



Manual use and maintenance

Model :

Unit number :

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VERSION 1.03240314



1. GENERAL INFORMATION

The instruction manual is part of a pack as technical guidance for the use of the equipment and for the complete functional benefit. It represents both in the context of product liability as indispensable source of information for the user, as well as to preserve from damage. It is also a previous requirement for EC standards and placing the EC mark on the unit.

The manual has been prepared by :

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In the following pages, the full company name is replaced by the term "manufacturer"

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According to copyright law, competition law and the Civil Code, duplicity is only allowed by written permission prior written permission. Documents can not be used by unauthorized persons and it can not be copied.

1.1 Warranty and liability

For people and / or property damage that may result from non-compliance with rules of this handbook Mouldpro ApS doesn't assume responsibility.

Failure to follow established rules or tips will void the warranty. Warranty doesn't cover.

Mouldpro ApS assumes no liability or guarantee, if original parts are not used

Warranty, liability, damage and personal injury be rendered ineffective by one or more of the following causes:

- Installation, starting operation of the unit with defective safety devices or improperly installed.
- Non-functioning safety or protective devices.
- Failure to follow the instructions given in the operating instructions regarding the installation, operation and maintenance.
- Change in starting conditions of the electrical connection, operating conditions and performance.
- Reconstruction or other changes in the system without prior written permission of Mouldpro ApS.
- Supervision or misuse of the pieces in the installation.
- Inadequate Repairs
- Misuse of the system, ie, the installation is not under use specifications in Chapter 3.1
- Disasters caused by foreign bodies and acts of violence.

The operating instructions shall be treated as confidential internal document, should not be transmitted to third parties, totally or partially reproduced in any way.

This manual may not be copied without the express written permission of Mouldpro ApS either in whole or in part. It may not be reproduced, distributed, modified, transmitted, translated into any language.

Warranty period: 24 months expedition date

Coverage: The warranty covers the replacement of defective components.

Excluded: the shipping costs and / or labor of technical service. Damage caused by transport.

1.2 Security




1.2.1 Introduction

System components are manufactured according to technical specifications and safety rules and safe operation must be manipulated by qualified personnel, or at least instructed to avoid unexpected malfunction.

Dangerous situations can be found like :

- Physical integrity of the user or third parties.
- Damage to equipment or property belonging to the client.

1.2.2 Warning signs

	<p>Risc</p> <p>Non compliance of established rules causes serious injury</p>
	<p>Warning</p> <p>Each person responsible for the installation, operation, maintenance and repair of the system is required to read the operating instructions and the safety instructions.</p>
	<p>Reference</p> <p>Here are some practical tips and other important or useful information. An operator must teach to others as the proper way to safely handle</p>

1.2.3 Purpose of use

The unit is manufactured for use specified in the order or in the documentation provided, for other uses will be considered misuse. In case of injury or property damage, the manufacturer shall not be liable. See Chapter warranty and liability.

The risk is your responsibility

Purpose of use also includes:

Instruction Manual

Compliance with the inspection and maintenance

Check all devices before starting production, in case of anomaly contact with our Customer Service department.


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	Risc
	In case of malfunction or continued malfunction can cause serious personal injury and equipment damage. <ul style="list-style-type: none">➤ turn off the machine immediately➤ immediately inform the Head of Production

Turn off the engine:

- If unusual sound or smells are detected from the unit
- If uncontrolled movements or vibrations are detected in the unit
- If an unusual temperature increase is observed in the unit
- If an increase in electricity consumption is detected



	Warning
	Modifications and / or improper changes may cause equipment malfunction, and a potential for property damage may also result in personal injury.


It shall ensure by the purchaser periodic inspections.


Standards and national accident prevention regulations and the recognized technical rules for safe and professional work must be apply.

Always observe the local rules and regulations for the disposal of ancillary substances (eg lubricants). A copy of the technical documentation must constantly maintain in a visible place.

Electrical / electronic equipment

	Reference
	<p>Areas / voltage components are characterized by the following warning symbols</p> <p> Warning of electrical voltage</p>

	Warning
	<ul style="list-style-type: none">➤ Work on electrical or electronic components can only be carried out by a qualified electrician in accordance with electrical rules.➤ Defective components may be low voltage on that ground can cause injury.➤ Any defect or breakdown must be communicated to the qualified responsible person, this should repair it immediately, unit must be disconnected.

	Reference
	<p>The following safety rules must be followed when working on electrical components :</p> <ul style="list-style-type: none">➤ Turn off the main switch of the machine➤ Unplug the equipment electrically➤ Verify the absence of voltage in the unit➤ Check for auxiliary equipment should not be connected to the unit <p>The safety instructions and manufacturer's performance must be carried out without restriction</p>

Personnel requirements

The customer is obliged to employ only qualified personnel to meet the requirements of relevant state regulations or other provisions that are equivalent to them, as well as the accident prevention rules adopted by the trade association

The supervisor of the department shall ensure the training of maintenance personnel

Employees are required to strictly observe the provisions of the operating instructions and safety rules


Transport, installation starting and maintenance must be performed by qualified personnel

2. Transport, installation and starting

2.1. Transport

Before shipment or change-location following points should be considered:

- Weight is determined from the technical data provided by the manufacturer. Use appropriate means for loading.
- Protect the unit before packing.
- Fasten the unit on a pallet.

