



INVERTER TECHNOLOGY POWER SOURCE FOR MIG-MAG, TIG DC AND MMA

GENESIS GSM

282-352-503

High quality MIG-MAG,
TIG and MMA welding

These are inverter power sources purposely designed for exceptional quality welding both with electrode (**MMA**) and infusible tungsten wire in direct current (**TIG DC**) and continuous wire (**MIG, MAG, Pulsed Spray Arc**).

Top performance is guaranteed by use of innovative technology in the primary power block (**European Patent N° 602495**), the latest studies on welding parameter control systems, and the most advanced and dependable components on the world market (**microprocessor, IGBT and SMD components**).

The **RC10** remote control is an on-board computer which permits setting, measurement and storage of all the welding parameters. The **FP 142** passive front panel permits connection of both the active remote controls (RC10, PC) and the passive ones for MMA (RC16) and TIG (RC12).

In these new GSM series welders, maximum continuous performance of the three power sources has also been increased and they can now deliver, respectively:

280A, 350A and 500A without interruption at ambient temperature of 25°C.

They are the most powerful welders in their category!

The **FP 143** front panel is also available for connection to welding robot.

Genesis 282/352/503 GSM fully comply with the new European standard **EN60974-1** (equivalent to the International Standard **IEC974-1**) on electrical safety of welders and the stringent European Standard **EN50199** on electromagnetic compatibility; application of these standards ensures compliance of the welder with the **Community Directives** and maximum operator safety during work.

Genesis GSM is the best option in the field of multi-function power sources for arc welding!

Selco is an **ISO9001** certified company with a highly efficient distribution network, further confirmation of the product and service quality it offers its customers.



USE

Inverter technology, use of a microprocessor and accurate construction ensure **safety, dependability and stable precise welding arc** in all operating conditions.

The **WF104** separate wire feed unit weighs only 19 kg (without wire reel) and can be positioned above the power source on a pin, which permits 360° rotation, or at a distance near the work place by means of a **connection cable bundle up to 10 m long**; the **micro-processor**, the **Encoder** and a sturdy **4 roller gearmotor** ensure maximum precision in welding wire delivery speed.

The **WU21** unit cools the TIG and MIG torches, making them easier to handle and increasing performance. The **GT23** power source trolley simplifies transport of the whole system and gas bottle, making it one single compact unit.

The **RC10** remote control is provided with large liquid crystal graphic display which shows all the parameters of the selected welding process clearly and intuitively. 10 pre-set programs for MMA, 5 basic TIG settings and over 70 pre-set MIG/MAG programs are available and 60 customised welding settings can be stored.

At **switch-off**, the last welding condition is stored, making it easier to re-start work after interruptions. Customised welding programs can be easily stored also on the **Memory Card**.

The welding system can be controlled by a PC with connection interface and Selco SW and can be supplied without WF104 for MMA and TIG DC welding only.



MMA welding



The **Hot-Start**, **Arc-force** and **Anti-sticking** functions and the possibility of connecting the **RC 16 remote control** make welding easier, smoother and better quality even with particularly difficult electrodes. The powerful current and exceptional dynamic response permit welding of rutile, basic and cellulosic electrodes, including large sizes, in addition to cast iron, aluminium and stainless steel electrodes.

With Genesis GSM 503 deseaming is also possible by means of Air Carbon Arc procedure.



The **WF 104** wire feed unit weighs less than 20 kg and can be easily transported.



RC12 remote control



RC16 remote control

TIG DC welding



Remote sparking of the arc (HF start) is immediate and precise; **contact start** can also be selected (LIFT start) which has been purposely designed to minimise inclusion of

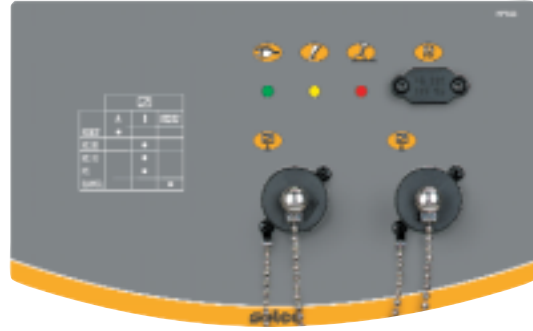
tungsten in the material to be welded and greatly reduce electromagnetic interference.

The microprocessor functions permit complete control of the welding arc both **at the beginning** (pre-gas, current slope-up, initial current) and at the **end** of the welding bead (post-gas, current slope-down, final current). Pulsed arc welding (for low heat on thin sheet metal) and medium frequency welding (for a more stable arc) are available; the various **torch button control** modes (2 stage, 4 stage, bi-level) and the **RC12 pedal remote control** facilitate the operator's work.

