Optional Function Generator**
- + User Controllable Output**

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FURTHER DETAILS

Along with standard output settings the GUI gives access to a host of second level parameters. Voltage and current slopes can be set and protection levels tweaked. Sense compensation can be programmed and PID controllers adjusted. This helps ensure that the CON-DSS can be optimised for a particular application.

An optional embedded function generating engine is an ideal tool for creating and implementing complex waveforms. Standard sine, square and sawtooth shapes can be plotted against time for voltage, current and power outputs.

An inbuilt 8 channel recording scope allows users to see what is actually on the output. Trigger events, such as a particular current or power level, can be selected.

High power systems can be specified. The modular concept means systems can be easily expanded or reconfigured as required. A full cabinet integration service is available on request.

HIGHLIGHTED FEATURES



RUGGEDISED ADAPTATIONS

Ruggedisation of units to military standards is possible for shipborne & vehicle projects. This ensures suitability in harsh conditions by providing protection against shock, vibration & humidity.



FUNCTION GENERATOR

Complex DC waveforms can be implemented through an embedded function generator. Standard square, sawtooth, sine & user defined shapes can be plotted against time. V/I & V/W relationships can also be programmed.



CABINET INTEGRATIONS

Our design specialists will look to find elegant solutions to integrate systems into set cabinet dimensions. Flight case integrations are also possible to provide mobile power equipment.



INTERFACES

A variety of interfaces are available providing unrivalled flexibility for users. Each system can be configured with multiple interfaces.



TECHNICAL DATA

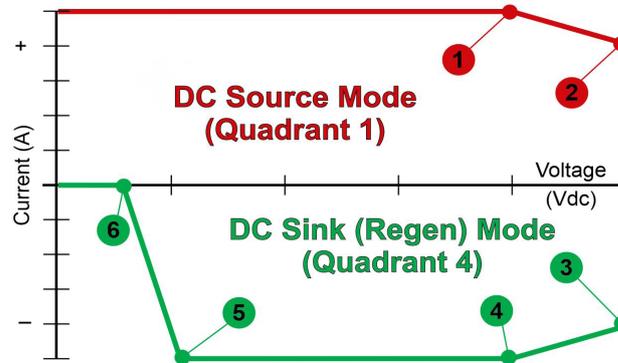
TECHNICAL DATA	
DC line voltage	560 - 682Vdc
DC input ripple voltage	<2% Vpp, <370Hz
DC line connection type	Positive, Negative, PE [no neutral]
Q1 input current	56ADC Avg
Leakage current (+,- to PE)	<20mA
Isolation (Input to Output & Line to Case)	4000Vrms & 2500Vrms (ensure correct polarity, as polarity protection is not included)
EMC Emissions and Immunity	EN 61000-6-4 & EN61000-6-2
LVD for Power Installations	EN50178
Voltage Range	0 to 100% of V_{MAX}
Current Range	0 to $\pm 100\%$ of I_{MAX}
Power Range	0 to $\pm 100\%$ of P_{MAX}
Internal Resistance Range	Adjustable $\Omega_{MAX} = (V_{NOM} / I_{NOM})$
Standard Interfaces	Analogue & RS-232
Optional Interfaces	HMI, USB, IEEE, RS-422, Ethernet, CANmp & CANopen
Voltage Sense Compensation	0 - V_{MAX}
Efficiency	Up to 94%
Load Regulation (CV, CC)	< $\pm 0.1\%$ of full scale value
Line Regulation (CV, CC)	< $\pm 0.1\%$ of full scale value
Temperature Coefficient (CV)	<0.02% of full scale value per°C
Temperature Coefficient (CC)	<0.03% of full scale value per°C
Response Time (Typical 10-90% Load Step Change)	1.1ms*
Over Voltage Protection	0 - 110% of V_{MAX}
Over Current Protection	0 - 110% of I_{MAX}
DC Noise (40kHz-1MHz)	<1Vpp (<0.2Vrms)
Stability (CV, CC)	< $\pm 0.05\%$ of full scale value
Recommended Operating Temperature	5 - 40°C (extended with ruggedisation)
Weight	97kg
Dimensions	19" \times 9U \times 634mm (W \times H \times D), a full cabinet integration service is available on request

* Typical recovery time to within <5 % band of set value for a load (or set value) step 10-90 %, ohmic load, at constant line input and temperature.

Extended technical data is available on request.