	Risc
	<ul style="list-style-type: none">➤ Suspended loads can fall. Danger of injury!➤ If the load is not performed correctly the equipment may fall. Risk of serious injury!➤ Never go under load➤ Use appropriate loading equipments➤ Use secure transport routes

2.1.1. Notes and protective measures for transport preparation

- Sensitive components to be damaged shall be packed separately.
- Protect the equipment against moisture, dirt, dust etc.
- Fasten the machine to prevent movement during transport.
- Stacking equipment is prohibited

2.1.2. Unpacking

- By removing the packaging, make sure the equipment is not damaged
- The packaging material should be disposed according to environmental laws
- Loosen fastening straps, bolts and mounting screws only when the equipment has been placed in the facility

2.1.3. Check the delivery

- The equipment must be inspected immediately after delivery by the forwarder
- Please check the delivery terms to accept the order

2.1.4. Damage during transport / records

- If damage is detected on the unit or on the packaging it must be informed immediately in consignment note.
- Document the damage with pictures.
- Also inform the manufacturer

2.1.5. Storage before starting


In case the unit is not installed immediately, keep it packed and sheltered.


- Do not leave it outdoors !
- Avoid damage due to corrosion !

2.1.6. Storage after shutdown for a period

- Clean the unit
- Cover the unit

2.2. Installation


	Reference
	Read the manual carefully before unpacking the equipment and prepare the installation

	Warning
	The installation must be carried out only by qualified and trained personnel in compliance with the safety instructions. Each person is responsible for the installation, starting, operation, maintenance and repair of the system. It is required to read the operating and safety instructions

2.2.1. Installation Requirements


- Relative humidity 20% to 80% without condensation
- Maximum slope 5mm / m surface
- Maximum permissible ground irregularity 3mm / m


2.2.2. Mechanical connection

	Risc
	<p>When installing the unit may be the case that such equipment is installed in an area with existing machines. Take special attention to the safety of existing machines and the new machine to be installed.</p> <p>Please lease safety standards of EN ISO 12100-2 (Safety of machinery)</p>


- Remove packaging
- Line up the equipment in relation to other components of the installation
- In case there are fragile components that has been separate, install them now.

2.2.3. Electrical connections

	Warning
	<p>Check voltage and frequency of the line with the unit specifications before connecting the unit.</p>

	Reference
	<p>The following safety rules must be followed when working on electrical components :</p> <ul style="list-style-type: none"> ➤ Turn off the main switch of the machine ➤ Unplug the equipment electrically ➤ Verify the absence of voltage in the unit ➤ Check for auxiliary equipment should not be connected to the unit <p>The safety instructions and manufacturer's performance must be carried out without restriction</p>

2.3. Starting

	Warning
	<p>The installation must be carried out only by qualified and trained personnel in compliance with the safety instructions. Each person is responsible for the installation, starting, operation, maintenance and repair of the system is required to read the operating and the safety instructions</p>

2.3.1. First testing before starting


- Ensure all tools, materials and other materials are out of the working area.
- Ensure that unauthorized person in the starting process
- Check all safety equipment, emergency stop circuits etc.
- Check the installation, connections etc to make sure they are safe and reliable.

2.3.2. Test Operation

The test operation should be performed to detect possible errors.

Under a test operation it is understood that:

- New unit is on test operation
- Pre –delivery from the manufacturer before delivery to the customer
- Preparing the starting of the unit.

	Warning
	Staff is exposed in the test operation of the machine or installing special higher risk than a normal operation. The increased risk is due to the typically higher stress operator (unexpected problems, time pressure, noise, unfavorable weather conditions, communication problems), mutual vulnerability, as different groups often have to work at the same time and possibly also the lack of technical and ineffective protection devices. In addition, the risk of starting a unit components is not considered and it increases risk of accidents.


For safe operation must be strictly observed:

- Definition of responsibilities
- Identification and assessment of dangers associated with testing
- Selecting and technological protection measures or measures of protection component replacement
- Warning "test run"
- Selection of qualified personnel.

3. Unit placement

According to the Machinery Directive have been fulfilled the following conditions for the placing on the market of a unit, or an auxiliary device :

- Creating an assessment in accordance with risk analysis
- Security that is under Directive 2006/42/EC: 2009
- Manual / technical customer documentation
- EC standards declaration of conformity

	Reference
	Manufacturer supplied auxiliary equipment according to Directive 2006/42/EC. Once the equipment is installed customer must inspect the installation and materials for proper operation. If the customer does not put special interest in materials or installation, responsibility will be at his expenses.


3.1. Structural Changes

Without manufacturer's authorization, no changes or modifications can be made to the equipment. All changes require a written consent of the manufacturer, otherwise the EC declaration of conformity may not be valid.

By replacing faulty components it shall be replaced by original parts with the same electrical data and / or mechanical otherwise the security and good performance can not be assured.

