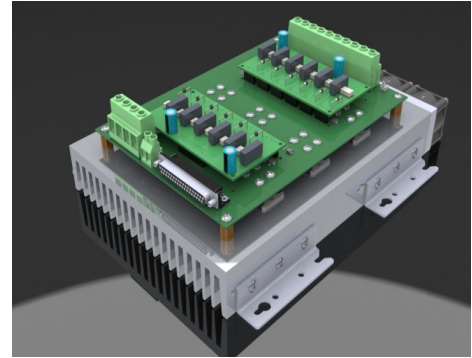


PRELIMINARY TECHNICAL INFORMATION

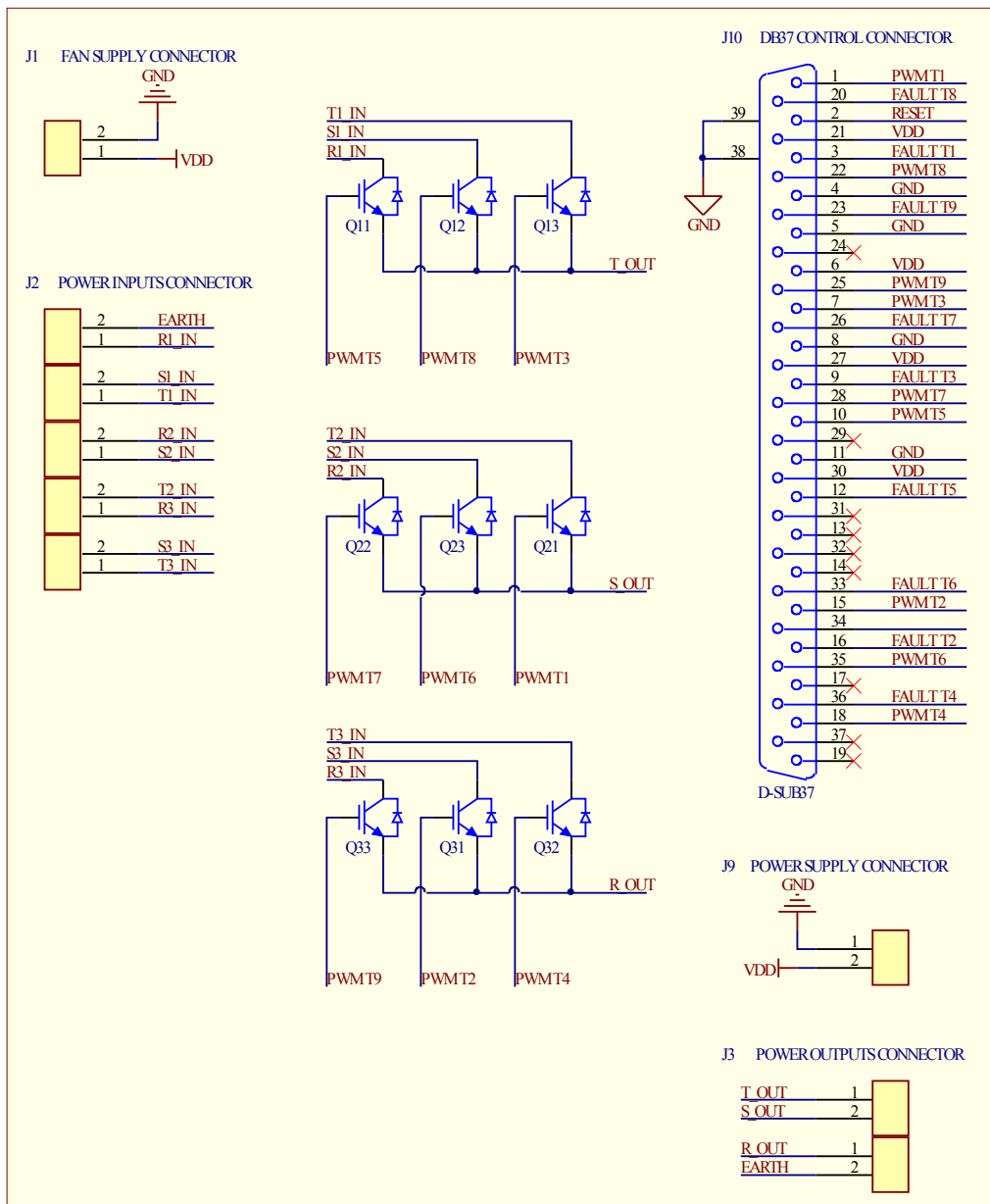
HIGHLIGHTS

- IGBT VSC topology.
- Optoisolated IGBT drivers included.
- Compact design.
- Ready to use.