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SELECTION TABLE

Part Number	Maximum Power	High Side [Line Side] Voltage	Low Side [Adjustable Side] Source Voltage	Low Side [Adjustable Side] Sink Voltage	Low Side [Adjustable Side] Current Range
CON-DSS 20-65	20kW	560 - 682Vdc	0 - 65Vdc	6 - 65Vdc*	0 to ± 385A
CON-DSS 20-130	20kW	560 - 682Vdc	0 - 130Vdc	12 - 130Vdc*	0 to ± 192A
CON-DSS 20-400	20kW	560 - 682Vdc	0 - 400Vdc	50 - 400Vdc*	0 to ± 63A
CON-DSS 20-500	20kW	560 - 682Vdc	0 - 500Vdc	40 - 500Vdc*	0 to ± 50A
CON-DSS 20-600	20kW	560 - 682Vdc	0 - 600Vdc	50 - 600Vdc*	0 to ± 40A
CON-DSS 32-65	32kW	560 - 682Vdc	0 - 65Vdc	6 - 65Vdc*	0 to ± 600A
CON-DSS 32-130	32kW	560 - 682Vdc	0 - 130Vdc	12 - 130Vdc*	0 to ± 308A
CON-DSS 32-400	32kW	560 - 682Vdc	0 - 400Vdc	50 - 400Vdc*	0 to ± 100A
CON-DSS 32-500	32kW	560 - 682Vdc	0 - 500Vdc	40 - 500Vdc*	0 to ± 80A
CON-DSS 32-600	32kW	560 - 682Vdc	0 - 600Vdc	50 - 600Vdc*	0 to ± 66A

* The maximum current that can be taken derates as the voltage reduces beneath the lower level. Please see the operating range table below.

OPERATING RANGE

Part Number	Point 1 [Q1]	Point 2 [Q1]	Point 3 [Q4]	Point 4 [Q4]	Point 5 [Q4]	Point 6 [Q4]
CON-DSS 20-65	53V / 385A	65V / 308A	65V / -308A	53V / -385A	6V / -385A	2V / 0A
CON-DSS 20-130	104V / 192A	130V / 154A	130V / -154A	104V / -192A	12V / -192A	4V / 0A
CON-DSS 20-400	317.5V / 63A	400V / 63A	400V / -50A	317.5V / -63A	50V / 63A	20V / 0A
CON-DSS 20-500	400V / 50A	500V / 40A	500V / -40A	400V / -50A	40V / -50A	15V / 0A
CON-DSS 20-600	500V / 40A	600V / 40A	600V / -33.3A	500V / -40A	50V / -40A	30V / 0A
CON-DSS 32-65	53V / 600A	65V / 492A	65V / -492A	53V / -600A	6V / -600A	2V / 0A
CON-DSS 32-130	104V / 308A	130V / 246A	130V / -246A	104V / -308A	12V / -308A	4V / 0A
CON-DSS 32-400	320V / 100A	400V / 80A	400V / -80A	320V / -100A	50V / -100A	20V / 0A
CON-DSS 32-500	400V / 80A	500V / 64A	500V / -64A	400V / -80A	40V / -80A	15V / 0A
CON-DSS 32-600	477.6V / 66A	600V / 53.3A	600V / -53.3A	477.6V / -66A	50V / -66A	30V / 0A

OPTIONS

CODE	DESCRIPTION
/4111	Ruggedisation specification for vehicle mount projects
/HMI	Front panel control and display
/LCAL	Integrated liquid cooling of the power stage
/ISR	Integrated safety relay for shutdown to EN954-1 Cat 3/4
/IRXTS	Maximum adjustable internal resistance range extended to 12,000mΩ
/TFE	Integrated function generating engine with application area (parametric) programming
/SAS	Solar array simulation GUI (includes TFE option)
/BATCONTOL	Dedicated battery charge/discharge GUI with adaptive sampling & temp measurement
/BATSIM	GUI simulating battery characteristics with adjustable parameters
/CAPSIM	GUI simulating the electrical characteristics of capacitors with adjustable parameters
/CANCABLE	Connecting cable for multi-unit operation
/RCU	Remote control unit with up to 40m of cable
/PACOB	Protection against accidental contact of output current bars
/RS232REAR	RS-232 on front and rear panel (time shared mode with RS-232 on front)
/RS422	Differential serial interface (time shared mode with RS-232)
/IEEE	Integrated IEEE488.2 (GPIB) interface. (RS-232 only possible on rear panel)
/CANOPEN	Integrated CAN/CANopen interface. (RS-232 only possible on rear panel)
/CANMP	Integrated CANmp interface. (RS-232 only possible on rear panel)
/OPTOLINK	Rear panel integrated fibre optic interface. (RS-232 only possible on rear panel)
/USB	Integrated USB interface. (RS-232 only possible on rear panel)
/ETH	Ethernet interface with listener and talker functions over a LAN (RS232REAR required)
/FILTER	Front panel air filter & frame arrangement
/CAN+USB	Combined CAN and USB interface
/RPP	Protection against reverse polarity of the load

Every effort is made to ensure that the information provided within this technical summary is accurate. However, ETPS Ltd must reserve the right to make changes to the published specifications without prior notice. Where certain operating parameters are critical for your application we advise that they be confirmed at the time of order. ETPS Ltd specialises in modifying its proven platforms to suit your needs. Please contact our office if your requirement is non-standard. Please note that your actual unit may differ from those shown.



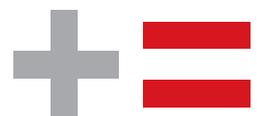
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ETPS engineer electronic power supply and testing systems. Our problem solving skills provide the spark of innovation to some of the world's leading technology brands.



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