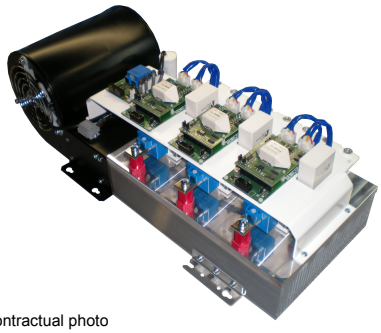
MTM series

IGBT power stacks

PRELIMINARY TECHNICAL INFORMATION

HIGHLIGHTS

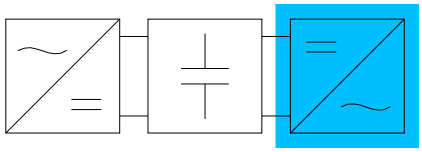
- Wide range.
- Reliability.
- Short delivery time
- Modular system.
- Cooling system included.
- Current, voltage and temperature sensors.
- IGBT drivers included.
- Ready to use.



non-contractual photo

APPLICATIONS

- Solar inverters
- Motor control drives
- Welding
- Active filters
- UPS



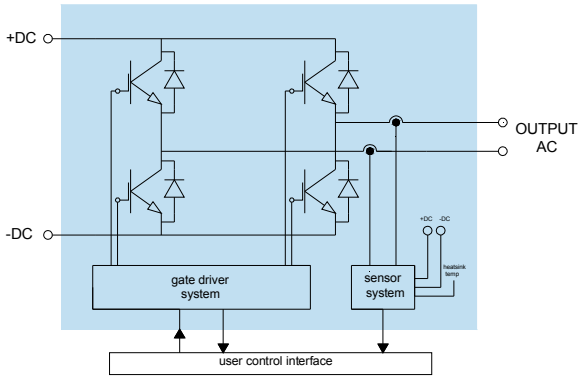
ABOUT MTM SERIES

RECTIFICADORES GUASCH S.A. offers the most modular way for designing power stages AC-AC or DC-AC by connecting rectifier block, DC-Link block and IGBT power stack. This way, the customer decides which the block that limits the power of the entire system. The customer can obtain in a short delivery time a wide range of power assemblies in a compact size. Each block is designed for obtaining the maximum efficiency by itself in the minimum dimensions.

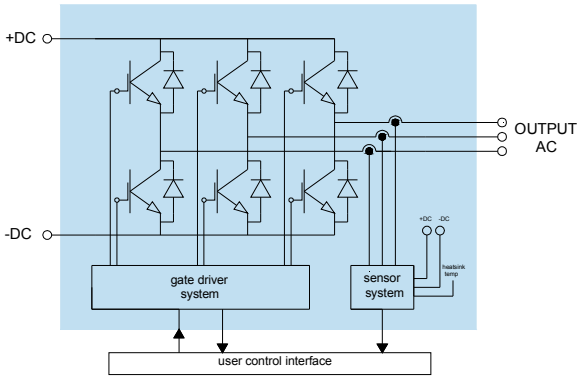
MTM is a power stack able to implement either three phase or half bridge inverters assembled over a heatsink. **MTM stacks** also includes a driver system, which can drive the power modules and protect them from desaturation and short-circuits. The extended control fan-out includes analogue outputs representing the main electrical parameters. It allows the user to close the feedback loop and manage the power stack easily from a DSP or PLC system.

BRIEFING

Topology	B2I or B6I
Market	industrial
Cooling system	centrifugal fan
Driver system	SCiCoreLink62/67
Parameters monitorized	DC voltage, Output current (each phase) temperature on heatsink



MTM-B2IXXXXXXXXXX



MTM-B6IXXXXXXXXXX

120503 Rev.:1

Reserves the right to change limits, test conditions and dimensions given in this data sheet at any time without previous notice.

CODIFICATION SYSTEM

MT	M	B2I	0100	F	12	IN	A	A
1	2	3	4	5	6	7	8	9

1	Series	MT	IGBT power stacks
2	Subseries	M	Medium power
3	Topology	B2I	Full bridge
		B6I	Three-phase bridge
4	Nominal current (Ic) [1]	0100 (e.g.)	$100A_{RMS}$
5	Dissipation system	F	Forced air
6	Voltage class	12	1200V
		17	1700V
7	IGBT manufacturer	IN	Infineon
		MI	Mitsubishi
		LS	LSIS
8	Heatsink system	A	RG14230/350+turbine SC-V215
		B	RG42080N36/350+turbine SC-V215
9	Housing (case) of semiconductor	A	Standard module 62x106 mm
		B	Low profile module 62 mm