4. Maintenance

4.1. Maintenance

	Warning
	Maintenance and cleaning should always be done with the unit unplugged and by authorized personnel

- Check all bolted connections for tightness
- Check hose connections.
- Check the connectors, cables etc.
- Temperature controller units equipped with magnetic pumps can not be manipulated by people with pacemakers

4.2. Maintenance program

Component	Activity	Interval			
		D	W	M	A
Hoses	check tightness		X		
Pipes	check tightness				X
All hose assemblies	Check leakage		X		
Electrical connections, cables and connectors	Check if they are damaged or well fixed		X		
Condition of the unit	Re-tighten / check			X	

5. Starting

5.1. Dismantling



Warning

This work can only be carried out when the unit is unplugged and only by authorized personnel.

- Turn off the main switch of the machine
- Unplugged the unit electrically
- Verify the absence of voltage on the unit
- Check for auxiliary equipment connected to the unit
- Check system pressure. Depressurize the equipment (only teams WDC / WIC) models.



Warning

- Work on electrical or electronic components can only be carried out by a qualified electrician in accordance with electrical rules
- Electrical components can be disconnected under voltage even on that ground can cause injury

5.1.2 Note about installation dismantling

The arrangement of the different materials will be in accordance to compliance, regulations or national laws

Do not mix materials. Disposal must be carried out according to relevant national laws or regulations



Reference

Please read the information in the safety data sheets from manufacturer

Disposal



Problematic substances such as lubricants / oils should not be thrown in the trash or wastewater




Before removing the unit be completely sure to select each of the materials and dismantling according to existing laws.

The management personnel must be properly trained and authorized for this activity. Be complied with all regulations and laws on security

II Notes about this document

- This document is explicitly written out with a version number. Valid only the highest version number. Where reference is made to this document, provided the version number or the date of the document must be specified with (see index)
- This document only describes the controls and display. For more information on individual subcomponents or the entire function ask for the manufacturer.

6. CIRCUIT FLUID / WATER UNIT (open tank)

	<p>Risc</p> <p>Non compliance of established rules causes serious injury</p>
	<p>Warning</p> <p>Each person responsible for the installation, starting, operation, maintenance and repair of the system is required to read the operating instructions and the safety instructions</p>
	<p>Reference</p> <p>Here are some practical tips and other important or useful information. An operator must teach to others as the proper way to safely handle</p>

6.1 Information

Unit can not operate above the boiling point of water.

Unit fills automatically with water by means of a solenoid valve connected to a level sensor in the tank.

Tank is insulated. It has heating elements, the magnetic sensor control water level, temperature sensor and the pump impeller.

Temperature control is achieved by heating the water in the tank, pumping and cooling it to achieve tolerance in the temperature control.

Cooling is accomplished indirectly by circulating cold water through the plate heat exchanger

6.2 INSTALLATION – WATER UNIT

6.2.1 Connecting and filled with water.




- Place the unit as close as possible to temper process
- Connect inlet and outlet of the cooling water in the pipes of the equipment located in the back panel. Use appropriate hoses (see wiring diagram on the back panel).
- Connect the hoses in and out of process equipment to the pipes located on the back panel. Use appropriate working temperature and pressure hoses as indicated:
For units up to 90 - minimum range of hose = 100 ° C and 6 bar
- Check plumbing work to prevent problems
- Connect the equipment to the power supply (check back panel) by a suitable plug for the voltage range and ground
- If external taps have been placed, open them to allow water entry. Make sure all connections are open.
- Rotation of the pump is clockwise, viewed from above through the engine fan. If the pump rotates in the opposite direction, reverse the connections of two phases.



Warning

It is important to ensure there's a differential in the general line of installation. This differential must be sized according to the power of the unit. This can be easily identified on the rating plate located on the back panel of the unit.

7. CIRCUIT FLUID / OIL UNIT (open tank)

	<p>Risc</p> <p>Non compliance of established rules causes serious injury</p>
	<p>Warning</p> <p>Each person responsible for the installation, operation, maintenance and repair of the system is required to read the operating instructions and the safety instructions</p>
	<p>Reference</p> <p>Here are some practical tips and other important or useful information. An operator must teach to others as the proper way to safely handle</p>

7.1 Information

Working temperature varies depending on the unit

The unit is filled manually by a cap on the back panel of the unit.

The tank is insulated. It has heating elements, cooling coil, temperature probe and pump impeller.

The temperature control is achieved by heating the fluid in the tank, pumping and cooling it to achieve tolerance in the temperature control.

Indirectly cooling is achieved by circulating cold water through the coil submerged in the tank fluid

7.2 INSTALLATION – OIL UNIT

7.2.1 Connexion and filled with oil.

- Place the unit as close as possible to temper process
- Connect inlet and outlet of the cooling water in the pipes of the equipment located in the back panel. Use appropriate hoses (see wiring diagram on the back panel).
- Connect the hoses in and out of process equipment to the pipes located on the back panel. Use appropriate working temperature and pressure hoses as indicated:

For units up to 150 / 200°C – minimum range of hose = 210°C and 6 bares

For units up to 250°C – minimum range of hose = 300°C y 10 bares

- Check plumbing work to prevent problems
- The oil fill is done manually from the rear with particular attention to low-level red light oil on the frontal panel of the unit. Fill until the red LED switch off .
- Connect the equipment to the power supply (check back panel) by a suitable plug for the voltage range and ground.
- If external taps have been placed, open them to allow water entry. Make sure all connections are open.
- Rotation of the pump is clockwise, viewed from above through the engine fan. If the pump rotates in the opposite direction, reverse the connections of two phases.

