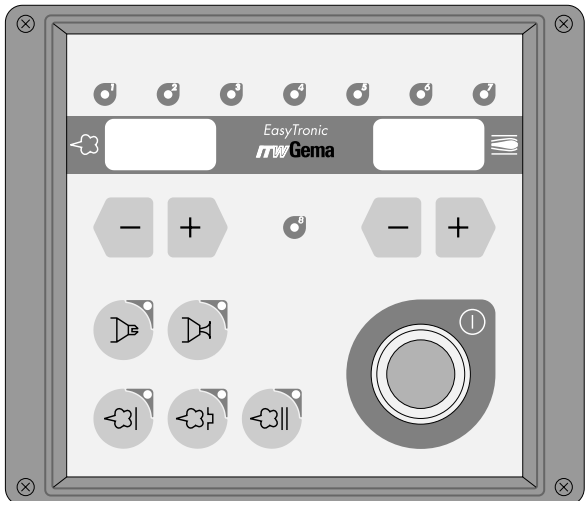
E

Operating Instructions and Spare Parts List

EasyTronic
Control Unit



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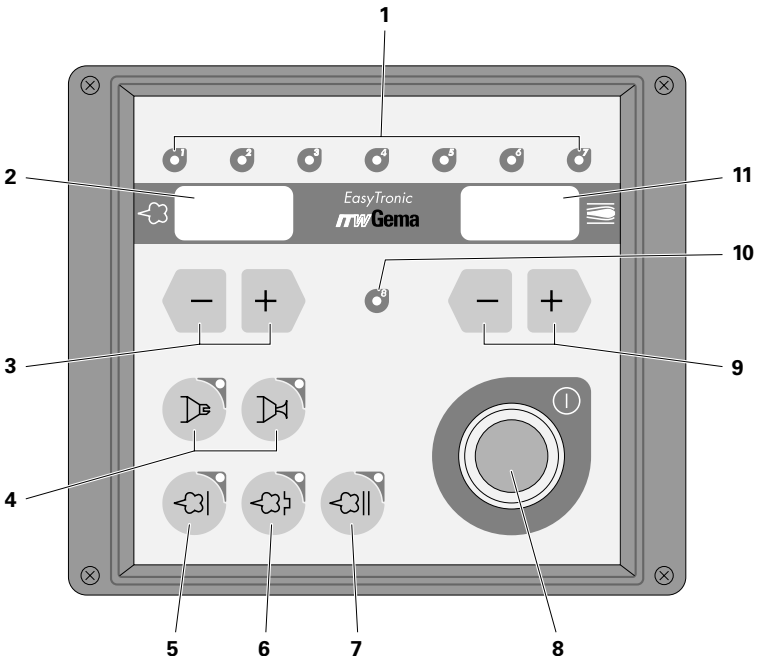
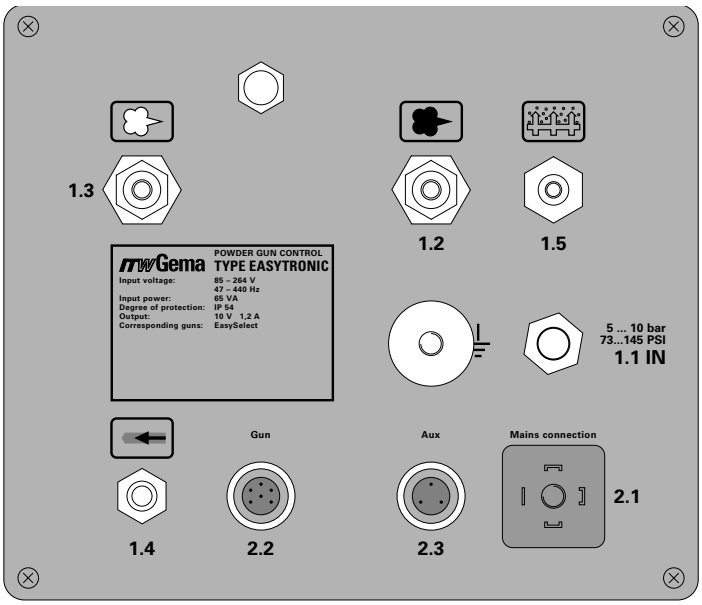
EASYTRONIC CONTROL UNIT - FRONT VIEW



