

AutoSPATZM600L Medium Frequency Inverter Power Source

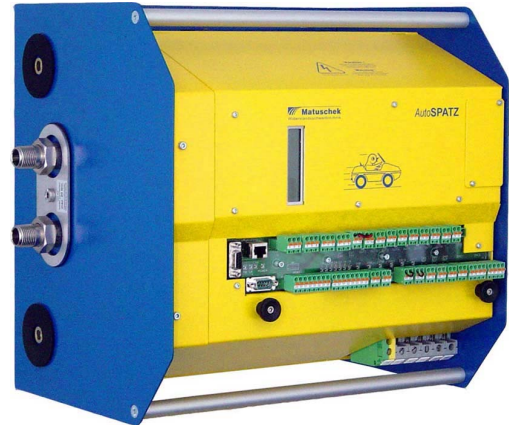
- water cooled -

The *AutoSPATZM600L* 1,000 Hz medium frequency inverter power source is used in combination with external medium frequency transformers as a high-performance, cost-effective DC power supply within a welding current range of 3 kA to 30 kA. It is especially designed for the demands of mass production with a high number of parts - e.g. automotive body shops.

Each welding operation is feedback controlled during the procedure. The control process takes place very quickly based on the 1 kHz inverter frequency. Actual values are compared with the set values every 0.5 ms. The output power is modified during the welding process if targets are not being met. The adaptive **MASTER** control process is frequently used. Constant Current Control (CCC), Constant Power Control (CPC) and Constant Voltage Control (CVC) are also provided.

At the end of each weld, the *AutoSPATZM600L* checks if the actual welding parameters are keeping within the limits set.

The Online-programming, analysis and diagnostics is the key link between the production, quality control and process engineering. Three possibilities are available. The handy, graphical operating device **SPATZBG-02** meets the demand to be used under rough production conditions. Maintenance technicians can derive further detailed information with a notebook connected to the *AutoSPATZ-RS232* interface and the *AutoSPATZAS-01* PC software. An ETHERNET interface in combination with the Line-PC Software *AutoSPATZAS-32* enables the networking of all welding operations with a line PC.



Technical Data

Welding spot selection	24 Bit
No. of programs	63
Welding impulses / program	16
Control modes	MASTER , CCC, CPC, CVC
Weld parameter monitoring	yes
Stepper function	for CCC, CPC, CVC
Force schedule	yes
Slope up / slope down	yes
Signal inputs	current, voltage, force, penetration
Sensor monitoring	yes
2 x Output for proportional valve	0 - 10 V DC
Mains voltage U_1	3~400 V - 500 V, 50/60 Hz
Max. power S_{max}	300 kVA with 400 V
Nominal power S_N	150 kVA with 20 % duty cycle, 400 V 90 kVA with 50 % duty cycle, 400 V
Output voltage U_{2N}	500 V / 1,000 Hz
Output current I_{2max}	650 A
Interfaces	BG-02 , MASDAT , RS232, PROFIBUS-DP, ETHERNET
Optional accessory	INTERBUS
Digital inputs	13
Digital outputs	8
Cooling water	2 l/min at 20 °C - 25 °C, max. 10 bar 0.5 gal(US)/min at 68 °F - 77 °F, max. 145 PSI
Pressure drop	< 150 mbar at 12 l/min < 2.2 PSI at 3.2 gal(US)/min
Type of protection	IP20 / approx. NEMA 1
Dimensions (H x W x D)	370 x 370 x 290 mm 14.6 x 14.6 x 11.4 in
Weight	23 kg / 50 lb
Included in delivery	- documentation - connecting kit - 2 pieces of ½ " x 15 BSPT water connector



Through the graphic representation of the curve characteristics of the process signals' welding current, electrode voltage, welding power, electrode force, and electrode penetration provides the weld expert all the required weld parameter information which he needs for adjusting the welding parameters. The recorded values of the welds and the graphic representation of the measured value trends are for the operators and the maintenance technicians a valuable tool for guaranteeing the weld spot quality.

All 10,000 weld data records of the weld data recorder which is integrated in every *AutoSPATZM600L* can be read and stored with the operating units. Each data record is comprised of the weld values, a time/date tag and information about the crossed limits and fault status.

An Off-line analysis of the weld data records with the **SPATZQS+** PC-quality assurance software or a standard program - e.g. spreadsheet program - illustrates the quality control the present process status and the process development.

SPATZTI Transformers

Welding transformers for 1,000 Hz

Technical Data

Type	TI-60R	TI-120R
U ₁	1~1,000 Hz	1~1,000 Hz
U _{1N}	500 V	500 V
S _N (50 % DC)	60 kVA	120 kVA
U ₂₀	6.4 V DC	9.3 V DC
in steps	1	1
I _{2N} (20 % DC)	9.4 kA	14.5 kA
I _{2N} (50 % DC)	7.0 kA	9.0 kA
I _{max}	18 kA	26.5 kA
Cooling	6 l/min	8 l/min
	at 20 °C - 25 °C	at 20 °C - 25 °C
	1.6 gal(US)/min	2.1 gal(US)/min
	at 68 °F - 77 °F	at 68 °F - 77 °F
Isol. class	F	F
Dimensions (H x W)	390 x 160 mm	405 x 190 mm
	15.4 x 6.3 in	15.9 x 7.5 in
Depth	125 mm / 4.9 in	125 mm / 4.9 in
Weight	16 kg / 35.3 lb	25 kg / 55.1 lb

Other models are available on request.

For fast I/O communication with a higher level device - e.g. robot controller or line PLC - a PROFIBUS-DP interface is available. Optional a connection via INTERBUS-S is possible. Alternatively, 13 additional digital inputs and 8 outputs ensure a reliable data exchange utilizing standard protocol with 24 V DC signals.

Both the *AutoSPATZM600L*'s timer and the medium-frequency inverter are housed in a compact IP20 / approx. NEMA 1 protected housing of 23 kg / 50 lb weight, which is designed for economical switch cabinet mounting.

If the welding gun is equipped with the **MASDAT** weld gun identification system, the *AutoSPATZM600L* will be programmed with all weld parameters - e.g. **MASTER** reference curves - automatically with every docking of the welding gun. Additionally, manufacturers' data and maintenance data are transferred to the *AutoSPATZM600L*. On the other hand the *AutoSPATZM600L* actualizes this data in the gun. The direct storage of data in the weld gun reduces the scope of organizational work relating to maintenance documentation, the updating of welding parameters and backup welding data.