Notes in oil units




- Never leave open containers of oil as they may catch moisture
- If there are bubbles reaching 100 ° C it means that there's water or moisture in the oil, if so, empty the tank and refill with new oil.
- Fill the unit until the red LED on the frontal panel switch off, if filled above the pre-set level the danger of overflow oil runs along the top of the tank. Note that the oil increases in volume when heated
- Always use synthetic thermal oil.



Warning

It is important to ensure there's a differential in the general line of installation. This differential must be sized according to the power of the unit. This can be easily identified on the rating plate located on the back panel of the unit.


8. CIRCUIT FLUID / WATER UNIT PRESSURIZED

	<p>Risc</p> <p>Non compliance of established rules causes serious injury</p>
	<p>Warning</p> <p>Each person responsible for the installation, operation, maintenance and repair of the system is required to read the operating and the safety instructions</p>
	<p>Reference</p> <p>Here are some practical tips and other important or useful information. An operator must teach to others as the proper way to safely handle</p>

8.1 SPECIAL ATTENTION

It is important to purge or empty the unit before disconnecting hoses process, please press drain button located in the frontal panel.

In the model WDC equipment high pressure water inlet shall be 4 bars.

	<p>Warning</p> <p>The installation must be carried out only by qualified and trained personnel in compliance with the safety instructions. Each person is responsible for the installation, starting, operation, maintenance and repair of the system is required to read the operating and the safety instructions</p>
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8.2 Connecting and filled with water

- Place the unit as close as possible to temper process
- Connect inlet and outlet of the cooling water in the pipes of the equipment located in the back panel. Use appropriate hoses (see wiring diagram on the back panel).
- Connect the hoses in and out of process equipment to the pipes located on the back panel. Use appropriate working temperature and pressure hoses as indicated

For units up to 140 / 150°C – minimum hose range = 200°C and 10 bares

For units up to 160 / 180°C – minimum hose range = 250°C and 16 bares.

- Check plumbing work to prevent problems
- Connect the equipment to the power supply (check back panel) by a suitable plug for the voltage range and ground
- If external taps have been placed, open them to allow water entry. Make sure all connections are open.
- Rotation of the pump is clockwise, viewed from above through the engine fan. If the pump rotates in the opposite direction, reverse the connections of two phases.

Special attention in WDC models

It's important to press several times in small intervals drain button located in the frontal panel during three or four first minutes of starting process in order to be sure that air from installation and hoses is drained.



Warning

It is important to ensure there's a differential in the general line of installation. This differential must be sized according to the power of the unit. This can be easily identified on the rating plate located on the back panel of the unit.

9. TEMPERATURE SETTING

9.1 Information

Settings in this PCB card is done via parameters called SET's divided into groups on the front of the circuit have a higher display and lower values indicating the situation in which we find ourselves, we also have 4 keys ↵ < ▲ ▼ that allow us to act on the circuit.

↵ Enter key.

< Key to move from one digit to another.

▲ key to increase values.

▼ key to decrease values.

In normal working situation the upper display indicates the temperature at which the fluid is in and the lower display we have the temperature set we have selected. To change the setpoint press the < key and the lower display will blink then we can change the value using the ▲ ▼ keys to validate the selected value press the key ↵ in the lower display can we jump from units, tens, hundreds and thousands by the < key.

In SET's programming press simultaneously keys ↵ < for 4 or 25 seconds depending on the selected value in the parameter in the SET6 LEVF.

In SET's menu, pass from one to another with the < key and enter in ↵ you want.

Once inside the selected SET pass a parameter to another with ▼ ▲ remember that once we have varied the value must press keys ↵ to validate the change

After 10 seconds without acting on the keyboard and the machine returns to the initial position.

If you have activated the flow function, you can see the fluid flow by pressing the ▼ key and in the lower display appears letter **F** and you visualize the flow value.

If you activate the outlet temperature function, you can see that temperature by pressing the button on the lower ▲ display the letter **t** appear in the lower display value we measured by the thermocouple installed in the external circuit.

To activate the autotuning press ▲ ▼ keys simultaneously and for more than 5 seconds letter **A** appears in bottom display while activated.

