GENERALITY

The four quadrant converters of the DSAE 150/300 series integrate both the power supply unit and the braking unit and have been realised to exploit the most advanced technology, in particular the final IGBT stage which operates with a PWM switching frequency of 10 KHz.

The regulation is realised by the P.W.M. (Pulse Width Modulation) using a particular technology with 2 different signals (instead of the traditionally used single signal) with a phase displacement of 180° for controlling the final power.

The combination of these signals allows to obtain a switching cycle of the final power which reduces the current ripple by 50 % combined with all advantages regarding maintenance and life of the brushes and of the motor.

The converters of the DSAE 150/300 series are developed for controlling the speed of D.C. motors with permanent magnets both with dynamo tachometer and armature feedback.

IDENTIFICATION DATA

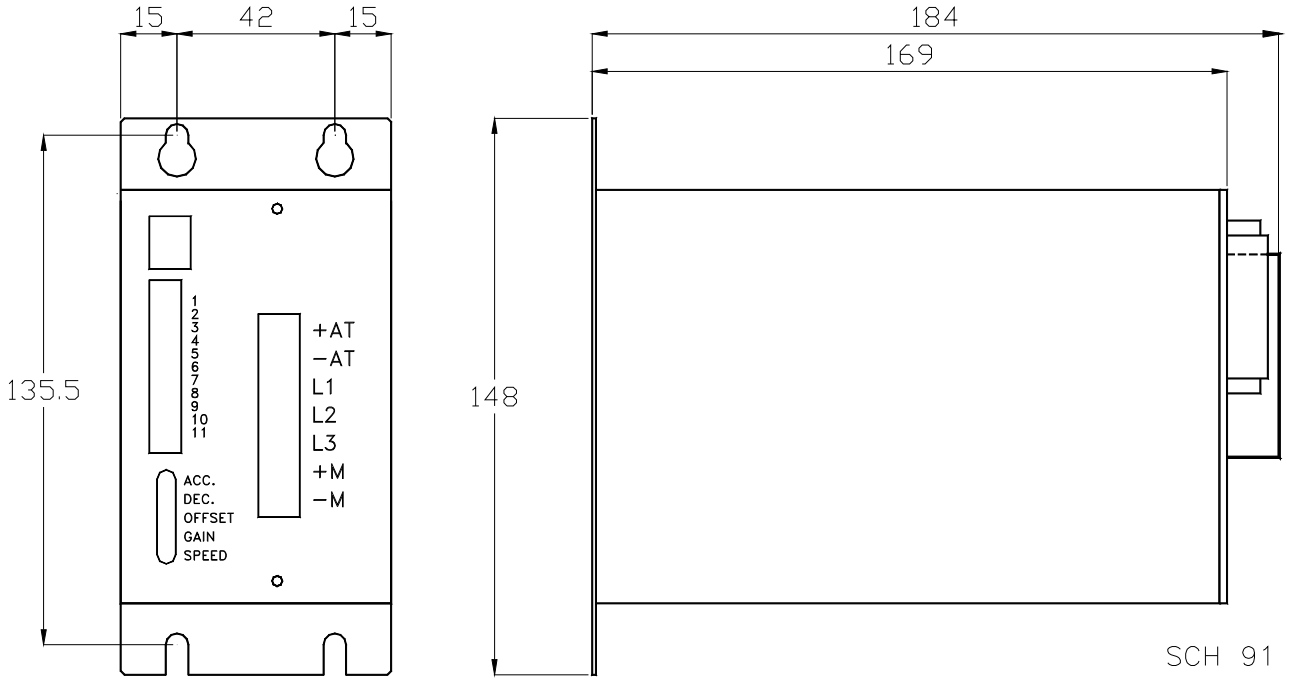
For the identification or the order of the converters DSAE, use the following code:

DSAE - AAA - B - C - DD - E

AAA	=	*150*	Power supply from 20 ÷ 60 Vac
		300	Power supply from 60 ÷ 190 Vac
B	=	M	Present in single phase version only
C	=	*P*	Panel version (totally closed)
		R	Rack version (open day)
DD	=	*RE*	Arranged for external recovery resistance
E	=	*A*	Equipped with a card for armature reaction

