

# GALA INVERMIG SYNER 230 MP

## MULTIPROCESS INVERTER MIG/MAG

Ref. : 518.00.000  
Date : 16/10/2008

Code : FT51800000V0-eng  
Revision: 0

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### GENERAL CHARACTERISTICS



#### Description :

Portable inverter technology line of equipment for multi-process welding (MIG/MAG, MMA and TIG with LIFT ARC striking).

#### Use:

Professional use, ideal for work that involves travelling thanks to its great portability.

#### Electrical power supply:

1 Ph 230V – 50/60 Hz.  $\pm 15\%$

#### Main advantages:

- Portable inverter. Robust design for professional use.
- Suitable for generating set.
- It supports connection at 400 V without breakage.
- High portability (18 kg) 200 A; Solid wire up to 1.0 mm.
- Positive drive system for wire feeding.
- Equipment with MIG/MAG welding synergic programming.
- Inductance synergic control. No arcing. A great dynamic with pure CO<sub>2</sub> gas.
- Animated wire welding "WITHOUT GAS" application (up to  $\varnothing 1,1$  mm)
- Wire reel  $\varnothing 200$  (5 Kg.)
- MMA welding process with specific MMA CEL mode for special electrode welding.
- TIG DC / TIG PULSE welding processes with general control of cycle parameters. Lift-arc striking.

TECHNICAL CHARACTERISTICS		SYNER 230 MP Ref. 518.00.000	
Input voltage $U_1$ (1Ph. 50-60hz)(1)		230 V	
Maximum input intensity $I_{1max}$		46 A	
Maximum effective intensity ( $I_{1eff}$ )		27 A	
Maximum absorbed power $P_{1max}$		10 KVA	
MIG/MAG adjustment margin $I_{2min}$ - $I_{2max}$		10 ÷ 200 A	
Welding voltage adjustment $U_{2min}$ - $U_{2max}$		12 ÷ 30 V	
MIG/MAG welding intensity $I_2$	ED%	200 A	35%
		150 A	60%
		120 A	100%
Applicable wire diameters (mm.)		0.6 ÷ 1.0 (1.2mm Al)	
Wire reels		5 Kg. (15 kg adapter inc.)	
Wire speed (m/min.)		1 ÷ 15 m/min	
Continuous MMA adjustment margin $I_{2min}$ - $I_{2max}$		30 ÷ 200 A (35%)	
Continuous TIG adjustment margin $I_{2min}$ - $I_{2max}$		5 ÷ 200 A (35%)	
TIG pulse frequency adjustment margin		0.1 ÷ 500 Hz	
Mechanical protection index (IP class)		IP21	
Ventilation		Forced	
Weight		18 Kg.	

ACCORDING TO UNE-EN 60974. (1) Other power supply voltage values on demand.



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Dimensions: Front view (230, 237), Side view (435, 462, 390).

CIF A- 50 /045319 50.014 ZARAGOZA - SPAIN		<b>GALA INVERMIG</b>	
TYP: Syner 230 MP REF: 518.00.000			
UNE-EN 60974-1			
10A / 14 V - 200A / 24V			
	X	35%	60%
S	U <sub>i</sub>	200A	150A
	U <sub>i</sub>	24V	21.5V
	U <sub>i</sub>	230V	I <sub>...</sub> =42A
			I <sub>...</sub> =25A
30A(5A TIG)/21.2V - 200A/28V			
	X	35%	60%
S	U <sub>i</sub>	200A	150A
	U <sub>i</sub>	28V	26V
	U <sub>i</sub>	230V	I <sub>...</sub> =46A
			I <sub>...</sub> =27A
IP 21		⚠️	

Standard use mode	On Workstation use mode	With 5 kg wire reel adapter
<p>GALA INVERMIG SYNER 230 MP Ref. 518.00.000</p>	<p>Mobile Workstation Ref. 517.12.090</p>	<p>ADAPTER ASSY FOR WIRE REEL 15 Kg Ref. 517.02.070</p>