9.2 DESCRIPTION AND PARAMETERS LIST

SET 0

- PB** Proportional value of the PID of the process heat
- Ti** Value of the integration time of the PID of the process heat
- td** Value of the derivation time of the PID of the process heat
- re.ty** Relay type that we will use to act on the process (electromechanical relay or SSR)
- Br** Brake heat (parameter to adjust the control)
- Cli** Heat ramp (parameter to adjust the inertia)

SET 1

- CL.pb** Proportional value of the cold process
- CL.br** Cold brake (to adjust the control parameter)
- CL.CL** Cold ramp (parameter to adjust the inertia)

SET 2

- In.Sr** Type of temperature thermocouple in the machine tC1 Pt1 (thermocouple J) (Pt-100 thermocouple).
- VA.ti** Valve open time before alarm
- VA.ty** Mode of operation of the water inlet valve dir (direct) rEv (reverse)
- FL.AC** Activation flowmeter **Off** (disabled) **On** (enabled)
- FL.SC** Signal Type **Src.A** flowmeter (4-20mA) **Src.v** (0-10VDC)
- FL.FS** Limit full scale flow rate (max. 90 l / min)
- FL.LL** Lower limit of the scale of the flow (l / min)
- FL.AL** Alarm flowmeter
- VI.AC** Enabling temperature sensor 2 **Off / On** (installed in the external circuit)
- VI.Sr** Type **tC2** outlet temperature sensor (thermocouple J) **Pt2** (Pt-100)

SET 3

- AL.ty** Temperature type alarm **rEl (relative) GAP (lower and upper both) AbS (absolute)**
- SP.AL** Temperature alarm setpoint
- Al.d** Type of temperature alarm relais operation **dir** (Direct) **rEv** (reverse)
- Sr.AC** Enabling remote setpoint (**Off/On**)
- Sr.SC** Input signal type of the remote setpoint **Src.A** (4-20mA) **Src.v** (0-10vcc)
- Sr.FS** Full scale limit remote setpoint ° C / ° F
- Sr.LL** Minimum scale limit remote setpoint ° C / ° F
- Sr.HL** Maximum limit of the remote setpoint ° C / ° F
- Out.t** Output signal type temperature transmission **Out.A** (4-20mA) **Out.v** (0-10vcc)

SET 4

- BIAS** Correction value indicating the temperature reading ° C / ° F
- unit** Unit of temperature measurement ° C (Celsius) ° F (degrees Fahrenheit)
- SP.LL** Minimum scale limit setpoint ° C / ° F
- SP.HL** Maximum scale limit setpoint
- ti.AC** Enabling timing function (output relay time adjustment) **Off/On**
- ti.ti** Timeline for the timer function (value in minutes)
- Pr.AC** Enabling pressurized function (output relay for this function) **Off/On**
- Pr.AL** Value of the pressurization (80)

SET 5

- deF** In this parameter if you enter the value 100 resets the device to factory settings and entering the value 1562 to monitor and change the SET, s 0 and 1

SET 6

- LEvF** Keyboard Protection 0 = 4 seconds by holding down the keys to enter parameters
1 = 15 seconds

SET 7

COMS Communications interface activation **On / Off**

Addr Address assigned to the circuit

bAud Transmission speed 0-1-2 **0 = 2400, 1 = 4800, 2 = 9600**

PAr Parity bit **0-1-2**

dEn TCU unit working with interface 4-20mAmp

must put value "1" If customer work with one TCU unit but if customer works with several TCU units all TCU units must be set with value "0" less the last one it must be set with value "1"

TCU unit working with interface RS 485

must put value "1" in all TCU units.

SET 8

In.LE Selection level detection **buOy** magnetic sensor **ELEC** electrode.

dC.ti Pump connection time when we reach the optimum water level.

CO.ti Disconnection pump time for low water level.

iP.AC Activation view of process pressure transmitter. **On/Off**

iP.AL Maximum value alarm inlet pressure.

iP.LL Viewing minimum scale inlet pressure.

iP.FS Viewing background scale inlet pressure.

rP.AC Activation pressure transmitter for the regulation process

rP.AL Alarm pressure. Maintain pressure in the process.

rP.LL Minimum pressure level scale process.

rP.FS Background process pressure scale.

9.3 ALARM LIST

9.3.1 In visual display

Err on the lower display = flow alarm (no flow) or open external thermocouple .

Ouer the lower alarm display = open thermocouple

HEAt at the lower temperature alarm display = (depends on how we have programmed)

Red led pump off frontal panel pump thermal protection (pump stop)

Red Led Fluid Level frontal panel Lack of fluid pressure if it is pressurized equipment.

