

# **Transmig 350i and Transmatic 4x4P**



**Please ensure that this  
Instruction Manual is made  
available to the user of  
the equipment**



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## WARNING



This welding equipment has been designed, manufactured and tested to the highest standards to ensure long and trouble free life. However, regular maintenance is an essential part of keeping the machine operating in a reliable and safe manner and your attention is drawn to any maintenance instructions that are contained in this manual.

In general, all welding equipment should be thoroughly inspected, tested and serviced at least annually. More frequent checking will be required when the equipment is heavily used.

Wear and tear, particularly in electro-mechanical and moving components, are gradual processes. Caught in time, repair costs are small and the benefits in performance reliability and safety are significant. Left alone, they can put the equipment, and you, at risk.

Have this equipment regularly inspected and maintained by an approved service centre.



## WARNING



**ARC WELDING AND CUTTING CAN BE INJURIOUS TO YOURSELF AND OTHERS. TAKE PRECAUTIONS WHEN WELDING. ASK FOR YOUR EMPLOYER'S SAFETY PRACTICES WHICH SHOULD BE BASED ON MANUFACTURERS' HAZARD DATA.**

### **ELECTRIC SHOCK - Can Kill**

- Install and earth the welding unit in accordance with applicable standards.
- Do not touch live electrical parts or electrodes with bare skin, wet gloves, or wet clothing.
- Insulate yourself from earth and work.
- Ensure your working position is secure.

### **FUMES AND GASES - Can be Dangerous to Health**

- Keep your head out of the fumes.
- Use ventilation, extraction at the arc, or both, to keep fumes and gases from your breathing zone and the general area.

### **ARC RAYS - Can Injure Eyes and Burn Skin**

- Protect your eyes and body. Use the correct welding screen and filter lens and wear protective clothing.
- Protect bystanders with suitable screens or curtains.

### **NOISE- Excessive noise can damage hearing**

- Protect your ears. Use ear defenders or other hearing protection.
- Warn bystanders of the risks.

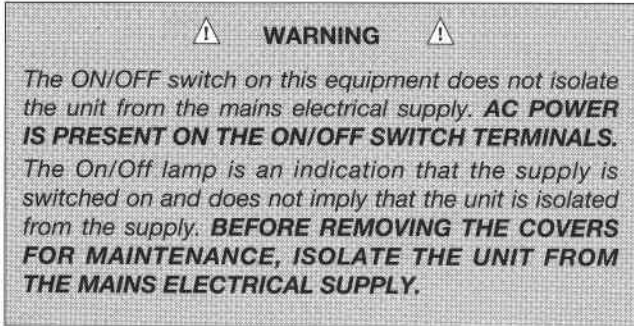
**READ AND UNDERSTAND THE INSTRUCTION MANUAL  
BEFORE INSTALLING OR OPERATING AND SEE 18 PUBLICATION 237  
'The arc welder at work' AVAILABLE FROM THE MANUFACTURER.**

**PROTECT YOURSELF AND OTHERS**

## SAFETY

In any arc welding or cutting operation, it is the responsibility of the user to observe certain safety rules to ensure his personal safety and to protect those working near him.

Read all safety articles relevant to arc welding or cutting published by the WMA. Pay particular attention to any **CAUTION** or **WARNING** Notes included in this manual. **CAUTION** indicates possible equipment damage. **WARNING** indicates possible hazard to life.



### 1. Electrical

- ⚠ Treat electricity with respect. Even the open circuit voltage of this equipment can be dangerous. Adjustments to the torch or replacement of torch parts should be undertaken with the mains supply isolated from the unit.  
If damaged torch cables or torch components are found, the unit must be disconnected from the mains and defective parts must be replaced using only Murex spare parts.
- ⚠ Do not work on live circuits or cables. Disconnect the main power supply before checking the machine or performing any maintenance operation.
- ⚠ Be sure the case of the welding machine is properly connected to a good electrical earth.
- ⚠ Have the wiring for the welding machine installed by a qualified electrician. All connections must be made according to specifications in force and to general safety standards.
- ⚠ Do not stand in water or on damp floors while using an arc welder or cutter. Do not use in the rain.
- ⚠ Do not operate with worn or poorly connected cables. Inspect all cables frequently for insulation failure, exposed wires and loose connections.
- ⚠ Do not overload cables or continue to operate with overheating cables. Cables which are too small for the current carried will overheat, causing rapid deterioration of the insulation.
- ⚠ Pay attention that live parts of the torch do not touch any metal which is connected to the earth cable. Fix an insulated hook to hang the torch on when it is not in use.