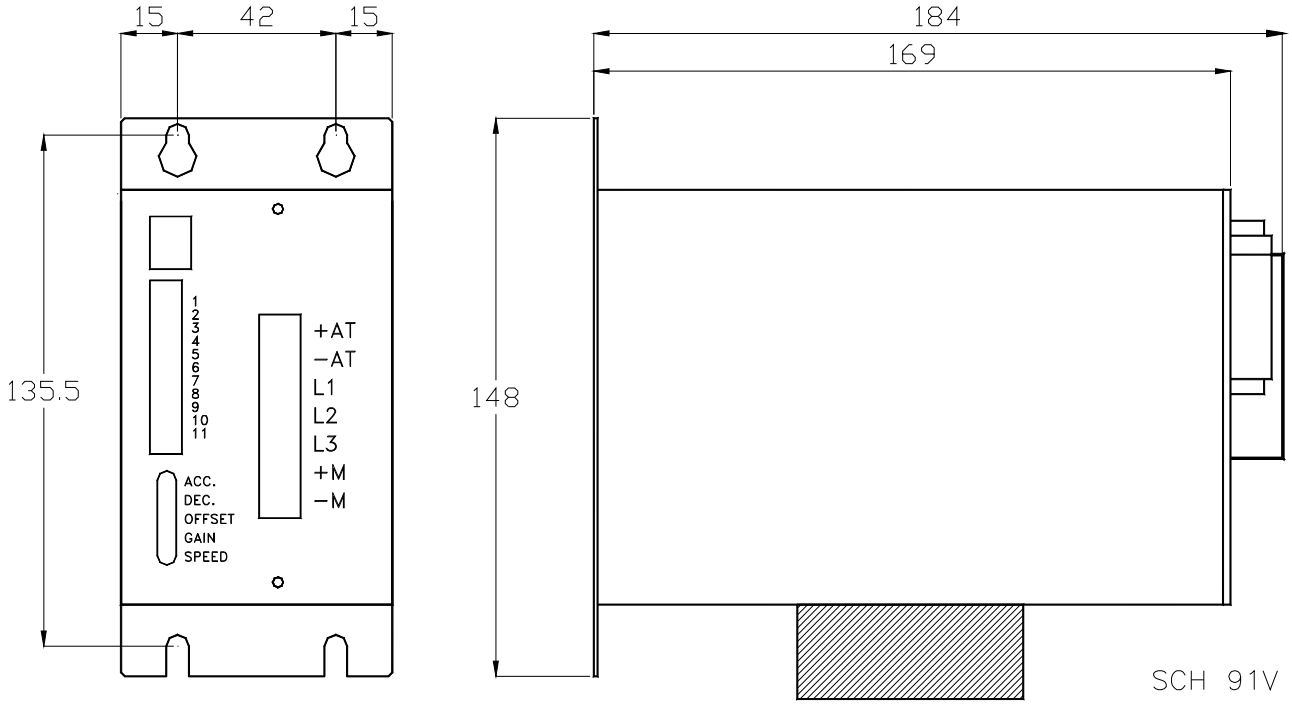
Example **DSAE 300 P - RE - A** = DSAE power supplied up to 190Vac, panel version, arranged for external recovery resistance, equipped with card for armature reaction.