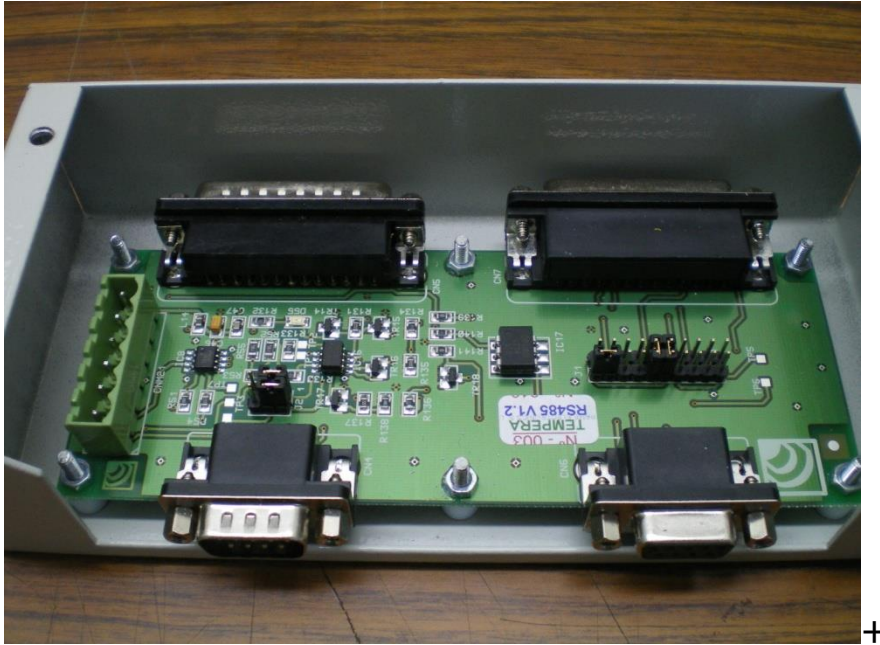
9.3.2 If the unit is equipped with audible / visual alarm

The general alarm relay operates in any of these circumstances

- Thermal pump protection
- Thermocouple open
- Temperature Alarm
- No Flow Alarm
- Exceeding the set time water filling

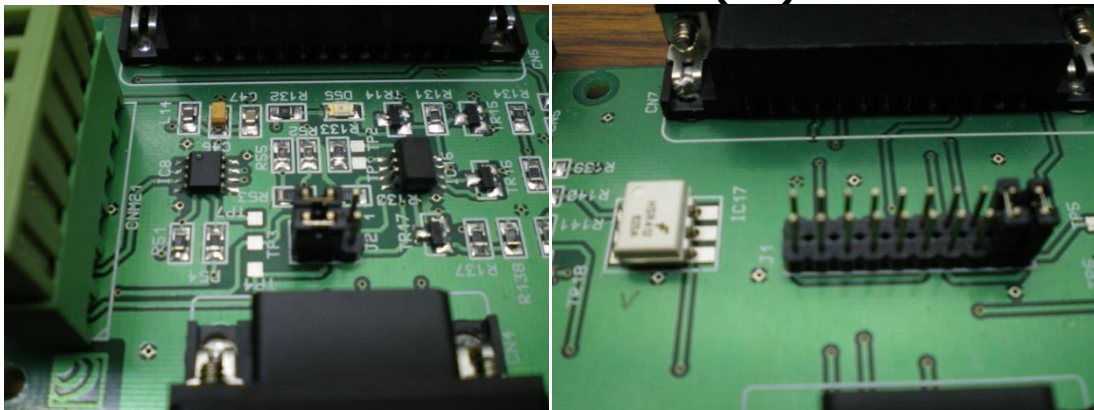
INSTRUCTIONS FOR THE COMMUNICATIONS BETWEEN IMM AND TCU UNITS

- 1- Place the communications circuit in the metal box fasteners depend on the connector **DB9** o **DB25** that we use for the transmission of data.

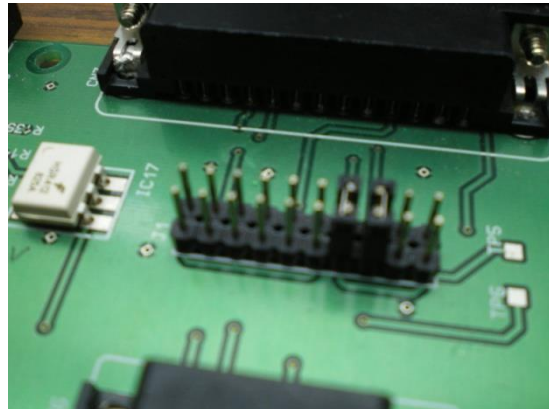
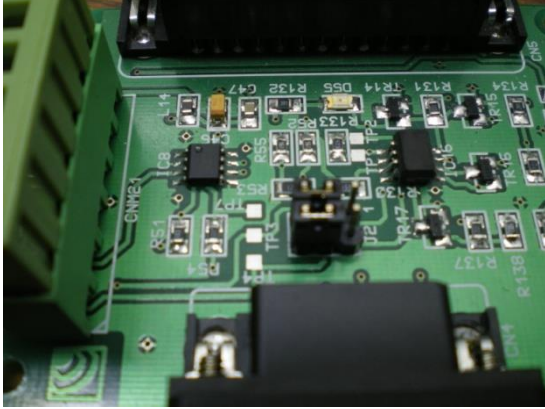


Configure the jumpers on the card of communications depend on the type of protocol that we will use.