1 Diagnostic LEDs
2 Powder output display
3 Key for setting the powder output
4 Electrode rinsing air key
5 Application key for flat parts
6 Application key for complicated parts
7 Application key for overspraying
8 On / Off Push button
9 Key for setting the total air volume
10 Diagnostic LED for High-voltage
11 Total air volume display

CONNECTIONS ON THE REAR OF THE EASYTRONIC CONTROL UNIT



1.1 IN Compressed air input
1.2 Conveying air connection
1.3 Supplementary air connection
1.4 Rinsing air connection
1.5 Fluidizing air connection
2.1 Mains input (85-264 V)
2.2 Gun connection for the EasySelect Manual Powder Gun.
*PG 1 manual powder guns **cannot** be connected here!*
2.3 Output for Vibrator (EASY 1-B only) and Stirrer control unit (EASY 1-S only)
⏚ Ground connection

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DIRECTIONS FOR USE

Safety rules for electrostatic Powder coating

1. This equipment can be dangerous when not operated according to the following standards:
   EN 50 050 (or VDE 0745 Part 100),
   EN 50 053 Part 2 (or VDE 0745 Part 102),
   and specification sheet, ZH 1/443 Electrostatic Powder Coating.
2. All electrically conductive parts within 5 m of the coating area, especially the workpieces, must be grounded.
3. The floor in the coating area must be electrically conductive (normal concrete is generally conductive).
4. The operating personnel must wear electrically conductive footwear (i.e. leather soles).
5. The operating personnel should hold the powder gun in the bare hand. If gloves are worn they must be electrically conductive.
6. Connect the grounding cable (green/yellow) supplied to the grounding screw of the electrostatic manual powder coating equipment. The grounding cable must have a good metal to metal connection with the powder coating booth, the powder recovery equipment and the chain conveyor or the hangers of the objects.
7. The electric cables and powder hose to the guns must be laid out so that they are protected from possible mechanical damage.
8. The powder coating equipment must switch on only after the powder booth is in operation. If the booth breaks down, then the powder coating equipment must switch off.
9. The grounding of all conductive parts is to be checked at least once a week.
10. When cleaning the powder gun and when replacing nozzles the control unit must be switched off.

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TECHNICAL DATA - EASYTRONIC CONTROL UNIT

Mains connection:

Input voltage:	90 - 264 V
Frequency:	47 - 440 Hz
Nominal output voltage (to gun):	max. 12 V_S
Nominal output current (to gun):	max. 1 A
Type of protection:	IP 54
Temperature range:	0 °C to +40 °C (+32 °F to +104 °F)
Approval:	

Pneumatic Data

Main compressed air input:	B.S.P.1/4" (Female)
Max. Input pressure:	10 bar
Min. Input pressure:	6 bar
Max. water content of the compressed air:	1.3 g/m^3
Max. oil vapour content of the compressed air:	0.1 mg/kg

Dimensions:

Width:	248 mm
Depth:	250 mm
Height:	174 mm
Weight:	5.2 kg

⚠ IMPORTANT The EasyTronic Control Unit can only be used with the EasySelect manual gun.

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EASYTRONIC CONTROL UNIT

Field of Application

The electrostatic EasyTronic Control Unit is designed exclusively for the controlling powder coating with the EasySelect manual powder gun. This equipment is not to be used for any other purpose. Any damage resulting from its misuse is not the responsibility of the manufacturer, the entire risk is carried by the customer alone.

All settings for efficient powder coating have been made simple and reproducible on the EasyTronic. The built-in electronics permit exact setting of the optimum powder output, and the values set can be seen on the digital display windows and can even be checked from a distance. According to the selected application mode, the spray voltage is set automatically and spray current is limited automatically.
The EasyTronic Control Unit can be connected to all usual mains voltages.

For a better understanding of the relationships in powder coating it is recommended to read the operating instructions of other components, thoroughly, so as to be familiar with their functions also.

Operating mode

The EasyTronic Control Unit is foreseen as standard for operation with all manual coating equipment in the EASY range. The desired functionality must, however, be determined by means of a "jumper" on the electronic board inside the control unit. If the control unit is supplied as a component of an EASY unit, then the "jumper" will be correspondingly set in the correct position at the factory.

In every other case, it is recommended to check the setting of the "jumper" (see also the corresponding section "Setting the operating mode on the electronic board ").

⚠ **NOTICE**

An incorrectly set "jumper" can lead to malfunctioning or to reduced functioning of the Vibration, Fluidization or Stirrer!