### ELEMENTS SUPPLIED AS STANDARD WITH EQUIPMENT:

Ref.	DESCRIPTION	Ref.	DESCRIPTION
518.17.047	Instructions manual.	531.12.219	Earth clamp cable
503.12.029	Input cable 3x4 mm <sup>2</sup> , 3 m. (Plug not incl.)	517.16.520	Wire reel Ø37, 0.8-1.0 mm "V"
435.12.018	Machine-gas connection (2 m) / coupling		

RECOMMENDED FOR MIG/MAG PROCESS		RECOMMENDED FOR TIG PROCESS	
Ref.	DESCRIPTION	Ref.	DESCRIPTION
517.12.090	Mobile Workstation (transport trolley)	517.12.090	Mobile Workstation (transport trolley)
517.02.070	Adapter for wire reel 15 Kg.	190.51.734	TIG XT-17 E EURO torch (4 m)
355.00.000	Welding shielding gas saver valve.	376.00.000	Argon pressure reducing valve – Mod. EN 2
225.00.004	MIG MAXIMA MX-25 torch (4 m)	811.104	Professional Automatic electronic shield
5722	Graphite wire conduit 4 m (Aluminium)		
517.16.523	Wire reel Ø37, 1.0-1.2 mm "ALU"	RECOMMENDED FOR MMA PROCESS	
517.16.524	Wire reel Ø37, 0.9-1.2 mm "TUBULAR"	Ref.	DESCRIPTION
811.104	Professional Automatic electronic shield	259.040	Electrode 300A-35/50 accessories
		1701000	Electric electrode heater (Thermostat and Thermometer)



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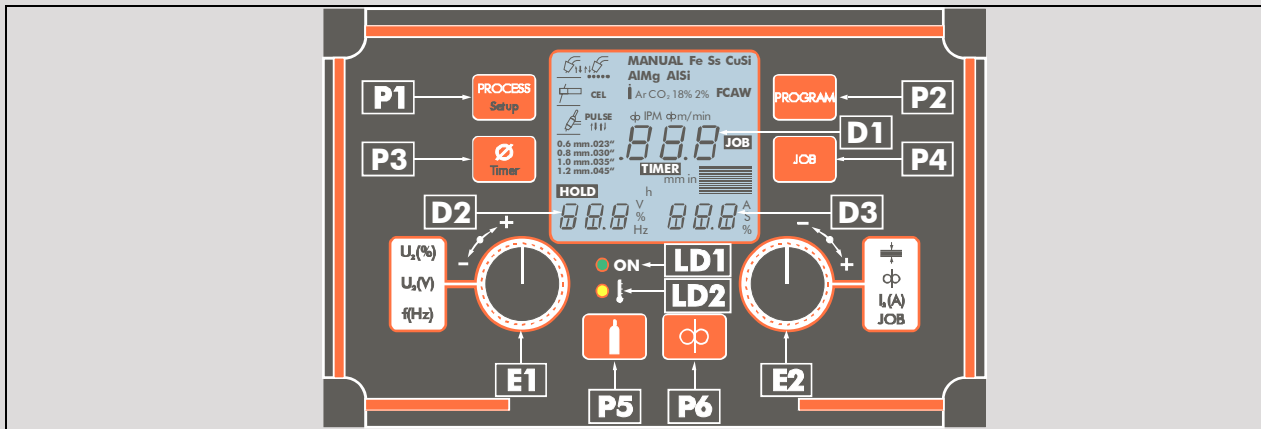
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### BUTTONS OF DIGITAL CONTROL PANEL

P1		Welding process selection. Momentary pressure. Enter/Exit to/from SETTING MODE of cycle parameters. Maintained pressure (2 sec.)
P2		Welding program selection (Wire – Gas).
P3		Welding wire diameter selection. Momentary pressure from MIG WELDING MODE. Enter to TIMER MODE (Process time). Maintained pressure (2 sec.)
P4		Enter to JOB MODE (Maintained pressure). JOB recording (Maintained pressed for 2 sec.). 10 JOB in MIG/MAG process; 10 JOB in TIG Pulse process.
P5		Gas purge.
P6		Wire purge.