### 1. Ventilation

- ⚠ Do not weld or cut on containers which have held combustible or flammable materials, or materials which give off flammable or toxic vapours when heated, without proper cleaning.
- ⚠ Locate the welding/cutting operation far enough from any vapour-type degreaser using trichlorethylene or other chlorinated hydrocarbons as solvents. The ultraviolet light from the arc can decompose these vapours into toxic gases at a considerable distance from the arc, even though the concentration of the gases is low enough to be undetectable by smell.
- ⚠ Be sure to provide adequate ventilation for removal and dilution of fume and gases. Fume exhaust facilities near the arc, or a ventilated helmet should be used when cutting in confined spaces or on toxic material.

### 2. Glare

- ⚠ Never look at the arc without wearing eye protection. Always use the proper protective clothing, filter glasses, and gloves. Be careful to avoid exposed skin areas. Do not use cracked or defective helmets or shields.
- ⚠ Never strike an arc when there is someone near who is not protected from the strong light of the arc.
- ⚠ Warn bystanders who are not aware of the dangers of ultraviolet light.

### 3. General

- ⚠ Take care when lifting the unit.
- ⚠ Ensure that cylinders are secured by chains.
- ⚠ Locate the unit so that there is adequate air flow to the ventilation louvres.
- ⚠ Always dress correctly to protect against glare, radiation and spatter.

### 4. Fire

- ⚠ Ensure that the correct type of fire extinguisher is available in the operating area.
- ⚠ Do not use near flammable materials or liquids, in or near explosive atmospheres, or on pipes carrying explosive gases.

### 5. Vehicle Electrics

- ⚠ When working on motor vehicles, remove the battery and any circuitry which may be damaged by the arc.
- ⚠ Whilst cutting be aware of the possibility of 'hidden wires' behind panels or bulkheads.

## INTRODUCTION

The Murex Transmig 350i is a high performance multi-process inverter based industrial welding power source. The constant voltage (cv)/constant current (cc) output makes the Transmig 350i ideally suited for MIG/MAG, MMA and TIG welding processes. Some of the special features of the Murex Transmig 350i are as follows:-

- Continuous control of welding voltage or welding current. Precise setting and adjustment either from the front panel or a remote location eg. the wire feed unit or a remote control device.
- Electronic feedback control system which maintains consistent output against mains voltage variations, temperature drift etc.
- A three position slope selector (steep, medium and flat) combined with a variable inductance control permits precise adjustment of the welding output providing excellent arc characteristics for MIG/MAG welding applications.
- Accurate Voltmeter/Ammeter
- Variable arc force control providing excellent MMA welding characteristics.
- Full compliance with the new British and IEC Standards covering such equipment. This means longer duty cycle operations, (10 minutes of 5) and greater safety criteria.
- Thermal overload and overcurrent sensors automatically shut off the machine output when safe operating conditions are exceeded.
- A low current 'Lift Arc' TIG striking system that provides a clean start without contaminating the electrode.
- A synergic pulsed MIG capability available via an optional pendant control unit. (see option on page 17).

## Transmatic 4x4P Wire Feed Unit

The Transmatic 4x4P wire feed unit is designed for use with the Transmig 350i for MIG/MAG welding using hard, soft and tubular (cored) wires. Details of the wire sizes handled are given in the specification section.

A quick fit central adaptor (Euroconnector) allows the full range of Murex torches to be fitted quickly with the minimum preparation.

The wire is fed by four feed rolls driven by a Tacho controlled d.c. motor providing excellent, accuracy and repeatability irrespective of load or temperature variation.

Some of the standard features of the Transmatic 4x4P wire feeder are:-

- Gas Purge Switch
- Wire Inch/Jog Switch
- Torch switch latching facility complete with variable pre and post gas flow time functions.
- Spot weld timer.
- "On" Indicator light
- Wire feed speed and voltage setting potentiometers.