OVERALL DIMENSIONS

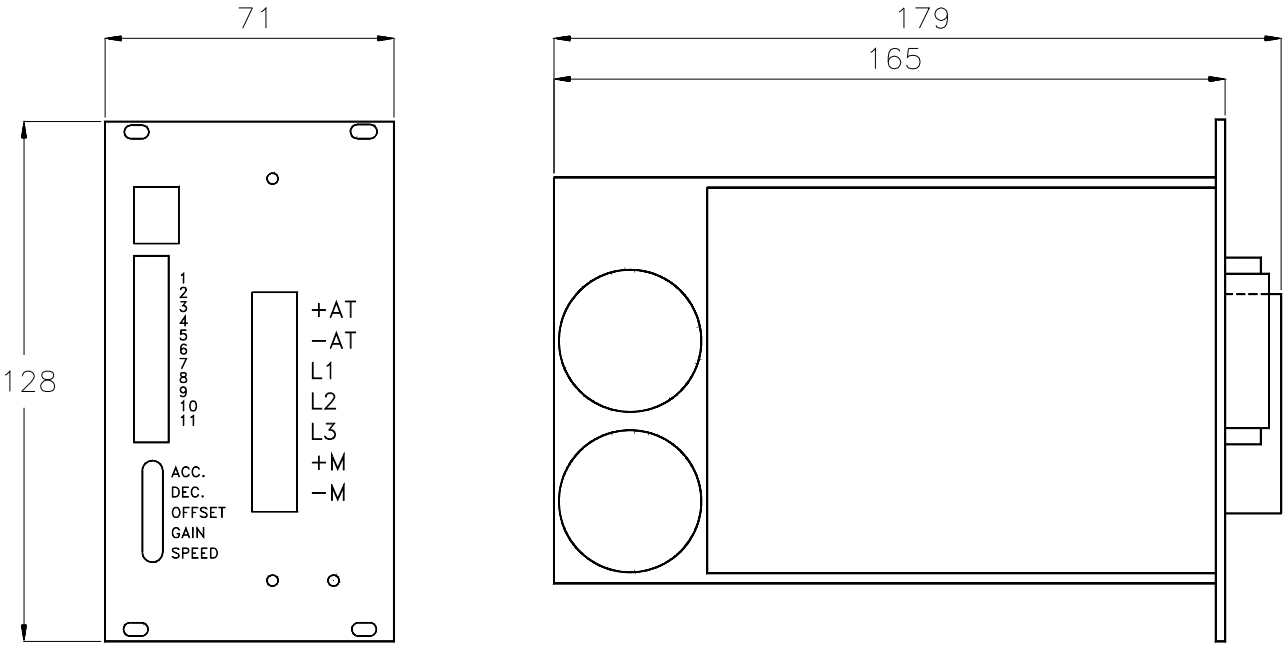


DSAE 150 P / DSAE 300 P 5/10, 7.5/15

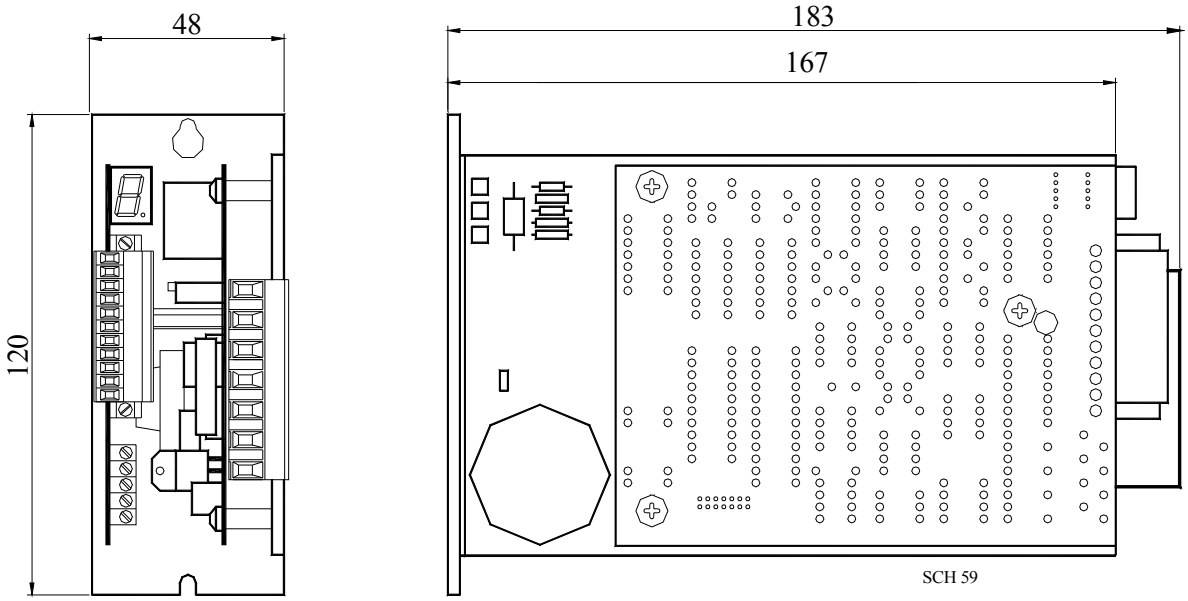
DSAE 150 P / DSAE 300 P 10/20, 15/30



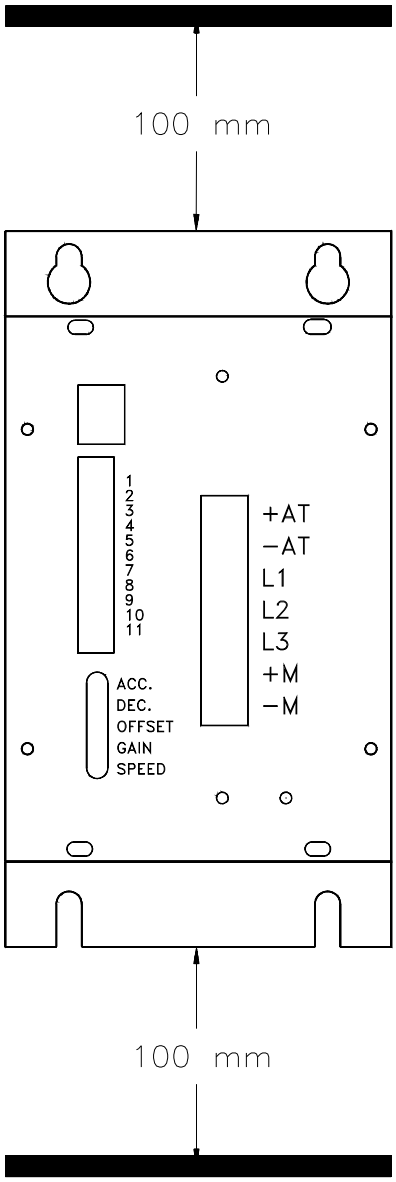
DSAE 150 R / DSAE 300 R 5/10 ÷ 15/30



DSAE 150 S / DSAE 300 S [SLIM VERSION]



Note: Observe a minimum free distance of 10 cm between converter and surrounding components so as not to hinder the ventilation of the converter.



TECNICAL FEATURES

Version “DSAE 150”

TYPE	POWER SUPPLY	NOMINAL CURRENT AT 40 °C	PEAK CURRENT FOR 1.5 sec.	OUTPUT VOLTAGE
DSAE 150** / 5A	Three-phase 20 ÷ 60 VAC ± 10% 50 - 60 Hz.	5A	10A	25÷80 Vcc
DSAE 150** / 7.5A		7.5A	15A	
DSAE 150** / 10A		10A	20A	
DSAE 150** / 15A		15A	30A	

Version “DSAE 300”

TYPE	POWER SUPPLY	NOMINAL CURRENT AT 40 °C	PEAK CURRENT FOR 1.5 sec.	OUTPUT VOLTAGE
DSAE 300** / 5A	Three-phase 60 ÷ 190* VAC ± 10% 50 - 60 Hz.	5A	10A	80÷250* Vcc
DSAE 300** / 7.5A		7.5A	15A	
DSAE 300** / 10A		10A	20A	
DSAE 300** / 15A		15A	30A	

* Upon request we may supply a converter which is suitable to be power supplied at 220Vac. This converter allows to pilot those motors having a rating voltage up to 300 Vdc.

** All version of converter can be supplied also in single phase configuration.

GENERAL CHARACTERISTICS

Supply voltage of the DSAE 150:	from three-phase autotransformer with a secondary voltage of 20V ÷ 60VAC ±10%
Supply voltage of the DSAE 150 M:	from single-phase autotransformer with a secondary voltage of 20V ÷ 60VAC ±10%
Supply voltage of the DSAE 300:	from three-phase autotransformer with a secondary voltage of 60V ÷ 190VAC ±10%
Supply voltage of the DSAE 300 M:	from single-phase autotransformer with a secondary voltage of 60V ÷ 190VAC ±10%
Mains frequency:	50/60 Hz.
Output voltage: (DSAE 150)	25 / 80 Vdc