Protocol RS485 (AB)

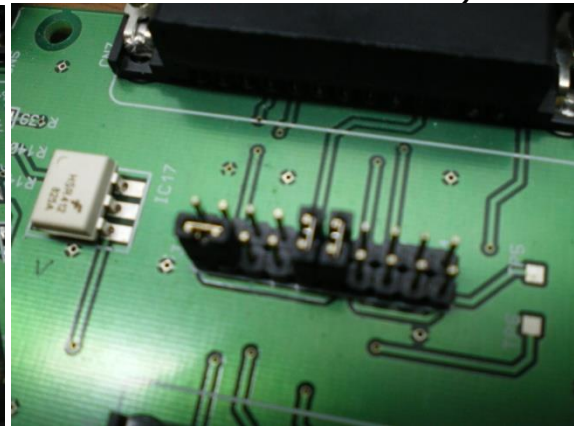
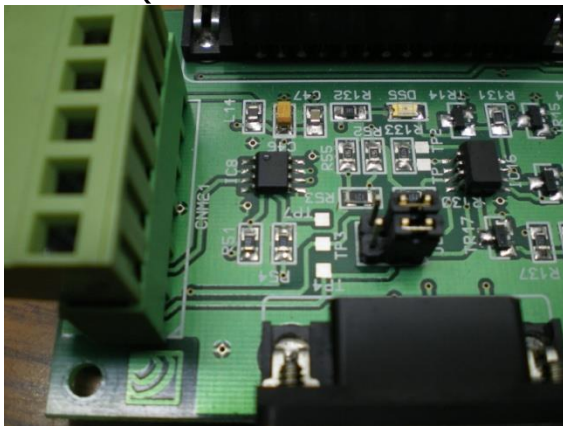


Protocol RS485 (BA)



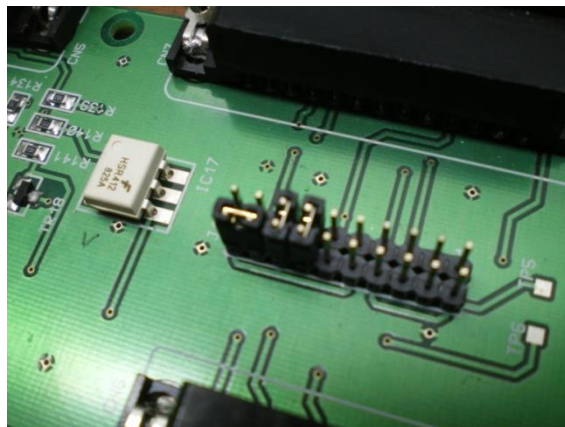
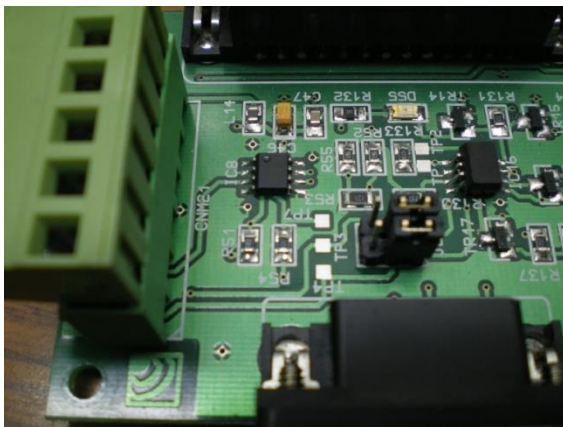
Protocol 20mA (-+)

PASIVE (THE IMM "MASTER" PROVIDES THE POWER SUPPLY)



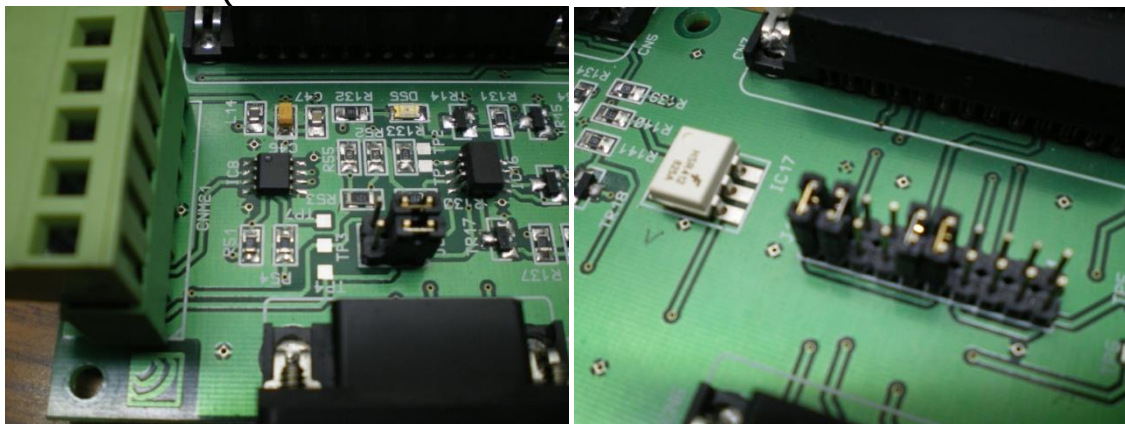
Protocol 20mA (+-)

PASIVE (THE IMM "MASTER" PROVIDES THE POWER SUPPLY)