### ADJUSTMENT ENCODERS OF DIGITAL CONTROL PANEL

<p><b>ENCODER E1</b></p>	<b>MIG WELDING MODE, MANUAL PROGRAM .</b> Control of welding voltage. $U_{2min} \div U_{2max}$ . The control can be carried out during the welding process.
	<b>MIG WELDING MODE, SYNERGIC PROGRAM .</b> It enables to vary the welding voltage value assigned by synergic table. $-30\% \div +30\%$
	<b>TIG PULSE WELDING MODE.</b> Pulse frequency control F(Hz).
	<b>SETTING MODE of cycle parameters.</b> It enables to change the cycle variable indicated in display D2.
<p><b>ENCODER E2</b></p>	<b>MIG WELDING MODE, MANUAL PROGRAM .</b> Wire speed control. $v_{hmin} \div v_{hmax}$
	<b>MIG WELDING MODE, SYNERGIC PROGRAM .</b> Thickness control of piece to be welded. $e_{min} \div e_{max}$ .
	<b>JOB MODE.</b> It allows to select the Nr. of JOB program to be reproduced/recorded.
	<b>SETTING MODE of cycle parameters.</b> It enables to change the cycle variable indicated on display D3.
<b>MMA/ MMA CEL/ TIG AND TIG PULSE WELDING MODE.</b> Welding intensity control. $I_{2min} \div I_{2max}$ . The control can be carried out during the welding process.	



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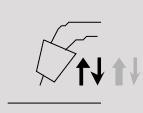

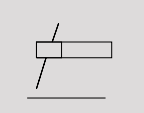
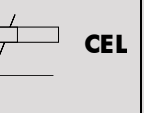
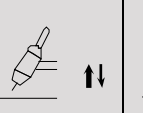
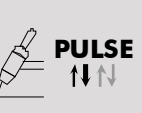
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MULTIPROCESS					
MIG/MAG	MIG SPOT	MMA	MMA CEL	TIG	TIG PULSE
					

SYNERGIC PROGRAM TABLE – MIG/MAG SOFT V1				
PROGRAM		Wire Ø		Remarks
Wire material	GAS	mm	in	
<b>Fe (SG2/SG3)</b>	Ar CO2 18%	0,6	0,023	SG 2/ SG 3 Si 1: Non-alloy or low alloy wire. (Solid Fe) Gas mixture Ar-CO <sub>2</sub> 12 ÷ 25 %
		0,8	0,030	
		---	0,035	
		1,0	---	
<b>SS</b>	Ar CO2 2%	0,8	0,030	Cr Ni 19-9 : Solid stainless steel wire (Stainless) ER 308 ; E308L-16
		---	0,035	
		1,0	---	
<b>Al Mg 5%</b>	Ar 100%	1,0	---	Al Mg 5% Aluminium wire alloyed with Magnesium.
		---	0,045	
		1,2	---	
<b>Al Si 5%</b>	Ar 100%	1,2	0,045	Al Si 12% Aluminium wire alloyed with Silicon.
<b>CuSi 3</b>	Ar 100%	---	0,035	CuSi3 Cu-Si wire for electrocoating welding .
		1,0	---	
<b>FCAW E-71T1</b>	Ar CO2 18%	0,8	0,030	FCAW 71T11 Tubular wire filled with rutile flux (TYPE 71T11)
		---	0,035	
		1,0	---	
		---	0,045	
<b>Fe (SG2/SG3)</b>	CO2 100%	0,8	0,030	SG 2/ SG 3 Si 1: Non-alloy or low alloy wire. (Solid Fe) Gas CO <sub>2</sub> 100%