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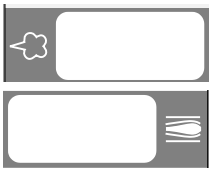
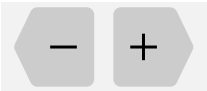
DESCRIPTION OF THE EASYTRONIC CONTROL UNIT

The operating panel of the EasyTronic control unit consists of 4 main areas: *Diagnostic LEDs, Displays, "+/–" Keys, and Function keys.*

1. The **Diagnostic LEDs** 1–8 serve to show the status of the equipment, and equipment faults. Detailed information is found in the "Troubleshooting Guide"



2. There are two **Displays** with whose help the following values are displayed:
   - **Powder output** (Setting range 0–100 %) Powder output in % always refers to the max. possible output volume to the total air volume setting.
   - **Total air volume** (Setting range 1.6–6.0 Nm^3/h)



3. The **Keys "+"** and **"–"** are for setting the powder output, and the total air volume used.

   If a key is pressed once, the value is increased or decreases, respectively, by one step. If a key is pressed continuously, the setting change rapidly.

4. The **Function keys** have the following functions:
   - **Electrode rinsing air for flat jet nozzles**
   - **Electrode rinsing air for round jet nozzles**

     When a key is pressed once, the corresponding function is activated, and the corresponding LED illuminates.

     If a key with an illuminated LED is pressed for longer than 1 second, the function is deactivated.

     ITW Gema recommends leaving the electrode rinsing air switched on, but can, however, remain switched off for applications with very small amounts of powder.
   - **Application keys:** With these keys the electrostatic (High-voltage, and current) are automatically set so that the setting for the selected application is the optimum.
     – Settings for flat parts
     – Settings for complicated parts with depressions
     – Settings for coating parts already coated

     High-voltage and current can be deactivated, when the corresponding key pad with the illuminated LED is pressed for longer than 1 second.

The EasyTronic control unit is switched on and off with a **Push button**. If the equipment is switched on, the yellow lamp is illuminated.

When the equipment is first switched on the preselected factory settings displayed:

60%	**4.0 Nm^3/h**
Flat jet rinsing	**Complicated parts**

After switching the equipment off (also when the equipment is disconnected from the Mains) the actual settings are retained.

Figure 1

b) Replacing the CG 01 Printed Circuit Board

1. Disconnect all electrical and pneumatic connections on the rear of the control unit.
2. Loosen the clamping element, dismantle the control unit and place on an level surface.
3. Unscrew the screws on the front of the housing.
4. Press the spacers together with pointed pliers and remove the printed circuit board
5. Remove the plug from the defective board and replace it on the new board.
6. Place the new board on the spacers and push them until they snap into place.
7. Reassemble the control unit in reverse order as described above.

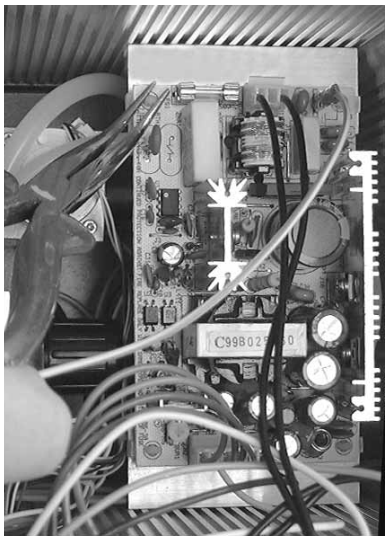


Figure 6

8. Reconnect the Mains cable
9. Carry out a calibration:

   a) Hold all Application keys pressed and simultaneously press the Main push button.

   The equipment carries out a calibration. An increase in noise can be heard inside the control unit. Both displays show 888. After about 20 seconds the equipment is ready for operation and returns to the factory setting.

If there are any problems or uncertainties, please contact a ITW Gema Service Centre.

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c) Replacing the Front plate

1. Disconnect all electrical and pneumatic connections on the rear of the control unit.
2. Loosen the clamping element, dismantle the control unit and place on an level surface.
3. Unscrew the screws on the front of the housing.
4. Disconnect all plugs from the front plate.