non-contractual photo

POWER STACK SCHEMATIC:



110929 Rev.:1

BRIEFING

Topology	VSC
Market	industrial
Cooling system	forced
Driver system	SCiCoreDrive62
Parameters monitorized	--
Max Voltage input	400 V _{RMS}
Max. output current per phase	fsw=5kHz, TJ<125°C Tamb=40°C fo=50Hz, PF=0,85, m=1, Vin =0Vrms 50 A

POWER STACK GENERAL CHARACTERISTICS

Description	symbol	notes/test conditions	Min	Typ	Max	Units
Input DC supply voltage	V _{DD}		10,8	12	13,2	V _{DC}
Input DC supply current	I _{SO}			1,3		A _{DC}
Input AC voltage	V _{IN,RMS}	network voltage (+15%)		400	460	V _{RMS}
Max AC voltage	V _{ACIN}				400	V _{RMS}
Output current per phase	I _{U,V,W}	fsw=5kHz, TJ<125°C Tamb=40°C fo=50Hz, PF=0,85, m=1, Vin rms=0V			50	A _{RMS}
IGBT maximum junction temperature	T _{Jmax}				150	°C
IGBT temp. under switching conditions	T _{J(sw)}		-40		125	°C
Storage temperature	T _{stg}		-40		85	°C
Operating temperature	T _{op}		-25		85	°C
Power-to-control isolation voltage	V _{ISOpc}	50 Hz @1min/ note 1	3			kV _{AC}
Module isolation voltage	V _{ISOmod}	50 HZ @1min/ note 2	2,5			kV

COOLING SYSTEM CHARACTERISTICS

Description	symbol	notes/test conditions	Typical	Units
Type		forced		
Fan system supply voltage	V _{FAN}		12	V _{DC}
Fan system consumption	I _{FAN}		750	mA

ENVIRONMENTAL SPECIFICATIONS

Description	
Protection grade (EN-60529 / CEI529 / UNE-20324)	IP-00
Humidity max.	50% RH @ 35°C / 90% RH @ 20°C
Pollution degree	III

MOUNTING CONSIDERATIONS

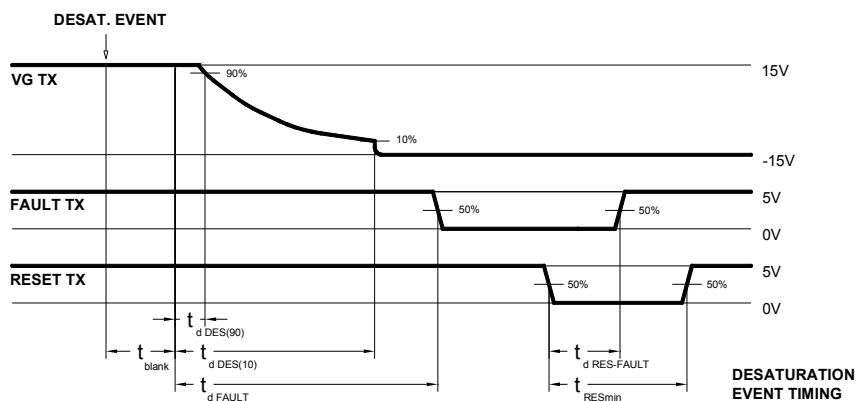
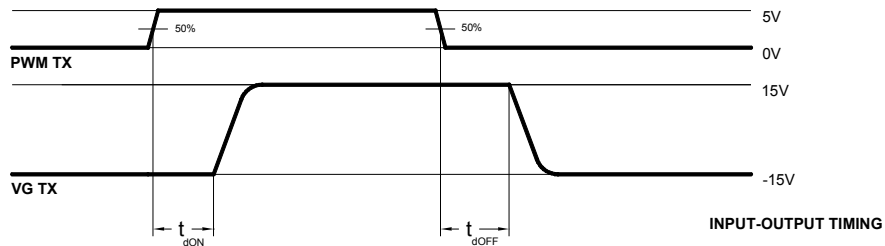
It's necessary a minimum distance of 100 mm with regard to the envelope. The free air circulation should be guaranteed. Avoiding the heat sources of nearby to assembly.

In the real applications it is important to consider a safety margin with regarding the working current, we recommend a margin of the 20%.