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POWER STACK GENERAL CHARACTERISTICS

description	symbol	conditions & notes	min	typ	max	units
Voltage applied to DC-link	V_{DClink}	**Voltage class 1200 V**		600	900	V_{DC}
		Voltage class 1700 V		900	1200	V_{DC}
Storage temperature	T_{stg}		-40		85	ºC
Operating temperature	T_{op}		-25		85	ºC
Power-to-control isolation voltage	V_{ISOp-c}	50 Hz @1min **(Note 1)**	3			kV_{AC}
Mounting Torque AC terminals		M6	4.5		5.5	N·m
Mounting Torque DC terminals		M6	4.5		5.5	N·m
Mounting Torque Capacitor Bank		M6	4.5		5.5	N·m
Weight (approx)				14.7		kg

COOLING SYSTEM CHARACTERISTICS

description	symbol	conditions & notes	typ	units
Type		Heatsink + centrifugal fan (turbine SC-V215)		
Fan system supply voltage	V_{FAN}		230	V_{RMS}
Fan system consumption	I_{FAN}	50 Hz / 60 Hz	0.92/0.89	A

ENVIRONMENTAL SPECIFICATIONS

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

MOUNTING CONSIDERATIONS

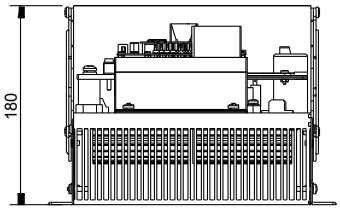
It's necessary a minimum distance of 100 mm with regard to the envelope. The free air circulation should be guaranteed. Avoiding the heat sources of nearby to assembly. In the real applications it is important to consider a safety margin with regarding the working current, we recommend a margin of the 20%.

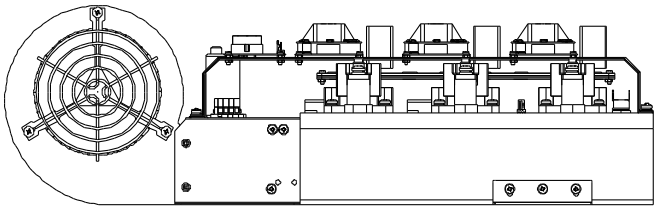
For critical cases (24 hours work, repetitive overloads...), margins of the 30% to 50% are used.

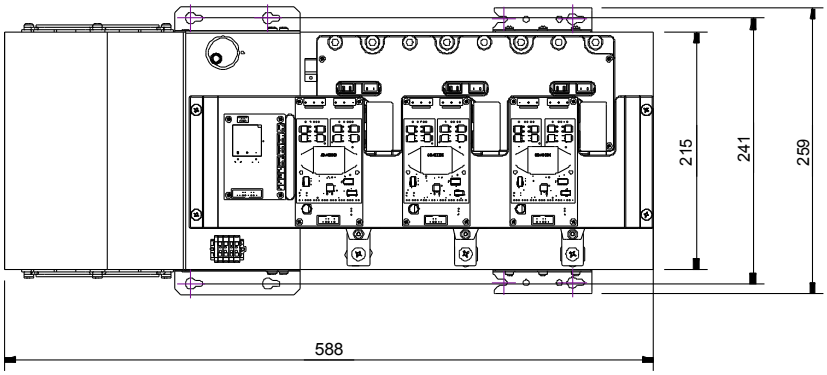
Note 1: *This isolation voltage is referred to the minimum isolation voltage between any control/feedback signal (PWM, reset fault, feedback sensor signals and supply of boards) and any power voltage (DC input, AC output).*

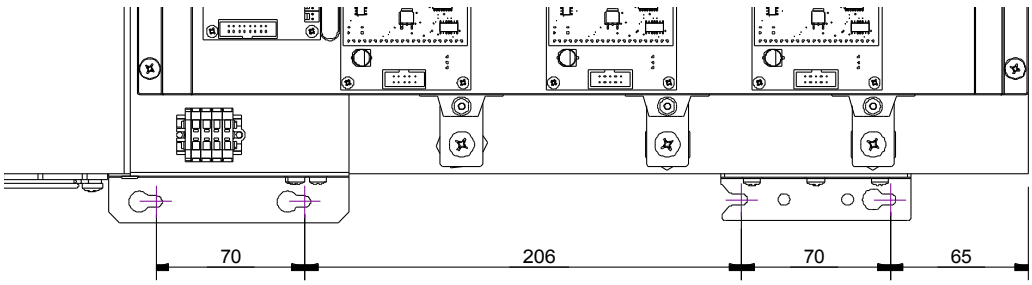
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MECHANICAL DIMENSIONS