Dismantle Main switch

5. Unscrew the screws on the black ring and unscrew the ring.
6. Push the switch through the hole.

Figure 7

7. Unscrew the aluminium ring (**A**) and pull the push button out of the front plate.

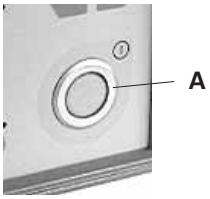

Figure 8

8. Replace the front plate.
9. Fit the plugs to the new front plate.

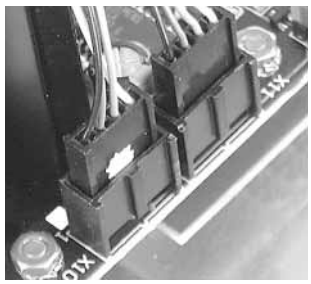

Figure 9

⚠ NOTICE

With the plug **X10,** take note of the white marking!

10. Reassemble the front plate and control unit in the reverse order as described above.

    Do not over-tighten the screw!
11. Reconnect the Mains cable.
12. Carry out a calibration:

    a) Hold all Application keys pressed and simultaneously press the Main push button.

    The equipment carries out a calibration. An increase in noise can be heard inside the control unit. Both displays show *888*. After about 20 seconds the equipment is ready for operation and returns to the factory setting.

If there are any problems or uncertainties, please contact a ITW Gema Service Centre.

REPAIRS TO PNEUMATIC PARTS IN THE CONTROL UNIT

a) Replacing a Pneumatic Part

1. Disconnect all electrical and pneumatic connections on the rear of the control unit.
2. Loosen the clamping element, dismantle the control unit and place on an level surface.
3. Unscrew the screws on the front of the housing.
4. Remove all pneumatic tubes from the part to be replaced (see below).
5. Dismantle the defective part and replace.
6. Reconnect the pneumatic tubes (see below).
7. Reassemble the control unit in the reverse order as described above.

If there are any problems or uncertainties, please contact a ITW Gema Service Centre.

Removing the pneumatic Tubes

Before exchanging pneumatic parts all tube connections should be removed. This is done by pushing the pressure ring back, with the thumb nail, on the quick-release fitting of the tube connector. The tubing can now be withdrawn.

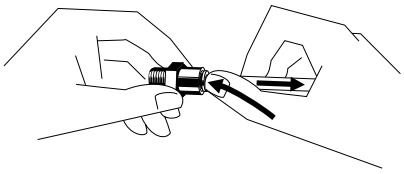

Figure 10

Refitting the pneumatic tubes

This is done by pushing the plastic tubing as far as it will go into the quick-release fitting of the hose connector. The hose is now fixed securely.

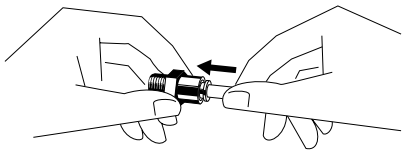

Figure 11

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TROUBLESHOOTING GUIDE

The diagnosis LEDs 1-7 illuminate green when switched on, and LED 8 remains unilluminated. It illuminates red when the gun trigger is pulled.

Fault	Cause	Remedies
LED 1-3 not illuminated	Mains supply unit defect	Replace Mains supply unit
LED 4 illuminates red	Main valve defect	Replace main valve spool
LED 5 illuminates red	- Gun not connected	Connect the gun
	- Gun plug, gun cable or gun cable connection defect	Replace corresponding part or send in for repair
	- Remote control on the gun defect	Exchange remote control (gun cover)
LED 6 illuminates red	Solenoid for rinsing air of the flat jet nozzle defect	Replace solenoid valve spool
LED 7 illuminates red	Solenoid for rinsing air of the round jet nozzle defect	Replace solenoid valve spool
LED 8 not illuminated, in spite of the trigger being pulled and the LED 5 illuminates green.	Gun plug, gun cable or gun connection defect	Replace corresponding part or send in for repair
The gun LED remains unilluminated, in spite of the trigger being pulled, and the LED 8 illuminates red.	- Gun plug, gun cable or gun connection defect	Replace corresponding part or send in for repair
	- Remote control on the gun defect	Exchange remote control (gun cover)
Powder does not adhere to the object, in spite of the trigger being pulled, and the gun sprays powder, the gun LED, and the LED 8 are illuminated.	- High-voltage and current deactivated	Press the selection key (Application key)
	- High-voltage cascade defect.	Send the gun in for repair
	- The objects are poorly grounded.	Check grounding, see also "Safety rules"
The control lamp in the push button does not illuminate in spite of the control unit being switched on.	No current: - Control unit is not connected to the Mains.	Connect the mains cable to the unit
	In the equipment: - Bulb burnt out.	Replace
	- Power pack defect	Replace

(continued)

Troubleshooting Guide (cont.)