For critical cases (24 hours work, repetitive overloads...), margins of the 30% to 50% are used.

DRIVERS GENERAL CHARACTERISTICS

Description	symbol	notes/test conditions	min.	typ.	max.	units
Logic low input voltages (PWM & reset)	$V_{IN,RESET}$		0		0,8	V
Logic high input voltages (PWM & reset)	$V_{IN,RESET}$		2		5	V
Fault output current	I_{FAULT}				8	mA
Fault output current						
high output propagation time	$t_{d ON}$			300		ns
low output propagation time	$t_{d OFF}$			440		ns
desat. detection to FAULT output delay	$t_{d FAULT}$	$C_G=10nF$ $R_G=15\Omega$		320		ns
blanking time	t_{blank}	$f_{sw}=10kHz$		460		ns
desat. detection to 10% turn off	$t_{d DES(10)}$			1,8	5	μs
desat. detection to 90% turn off 90%	$t_{d DES(90)}$					
reset to fault	$t_{d RES_FAULT}$		3	7	20	μs
minimum pulse width for RESET	PW_{RES_min}		0,1			μs



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EXTERNAL CONNECTIONS

Signal connections:

The connector J10 CONTROL CONNECTOR (DB-37 female) is the main connector for the control switching signals for each IGBT, reset signal and output fault signals. Also can be used to supply the drivers +12V_{DC}. Pinout of this connector below.

J10 - DB37 CONTROL CONNECTOR

DB37 CTL	designation	function
1	PWM T1	Input logic signal for switching T1 IGBT
2	RESET	Input logic signal for reset the drivers
3	FAULT T1	Fault open collector output signal from T1 channel
4	GND	Ground terminal for supply and logic signals
5	GND	Ground terminal for supply and logic signals
6	VDD	+12VDC from supply voltage (note 1)
7	PWM T3	Input logic signal for switching T3 IGBT
8	GND	Ground terminal for supply and logic signals
9	FAULT T3	Fault open collector output signal from T3 channel
10	PWM T5	Input logic signal for switching T5 IGBT
11	GND	Ground terminal for supply and logic signals
12	FAULT T5	Fault open collector output signal from T5 channel
13	NC	Leave this pin unconnected
14	NC	Leave this pin unconnected
15	PWM T2	Input logic signal for switching T2 IGBT
16	FAULT T2	Fault open collector output signal from T4 channel
17	NC	Leave this pin unconnected
18	PWM T4	Input logic signal for switching T4 IGBT
19	NC	Leave this pin unconnected
20	FAULT T8	Fault open collector output signal from T8 channel
21	VDD	+12VDC from supply voltage (note 1)
22	PWM T8	Input logic signal for switching T8 IGBT
23	FAULT T9	Fault open collector output signal from T9 channel
24	NC	Leave this pin unconnected
25	PWM T9	Input logic signal for switching T9 IGBT
26	FAULT T7	Fault open collector output signal from T7 channel
27	VDD	+12VDC from supply voltage (note 1)
28	PWM T7	Input logic signal for switching T7 IGBT
29	NC	Leave this pin unconnected
30	VDD	+12VDC from supply voltage (note 1)
31	NC	Leave this pin unconnected
32	NC	Leave this pin unconnected
33	FAULT T6	Fault open collector output signal from T6 channel
34	NC	Leave this pin unconnected
35	PWM T6	Input logic signal for switching T6 IGBT
36	FAULT T4	Fault open collector output signal from T4 channel
37	NC	Leave this pin unconnected

note1 - In order to supply the power stack user need to feed the drivers and fan system (if applicable) with 12V_{DC} from J1 or with the DB37 connector J10 (see: J10-DB37 CONTROL CONNECTOR pinout table).

Power connections:

J2 and J3 are the main power connector for the stack, connections for the AC inputs and the output terminals for the load. Below you can find the pinout.

J2 - INPUT POWER CONNECTOR

<i>PWR CON 1</i>	<i>designation</i>	<i>function</i>
1	EARTH	Earth connection
2	R1_IN	R1 phase input
3	S1_IN	S1 phase input
4	T1_IN	T1 phase input
5	R2_IN	R2 phase input
6	S2_IN	S2 phase input
7	T2_IN	T2 phase input
8	R3_IN	R3 phase input
9	S3_IN	S3 phase input
10	T3_IN	T3 phase input

J3 - OUTPUT POWER CONNECTOR

<i>DB25 SENS</i>	<i>designation</i>	<i>function</i>
1	EARTH	Earth connection
2	R_OUT	R phase output
3	S_OUT	S phase output
4	T_OUT	T phase output

J1 is the auxilliary power connector for the stack. The system must be supplied with 12V_{DC} with this connector. It supplies the power for the drivers and the fans.