Output voltage: (DSAE 300)	80 / 250 Vdc
Speed loop bandwidth:	> 100 Hz.
PWM switching frequency:	10 KHz
Switching frequency:	20 KHz on motor
Velocity input reference:	±10 VDC (input impedance 100 KΩ)

Regulation:

- Maximum adjustable speed with a resistance of **R88** on regulation card
- Adjustment *end* of speed by trimmer **P5** “SPEED” on regulation card
- Compensation of the offset of the speed signal with trimmer **P3** “OFFSET” on regulation card
- Acceleration ramp slope adjustable from 0 a 1 sec. with trimmer **P1** “ACC.” on regulation card
- Deceleration ramp slope adjustable from 0 a 1 sec. with trimmer **P2** “DEC.” on regulation card
- Current limit adjustable with resistance **R83** on regulation card
- Rating current of the motor and intervention I*T adjustable with resistance **R84** and **R86** on regulation card
- Proportional gain of the speed ring adjustable with trimmer **P4** “GAIN”. Dynamic constants adjustable through **R87** and **C24**

Function:

- Diagnostics on DISPLAY
- Torque programming from the outside by signal from 0 to +10V_{DC} trough closing of the welding point **S2** on regulation card
- Possibility to connect an external recovery resistance if required (the operation can be made, during the assembly phase, in our firm only)
- Possibility to share the **CC** supply **BUS** through suitable power terminals.

Inner protections:

- Against short-circuit between motor terminals
- Against mains overvoltage
- Against mains undervoltage
- Against power overheat
- Against excessive energy gain on inner clamp resistance's
- Against breakage or failure of dynamo tachometer connections

Optional:

- Velocity regulation with armature feedback

Operation:

Temperature:	from 0 ÷ 40°C
Humidity:	90% max. without condensation
Altitude:	1000 m.

FUNCTIONAL DIAGRAM