Faults	Causes	Remedies
The powder is not fluidized.	No compressed air present	Connect the equipmentt h e compressed air supply
	- Reducing valve closed	Open
	- Reducing valve defect	Replace
The gun does not spray powder in spite of the control unit being switched on and the gun trigger being pressed	No compressed air present	Connect the equipment to the compressed air supply
	- Injector, check valve or nozzle on the injector, powder hose or gun clogged	Clean corresponding part
	- Nozzle in the injector clogged	Replace
	- Nozzle not fitted	Fit nozzle
	- Fluidizing does not function	See above
	No conveying air: - Reduction valve defect	Replace
	- Solenoid valve defect	Replace
	- Electronic in the front plate defect	Replace, send in for possible repair

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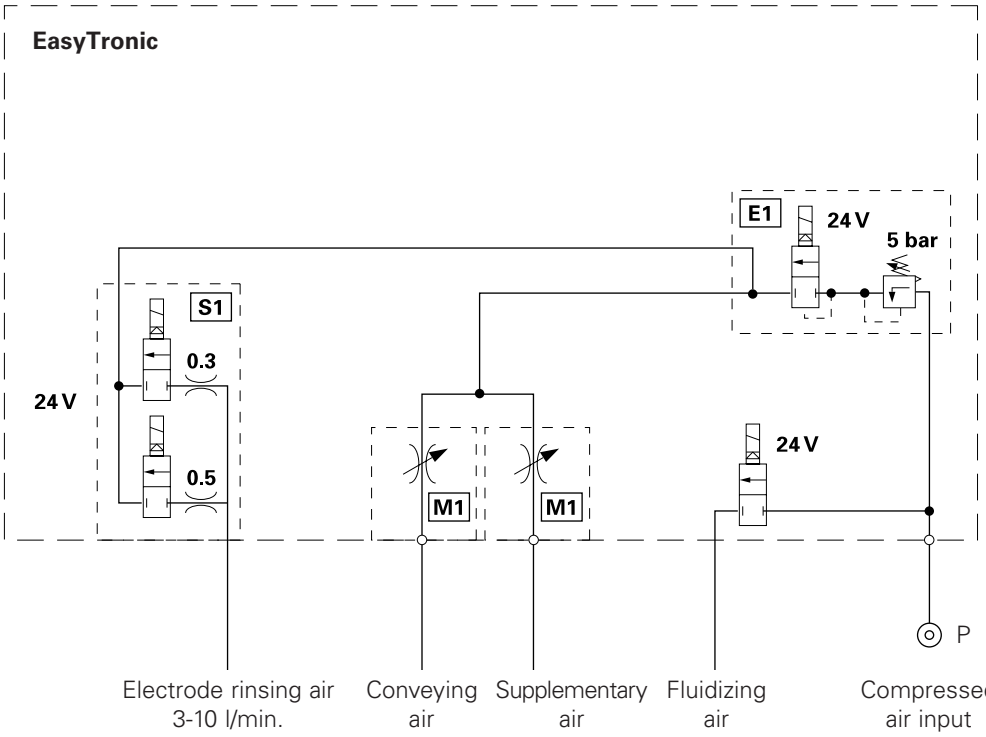
PNEUMATIC DIAGRAM