The special **Bilevel** function permits variation of the welding current, via the torch button, choosing from 2 pre-defined values which can be set separately. This is useful for complicated welding operations and for improving weld heating control.



FP142 - Standard control panel



FP143 - Control panel provided with 19 pole military connector with all signals necessary for connection of system to positioning devices and welding robots.

MIG-MAG welding



The Genesis GSM power sources have been purposely designed and sized for high-efficiency welding in continuous wire procedures, both in the **Short Arc** mode (for low current welding) and **Spray Arc** mode (for large deposits of material); operation in **Pulsed Spray Arc (pulsed MIG)** mode minimises spattering of molten material during welding, resulting in **reduction in time** for re-working the welded piece and therefore **lower costs** overall.

Pulsed MIG is ideal for welding carbon steel on thin sheet metal, stainless steel and aluminium (with results comparable to TIG AC welding); piece overheating and fumes are reduced compared to conventional MIG/MAG welding methods.

The remote control stores the **welding programs** for all the most commonly used materials; once the type of material, type of gas and wire diameter have been chosen, the operator only has to adjust the material deposit rate (**wire speed**) and arc length (**welding voltage**); these two parameters can also be varied by means of the **RC 07** remote control.

Using the **Memory Card** and varying (very simply) the synergic parameters, **any type of customisation is possible**.

The Soft-Start and initial increment functions optimise arc **striking** while the Crater-Filler, final current and Burn-Back time functions optimise the **end** of the welding bead and wire **Stick-Out**.



RC 07



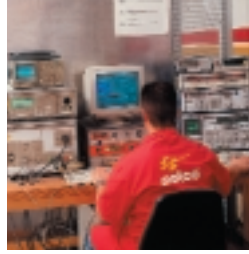
RC10: 60 storable programs, memory card, V/A measurement with graphs, large size graphic display.

ADVANTAGES

- ✓ One single system for **MMA, TIG DC, MIG/MAG and PULSED MIG welding**.
- ✓ **Greater power** at 100% duty cycle.
- ✓ **Reduced electricity consumption** compared to traditional power sources and first generation inverter power sources.
- ✓ **Easy to use**.
- ✓ Lightweight easy-to-handle **wire feed unit**.
- ✓ Can be used in harsh ambient conditions: **electronic circuits protected from dust** and **IP23** protection rating.
- ✓ The **microprocessor** facilitates setting of the parameters, ensures **welding repeatability** and therefore quality.
- ✓ **Pulsed MIG** reduces spattering of molten material during welding with **reduction in time** required for re-working the welded piece and therefore **lower overall costs** in addition to **reduced deformation and welding fumes**.
- ✓ Excellent electrode welding: **Hot-Start, Arc-Force and Anti-sticking**.
- ✓ **Measurement of welding arc voltage** and current for quality controls.

APPLICATIONS

- NUCLEAR INDUSTRY
- DEFENCE, AEROSPACE INDUSTRY
- TRANSPORT INDUSTRY
- PROFESSIONAL MAINTENANCE
- FOOD PROCESSING INDUSTRY
- HEAVY AND LIGHT METAL STRUCTURES
- AUTOMATION



EMC Test



IP 23 Test



40°C operation test



Welding test

TECHNICAL DATA 282 GSM 352 GSM 503 GSM

SUPPLY VOLTAGE 50/60 Hz	3X400V ±15%	3X400V ±15%	3X400V ±15%
INPUT CURRENT X=100%	13 A	19.5 A	32 A
MAXIMUM INPUT CURRENT	21 A	27.5 A	42.9 A
MAXIMUM POWER REQUIREMENT	10.1 kW	13.7 kW	22.9 kW
POWER FACTOR	0.69	0.72	0.77
EFFICIENCY	0.87	0.87	0.87
WELDING CURRENT 40°C	X=50%	-	500 A
	X=60%	280A	350A
	X=100%	220 A	270 A
WELDING CURRENT 25°C	X=100%	280A	350A
ADJUSTMENT RANGE	6-280 A	6-350 A	6-500 A
OPEN-CIRCUIT VOLTAGE	81 V	81 V	79 V
PROTECTION RATING	IP23 C	IP23 C	IP23 C
INSULATION CLASS	H	H	H
CONSTRUCTION STANDARDS	EN60974-1,EN50199	EN60974-1,EN50199	EN60974-1,EN50199
WEIGHT	34 kg	34 kg	42 kg
DIMENSIONS (L x P x H)	27.5x62x50 cm	27.5x62x50 cm	27.5x62x50 cm