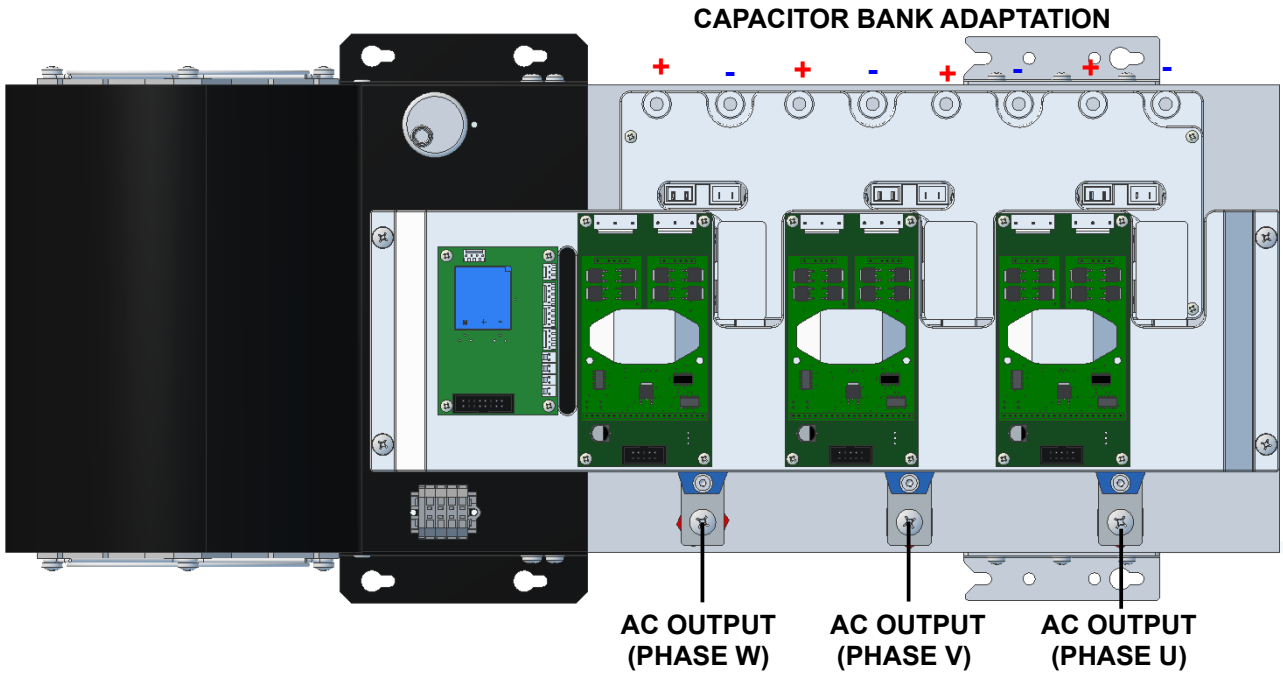




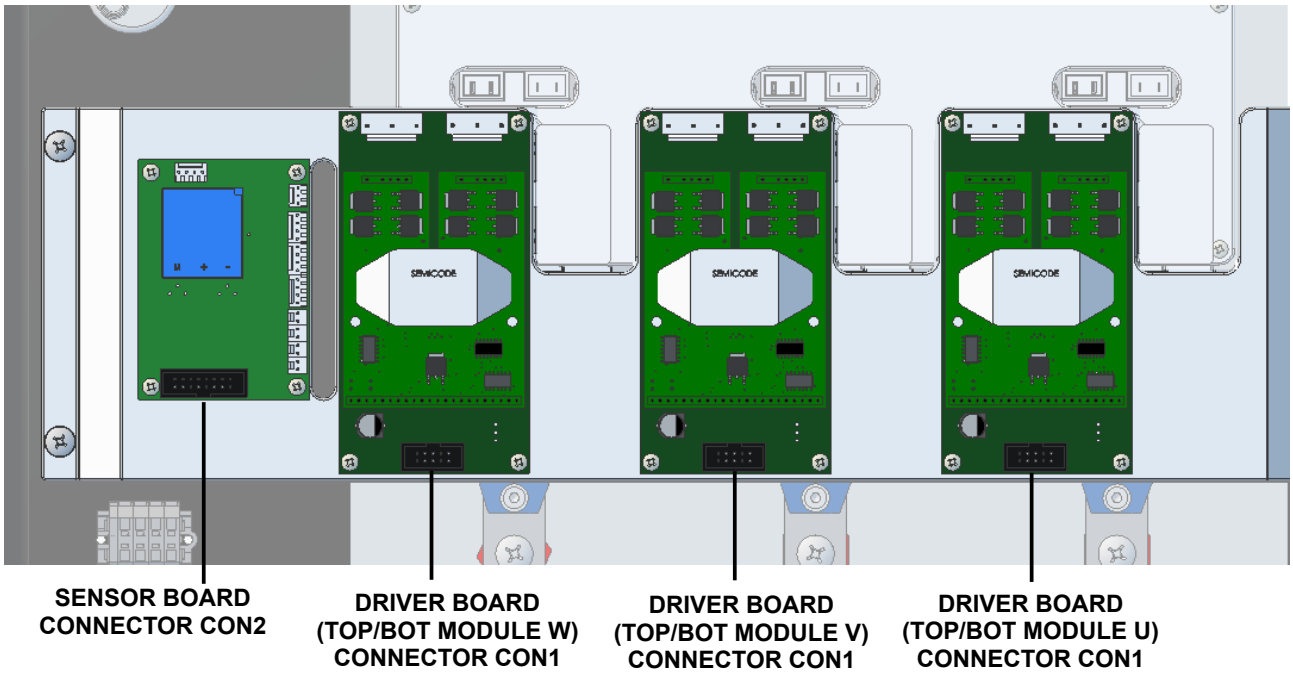
All dimensions in mm.