S1 = Rinsing air unit
M1 = Throttle motor
E1 = Input unit

Figure 12

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BLOCK DIAGRAM

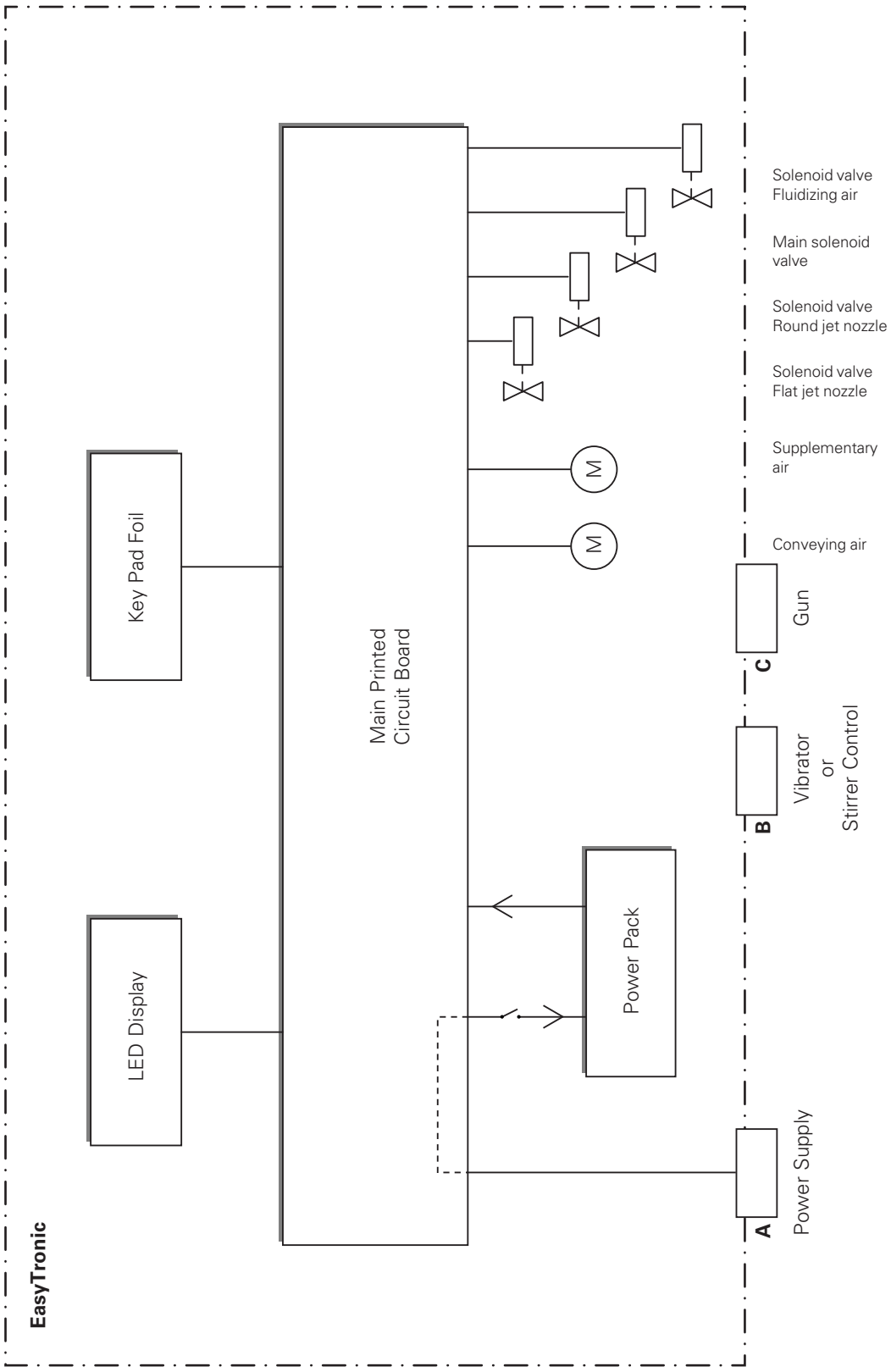

Figure 13

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DISPLAY OF THE OPERATING TIME

A software type Timer is built into the EasyTronic Control Unit which gives information about how long the control unit has been used for coating.

In order to use this function the unit must be switched on and **both rinsing air keys** **must be pressed simultaneously**.
This switches the display and the operation time can be read.
The display shows the hours, with a definition of 1/10 h = 6 mins.
The maximum operating time is 99999.9 h.

The Timer cannot be reset.

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SPARE PARTS LIST

Ordering Spare parts

When ordering spare parts for powder coating equipment, please indicate the following specifications:

1. Type and serial number of your powder coating equipment
2. Order number, quantity, and description of *each* spare part

Example:

1. **Type** *EasyTronic,* **Serial No.:** *XXX XXX*
2. **Order No.:** *201 073, 5 pieces, Fine wire fuse*

When ordering cable and hose material the length required must be given.
The spare part numbers of yard/meter ware always begins with 1.. ... and are always marked with an ***** in the spare parts list.

Wear parts are always marked with a **#**.

All dimensions for plastic powder hoses are given as external diameter (o/d) and internal diameter (i/d):

e. g. ø 8 / 6 mm, 8 mm outside diameter / 6 mm inside diameter (i/d).