ITEM CODES

Genesis 282 GSM 3x400V	55.04.128
Genesis 352 GSM 3x400V	55.04.135
Genesis 503 GSM 3x400V	55.04.150
Genesis 282 GSM 3x400V ROBOT	55.04.129
Genesis 352 GSM 3x400V ROBOT	55.04.136
Genesis 503 GSM 3x400V ROBOT	55.04.151
RC 07 remote control for MIG 5m	71.02.007
RC 10 synergetic pulsed multi-function remote control 6m	71.02.010
RC 12 pedal control 5m	71.02.012
RC 16 current regulation remote control	71.02.016
5m RC 16 connection cable	71.02.103
10m RC 16 connection cable	71.02.104
20m RC 16 connection cable	71.02.105
Unprogrammed Selco memory card	74.04.007
PC software control for GSM	74.04.004
Interface kit for connection to RS 232	74.04.001
Cable bundle for Genesis 282 GSM/PME H ₂ O 35 mm ² 1,3 m	71.06.236
Cable bundle for Genesis 352/503 GSM/PME H ₂ O 70 mm ² 1,3 m	71.06.240
Cable bundle for Genesis 352/503 GSM/PME H ₂ O 70 mm ² 4 m	71.06.241
Cable bundle for Genesis 352/503 GSM/PME H ₂ O 95 mm ² 10 m	71.06.254
WF 104 4 roller wire feeder	71.01.104
GT 23 trolley	71.03.023
WU 21 cooling unit	71.03.021



Items available: Torches, earth cables and all welding accessories can be supplied.

Since SELCO pursues a policy of continuous research and development, the data shown may be subject to modifications without notice.

FUNCTIONS

REMOTE CONTROL	RC 10	PC + SW						
N° PROGRAMS	60	99x3						
MEMORY CARD	Y	N						
MMA								
MMA N° PROGRAMS	16							
HOT START	0-100%Is							
ARC FORCE	0-100%Is							
ANTI-STICKING	Y							
RC 16 POTENTIOMETER	Y							
TIG DC								
2/4 TIME	Y							
TIMER	Y							
BI-LEVEL	Y							
LIFT-HF START	Y							
PRE-GAS TIME	0.0-25.0s							
STARTING CURRENT	6A-I _{max}							
SLOPE UP	0.1-10.0s							
PULSED	Y							
PULSED MF	20-500Hz							
SLOPE DOWN	0.1-10.0s							
FINAL CURRENT	6A-I _{max}							
POST-GAS TIME	0.0-25.0s							
RC 12 PEDAL	Y							
MIG/MAG SYNERGIC PROGRAMS								
WIRE DIAMETERS	0.8	0.9	1.0	1.2	1.4	1.6		
MATERIAL	Fe	80%Ar 20%CO ₂	S	-	S	S	-	S
	Fe	100% CO ₂	S/P	-	S/P	S/P	-	S/P
	Ss	98%Ar 2%O ₂	S/P	-	S/P	S/P	-	-
	Ss	98%Ar 2%CO ₂	S/P	-	S/P	S/P	-	S/P
	AlMg5	100%Ar	S/P	-	S/P	S/P	-	S/P
	AlSi5	100%Ar	S/P	-	S/P	S/P	-	S/P
	Al	100%Ar	-	-	S/P	S/P	-	S/P
	CuAl	100%Ar	S/P	-	S/P	S/P	-	S/P
	CuSi	100%Ar	-	-	S/P	-	-	-
	RFCWFe	80%Ar-20%CO ₂	-	-	-	S/P	S/P	S/P
	MFCWFe	80%Ar-20%CO ₂	-	-	-	S/P	S/P	S/P
	BFCWFe	80%Ar-20%CO ₂	-	-	-	S/P	S/P	S/P
	FCWss	80%Ar-20%CO ₂	-	S	-	S/P	-	S/P
VARIABLE INDUCTANCE	Y							
2/4 TIME	Y							
TIMER	0.1-25.0s							
SOFT-START	10-100%Vf							
INCREMENTO INIZIALE	20-200%Vf							
CRATER-FILLER	20-200%Vf							
BURN-BACK TIME	0.01-1.00s							
FINAL CURRENT	Y							
POST-GAS TIME	0.0-10.0s							
TEST-GAS	Y							
WIRE TEST	Y							
PUSH-PULL	OPTIONAL							
RC07	Y							

LEGEND

Y= yes N= no S= Short-Spray Arc P= Pulsed-Spray Arc Is,I_{min},I_{max}= welding current, min. current, max. current
Vf= wire feed A= ampere s= second Hz= Hertz



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