## SPECIFICATION

TRANSMIG 350	
<b>Output:</b>	
Duty Cycle:-	40% 360A 60% 300A 100% 225A
Current range:-	MIG/MAG 40-360A MMA 30-300A TIG 5 - 300A
OCV (max):-	68Vdc
Characteristics:-	See figures 1,2 & 3
Inductance:-	Variable
<b>Input:</b>	
Mains Voltage:-	380/415V
Phase:-	3
Frequency:-	50Hz
Input Current:-	26A/24A
Fuse Rating:-	30A Slow Blow
<b>Control Voltage:</b>	
Wire Feed Unit:-	42Vac
Remote Control:-	0-10Vdc
<b>Dimensions:</b>	
Height:-	400mm
Width:-	260mm
Depth:-	670mm (inclusive of carrying handle)
Weight:-	39kg

TRANSMATIC 4X4P	
Input Voltage:	42Vac
Wire Feed Speed:	1.3-19m/min
Wire Sizes:	
Hard/Soft:-	0.8mm to 2.4mm
Cored:-	1.2mm to 2.4mm
<b>Dimensions:</b>	
Length:-	570mm (inclusive of Euro adaptor)
Height:-	350mm (inclusive of lifting handle)
Width	230mm

## VOLT/AMP CHARACTERISTICS

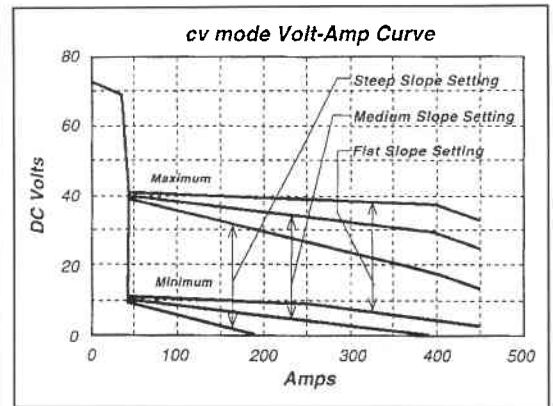


Fig 1

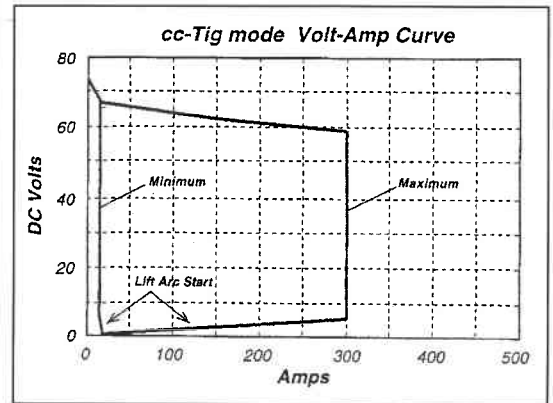


Fig 2

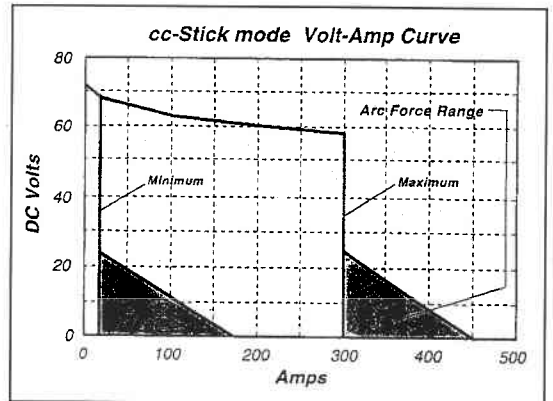


Fig 3

## INSTALLATION

### **WARNING!**

*Installation must only be undertaken by a qualified electrician or suitably trained person.*

Correct installation is important for the reliable and safe operation of the equipment. Before continuing carry out the following checks.

1. Having unpacked the power source, inspect for evidence of damage or missing parts. Notify the carrier or Murex immediately.
2. Check the air louvres in the front and rear panels for any packing materials that might obstruct the air flow.
3. Position the equipment in a safe area. Leave at least 0.5m clearance around the unit to allow air to circulate freely. The position should be free from dust, fumes and heat. See SAFETY at the front of this manual.

### Connection to Mains Supply

#### **WARNING**

*Before making electrical input connections to the unit, use 'machinery lockout procedures'. If the connection is to be made from a mains disconnect switch, the switch should be padlocked in the off position. If the connection is made from a fuse box, remove the fuses from the box and padlock the cover in the closed position. If locking facilities are not available, attach a red tag to the mains disconnect switch (or fuse) to warn others that the circuit is being worked on.*

*Placing the machine unit power switch in the 'off' position does not shut off all power within the equipment.*

*Comply with local ordinances and electrical authorities.*

### The Murex Transmig 350i

Requires an industrial 3 phase 380/415v supply. For the fuse rating see the specifications section on page 6.

The power source should be connected to a separately fused circuit including a switch isolator.