J1 - DC POWER SUPPLY CONNECTOR

<i>DC SUPPLY</i>	<i>designation</i>	<i>function</i>
1	VIN	+12VDC supply voltage
2	GND	GND supply voltage

J9 is the power connector for the fan system. This connector sinks directly the power from J1 and J10 connectors.

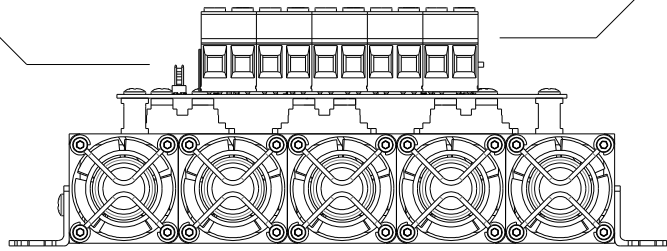
J9 - FAN POWER CONNECTOR

<i>DC SUPPLY</i>	<i>designation</i>	<i>function</i>
1	GND	GND supply voltage
2	VIN	+12VDC supply voltage

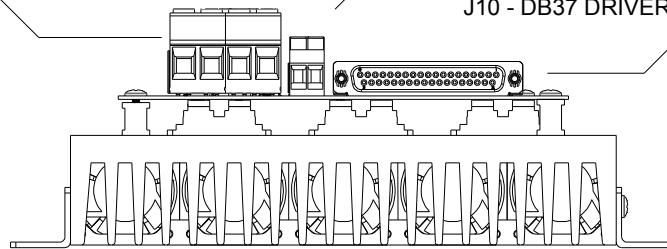
note1 - In order to supply the power stack user need to feed the drivers and fan system (if applicable) with 12V_{DC} from J1 or with the DB37 connector J10 (see: J10-DB37 CONTROL CONNECTOR pinout table).

POWER AND SIGNAL CONNECTORS:

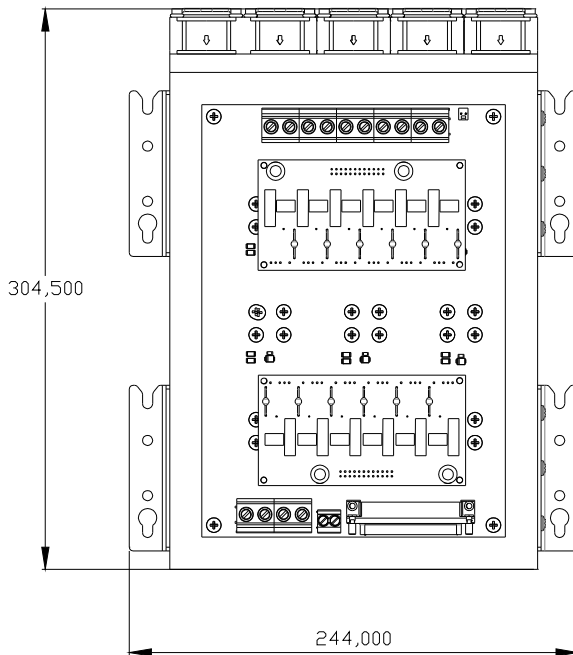
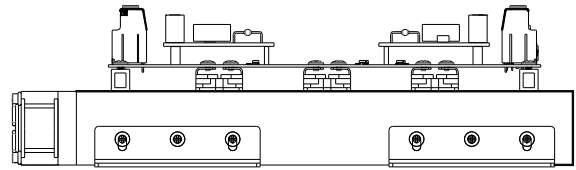
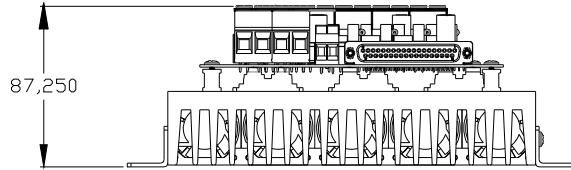
J9 - FANS POWER SUPPLY CONNECTOR J2 - INPUTS POWER CONNECTOR



J3 - OUTPUT POWER CONNECTOR J2 - INPUTS POWER CONNECTOR
J10 - DB37 DRIVERS CONNECTOR



MECHANICAL DRAWINGS:



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