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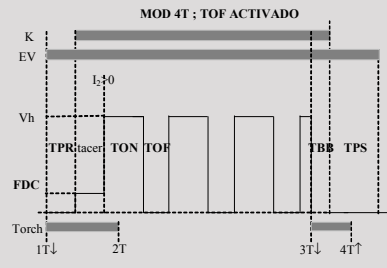
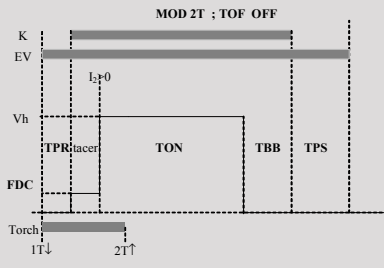
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### OPERATING CYCLES FOR MIG/MAG AND MIG/MAG SPOT PROCESSES



Parameter	PARAMETER DESCRIPTION	Range	FACTORY
<b>MOD</b>	Pulse mode (2S / 4S)	2T – 4T	2T
<b>TON</b>	Welding time	0.2÷5.0 sec.	2.0 (sec.)
<b>TOF</b>	Stop time on intermittent welding mode.	OFF ; 0.1÷3.0 sec.	OFF
<b>TPR</b>	Gas pre-flow time.	0÷5.0 sec.	0.3 (sec.)
<b>TPS</b>	Gas post-flow time.	0÷10.0 sec.	0.4 (sec.)
<b>FDC</b>	Approach speed.	10 ÷100% Vh	33 (% vh)
<b>TBB</b>	After-burning time correction.	-200 ÷ 200 (ms)	0.00
<b>L</b>	Electronic inductance correction level. (DYNAMIC)	-5 ÷ 5	0
<b>Dim</b>	Dimensional system (Ø/vh).	mm, in	mm
tacer	The time in approach process (Limited).	----	5 sec. max.
tci	Time of interrupted cycle (Limited)	----	4 sec. max.

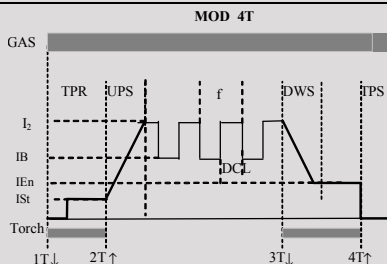
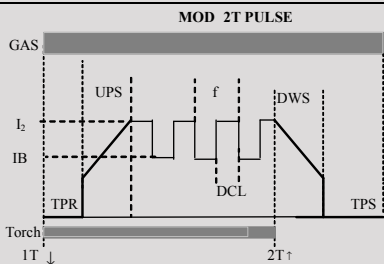
### PARAMETERS OF DYNAMIC CYCLE – MMA / MMA CEL PROCESSES

Parameter	Parameter description	Scale	Range	FACTORY
<b>HOT</b>	HOT START dynamic function level	% I <sub>2</sub> (A)	00-100	50
<b>ARF</b>	ARC FORCE dynamic function level	% I <sub>2</sub> (A)	00-100	50

### Dynamic functions of MMA / MMA CEL

Lift	LIFT ARC (soft striking)
Anti sticking	ANTI-STICKING

### OPERATING CYCLES – TIG / TIG PULSE PROCESSES



Parameter	Parameter description	Range	FACTORY
<b>MOD</b>	Pulse mode (2T / 4T)	2T – 4T	2T
<b>TPR</b>	Gas pre-flow time.	0÷5.0 sec.	0.3 (sec.)
<b>ISt</b>	Initial current (4T)	10 ÷ 100% I <sub>2</sub>	30 (% I <sub>2</sub> ) (1)
<b>UPS</b>	Ramp-up time	0÷10.0 sec.	0.4 (sec.)
<b>DCL</b>	Duty cycle	20 ÷ 100 %	50 %
<b>IB</b>	Base current (4T)	10 ÷ 100% I <sub>2</sub>	55 (% I <sub>2</sub> )
<b>DWS</b>	Ramp-down time	0÷10.0 sec.	0.6 (sec.)
<b>IEn</b>	Crater current (4T)	10 ÷ 100% I <sub>2</sub>	30 (% I <sub>2</sub> ) (1)
<b>TPS</b>	Gas post-flow time.	0÷10.0 sec.	0.5 (sec.)



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