The Transmig 350i is supplied with the primary input cable already fitted. However if the customer wishes to connect his own primary input cable proceed as follows:-

- Remove the top cover
- Feed primary cable through the strain relief hole in the rear panel.
- Connect the three phase leads (Brown, Blue and Yellow) to the three terminals on the on/off switch designated on the circuit diagram on page 16.
- Connect the earth cable (green/yellow) to the ground stud on the base of the power source.
- Make sure all connections are tightened firmly.
- Tighten the strain relief coupling on the rear panel ensuring that the primary input cable is securely held.

#### **WARNING!**

*It is of utmost importance that the chassis be connected to an approved electrical ground to prevent accidental electric shock. Take care not to connect the ground wire to any of the primary phase leads.*

- Recheck all connections to ensure that they are tight, well insulated, and that the proper connection has been made.
- Replace the top cover.

## Controls and Facilities

### Transmig 350i

1. Power on indicator lamp indicates that the power is switched on and that the Transmig 350i is ready to weld.

#### WARNING

*If this lamp is not illuminated the mains supply may still be connected to the unit. Before removing the covers always isolate the unit from the mains electrical supply.*

### 2. Hi/Low Line Indicator

Illuminates when the primary supply voltage rises or falls beyond pre-determined limits ( $\pm 10\%$ ). Since this condition can often be caused by a transient voltage try re-operating the torch switch or switching the main power on/off switch off and on again to resume welding. Should nuisance tripping caused by transients become a problem contact Murex welding products.

### 3. Over Temperature Indicator Lamp

The indicator will illuminate and the power source output will be inhibited if the temperature of internal components becomes excessive. Should this occur, leave the power source to idle for a few minutes to cool down, do not switch the power source off as this will remove power from the cooling fan.

#### CAUTION

*If this indicator lamp persistently operates do not use until the power source has been checked by an approved Service Engineer.*

### 4. Slope Switch

Three different volt ampere slope characteristics are available in the MIG/MAG welding mode.

- Flat position provides a slope of 1V/100A and is recommended for most spray arc conditions.
- Medium position provides a slope of 3V/100A and is recommended for 1.0mm and above Stainless Steels, Aluminium and Flux cored wires.
- Steep position provides a slope of 6V/100A and is recommended for all small diameter solid wires 1mm and below, using dip transfer modes on thinner materials.

NB: This function only works when operating in the MIG/MAG (cv) mode. It is by-passed in the TIG and MMA (stick) modes.

### 5. Output Control Potentiometer

This control has a dual function dependent upon which mode of welding is selected. In the MMA and TIG welding modes this control adjusts the welding current. In the MIG/MAG mode this control adjusts the output voltage.

### 6. Process Selection Switch

This 3 position switch selects the required static and dynamic characteristics for the 3 welding processes (MIG/MAG, MMA, TIG)

### 7. Inductance/Arc Force Potentiometer

In the MIG/MAG welding mode this control provides variable inductance control.

Variable inductance control permits the fine tuning necessary to optimise the welding condition and minimise the weld spatter produced during dip transfer applications.

In the general in dip transfer MIG/MAG welding increasing the inductance gives a "softer" and hotter welding condition but can result in significant coarse spatter. Higher inductance values generally result in a reduced transfer frequency with greater arc on time.

Reducing the inductance provides a "harder" colder and crisper arc with increased transfer frequency and is generally suited to thinner sheet applications. Significant fine spatter may result at too low inductance values.

In the MMA (stick) welding mode this control provides a variable "arc force" control providing optimum dynamic characteristics to suit different electrode types. A lower arc force setting provides less short circuit current and a softer more stable arc. A higher setting provides a higher short circuit and a forceful and more penetrating arc.

### 8. Digital Voltmeter/Ammeter and Selector Switch

This instrument provides direct digital reading of open-circuit or welding voltage, or welding current dependent upon the position of the selector switch.

### 9. Remote Control Switch

In the remote position and by connecting an appropriate remote control unit (see options on page 17) some of the front panel functions can be operated remotely from the power source.

### 10. Contactor Remote

In the remote position the output of the Transmig 350i can be switched on and off remotely from the power source. eg: foot control unit, torch switch, MIG wire feeder.

### 11. Wire Feeder Control Socket (rear panel)

This 19 pin socket receives a mating plug from the Transmatic 4x4P wire feed unit.

### 12. Remote Control Socket (rear panel)

This 14 pin socket receives a mating plug from one of the remote control options. (see options on page 17).