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POWER CONNECTION



CONTROL CONNECTION



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GATE DRIVER BOARD ELECTRICAL CHARACTERISTICS

description	symbol	conditions & notes	min	typ	max	units
Supply voltage	V_{CC}			15		V
Current consumption	Icc	f_{sw}=10 kHz; $Q_{G/pulse}$=6 mC		370		mA
PWM & reset High state Input voltage	V_{IN_H}	JP1 to 5 V connected	3,5		5	V
PWM & reset Low state Input voltage	V_{IN_L}	JP1 to 5 V connected	0		1,5	V
PWM & reset High state Input voltage	V_{IN_H}	JP1 to 15 V connected	11		15	V
PWM & reset Low state Input voltage	V_{IN_L}	JP1 to 15 V connected	0		4	V
Fault High state Output Voltage	V_{FAULT_H}	working in logic level; JP1 to 15 V			15	V
Fault High state Output Voltage	V_{FAULT_H}	working in logic level; JP1 to 5 V			5	V
Fault (working as open collector) current	I_{FAULT}	working as open collector			20	mA

PINOUT

CON 1	designation	function
1	PWM_{TOP}	Input logic signal for switching TOP IGBT
2	GND	Ground terminal for supply and logic signals
3	GND	Ground terminal for supply and logic signals
4	RESET	Reset input signal (low state
5	GND	Ground terminal for supply and logic signals
6	VCC	+15 V_{DC} for supply voltage
7	FAULT	fault output signal
8	VCC	+15 V_{DC} for supply voltage
9	VCC	+15 V_{DC} for supply voltage
10	PWM_{BOT}	Input logic signal for switching BOT IGBT

JUMPERS	
JP1	right connected: 15 V logic level
	left connected: 5 V logic level
JP2	right connected: half bridge mode
	left connected: direct mode

DEFAULT VALUES:

· half bridge mode (direct mode optional).
· 4 µs dead time between channels generated.
· Gate resistor depending of the IGBT module used.
· 0-5 V input PWM and reset logic levels (0-15 V optional).
· 0-5 V logic fault output (0-15 V or low level-open collector fault output optional).

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SENSOR BOARD ELECTRICAL CHARACTERISTICS

description	symbol	conditions & notes	min	typ	max	units
Supply voltage	V_{CC}			±15		V
Feedback signal of heatsink temp.	V_T	relative error <2,5%	0		12	V
Heatsink temp. measurable range			0		120	ºC
Feedback signal of output current	V_{CX}	relative error <3%	0		10	V
Current measurable range			-600		600	A
Feedback signal of V_{DC}-link voltage	V_U	relative error <2,8%	0		15	V
DC-link measurable voltage range			0		1500	V_{DC}
Thermostat		Normally connected		90		ºC
NTC rated resistance	$R_{NTC\,25}$					kΩ
NTC B value	$B_{25/50}$					K

SENSOR BOARD PINOUT

CON 2	designation	function
1	+15Vcc	+15 V_{DC} for supply voltage
2	N.C.	Leave this pin unconnected
3	N.C.	Leave this pin unconnected
4	N.C.	Leave this pin unconnected
5	N.C.	Leave this pin unconnected
6	N.C.	Leave this pin unconnected
7	N.C.	Leave this pin unconnected
8	TH_2	Thermostat terminal 2
9	V_T	Output voltage representation of heatsink temperature
10	TH_1	Thermostat terminal 1
11	$V_{C\,V}$	Output voltage representation of phase V output current
12	V_U	Output voltage representation of VDC-Link voltage
13	$V_{C\,W}$	Output voltage representation of phase W output current
14	$V_{C\,U}$	Output voltage representation of phase U output current
15	-15Vcc	-15 V_{DC} for supply voltage
16	GND	Signal and power ground

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