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EASYTRONIC CONTROL UNIT - PNEUMATIC PARTS

2	Valve support	265640
5	Pressure regulating valve - 5 bar (preset)	262269
6	Solenoid valve - 1/4" - NW 8 mm, 24 VDC	262307
7	Solenoid valve - 1/8" NW - 1.6 mm, 24 VDC	262285
8	Solenoid valve spool - 24 VDC	262293
11	Seal	262900
12	Drive unit	375713
13	Rinsing air unit - S1	375730
14	Aluminium Block without solenoid	263869
15	Solenoid	263850
28	T-Connection - ø 8 - ø 8 - ø 8 mm	258040
29	Plastic hose - ø 8 / 6 mm	100005*****

***** Please indicate length required
# Wear parts

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EasyTronic Control Unit - Pneumatic Parts

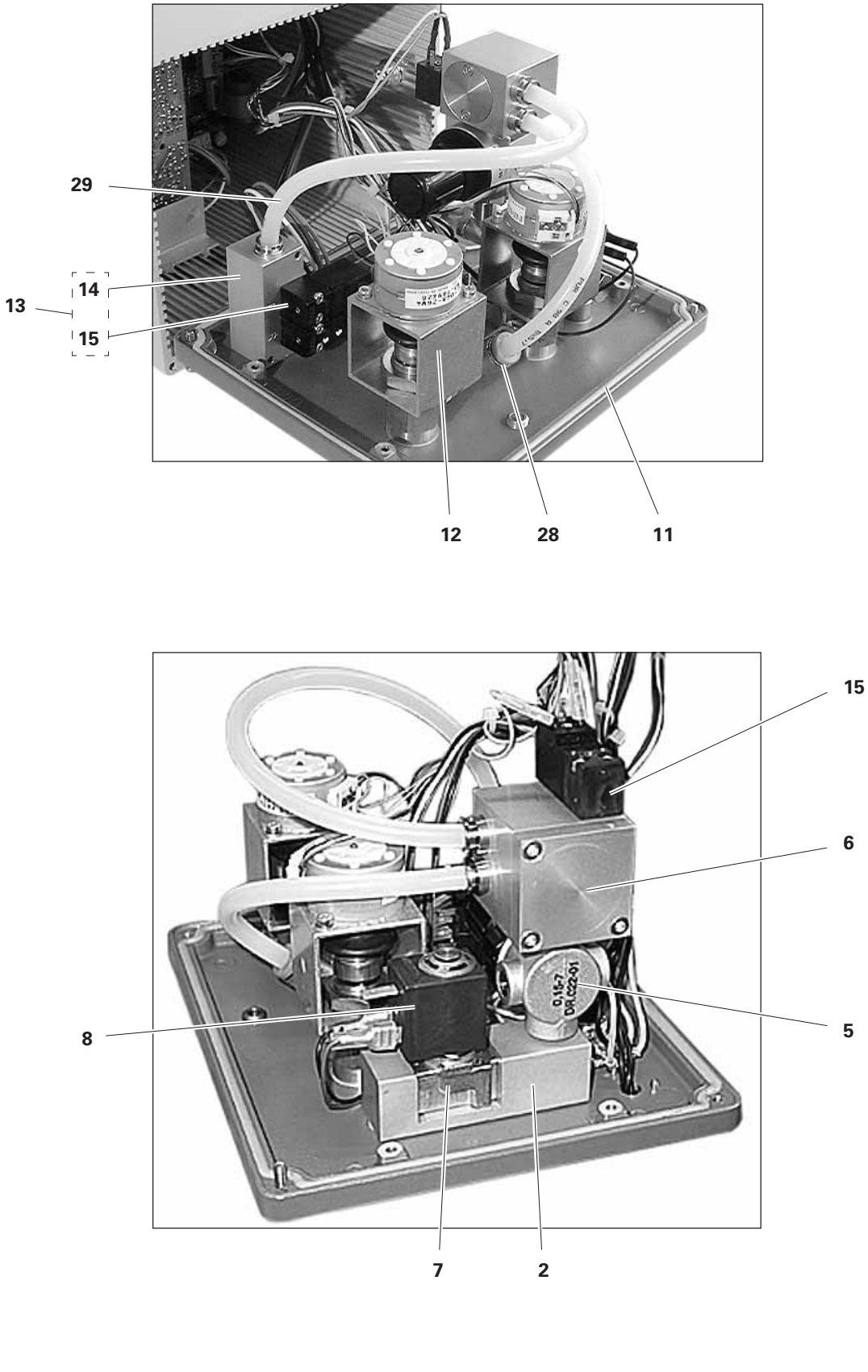

Figure 14

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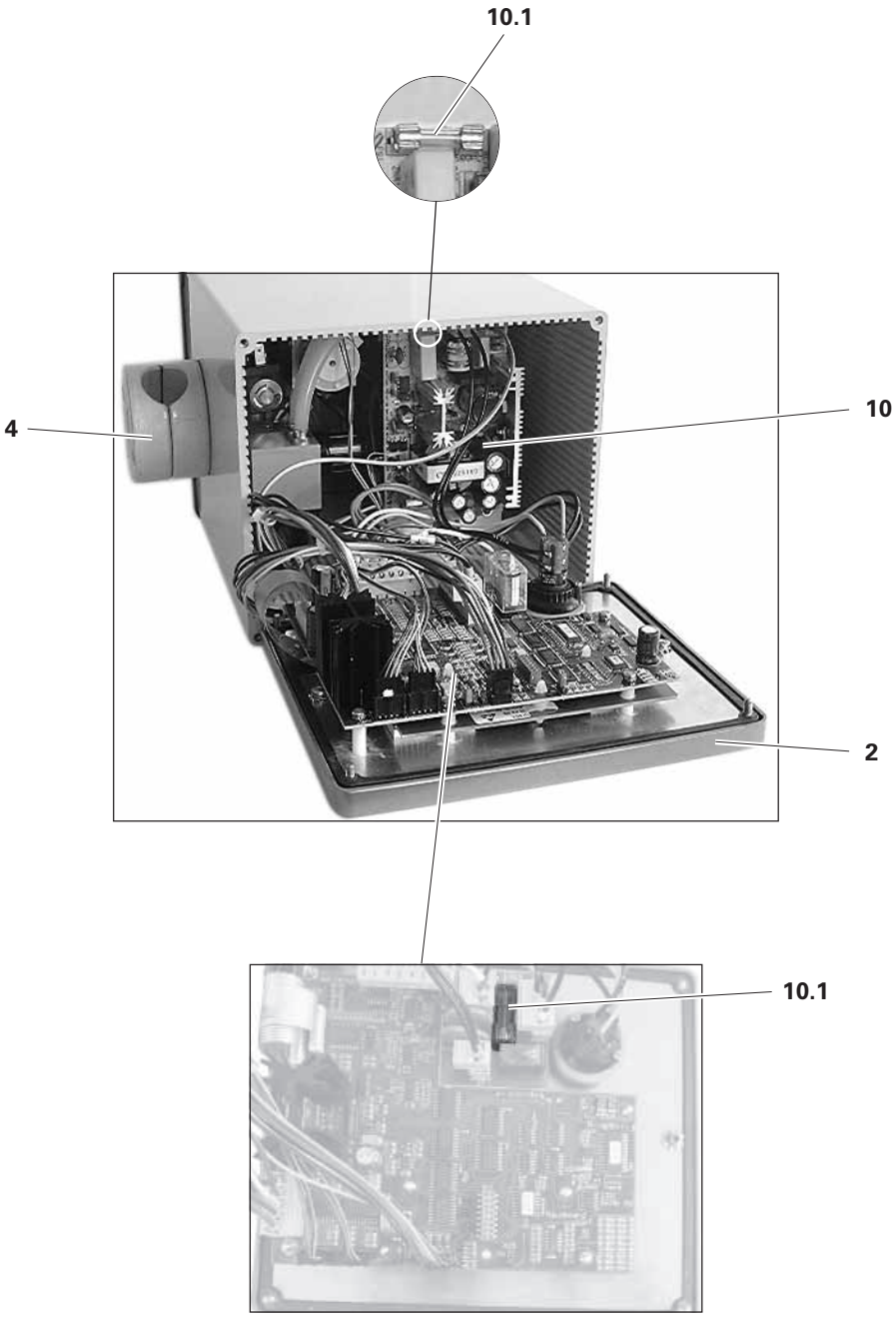
EASYTRONIC CONTROL UNIT - ELECTRICAL PARTS

2	Front plate - complete	375 799
4	Clamping element - complete - ø 30 mm	376 183
10	Printed circuit board CG 01	374 059
10.1	Fuse - 4 AF, 250 V	262 897



***** Please indicate length required

Figure 15

EASYTRONIC CONTROL UNIT - ACCESSORY

The transparent protective cover can be simply snapped onto the EasyTronic Front Panel and protects it from contamination and damage. All key pads (incl. the On/Off Switch) can be operated through the protective cover.

Snap-on Protective Cover (set of 5 pieces)	265284

Figure 16

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Documentation EasyTronic

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