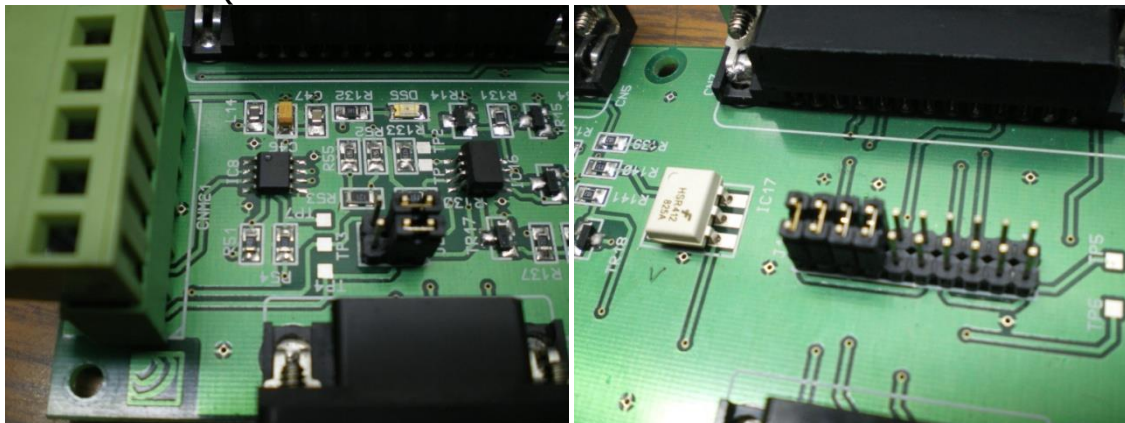
Protocol 20mA-CL (-+)

ACTIVE (THE IMM "MASTER" DOES NOT PROVIDE THE POWER SUPPLY)



Protocol 20mA-CL (+-)

ACTIVE (THE IMM "MASTER" DOES NOT PROVIDE THE POWER SUPPLY)

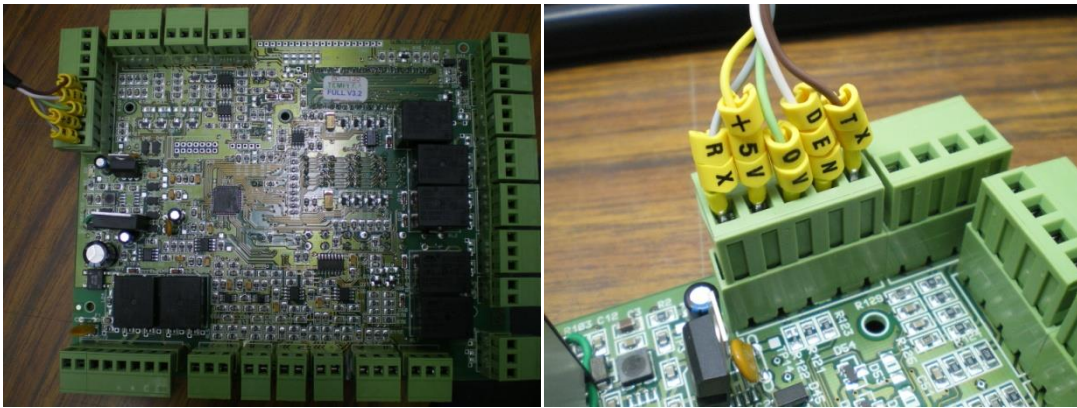


ALL THESE CONFIGURATIONS ARE CONDITIONAL TO A CONNECTION BETWEEN THE IMM MACHINE AND THE TCU "TEMPERATURE CONTROL UNIT" WITH A LINE COMMUNICATION **CABLE DB9 O DB25 PIN TO PIN.**

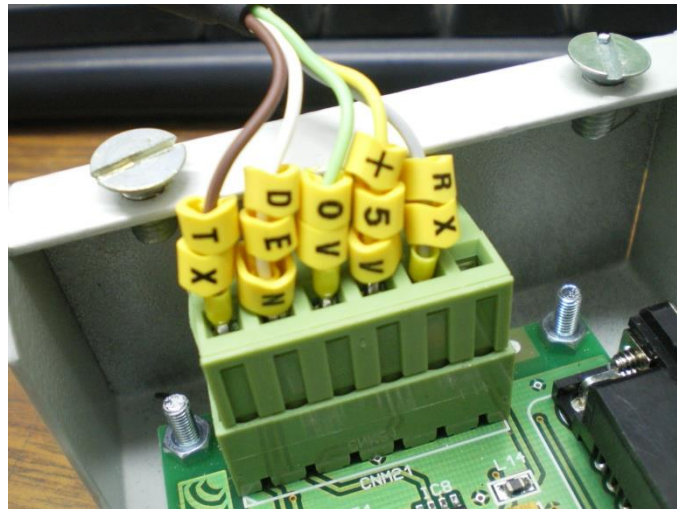
IF THERE IS NO COMMUNICATION, YOU SHOULD REVERSE THE POLARITY OF THE PROTOCOL.

2- Connection between the circuit connections and the temperature control machine.

CIRCUIT TEMPERATURE CONTROL MACHINE



COMUNICATIONS CIRCUIT



3- Configuration of the electronic circuit for communications.

- Go to the **SET 7** and put **ON** at the parameter **COMS** (activation comms).
- Go to the **Addr** parameter (assigned direction of TCU unit) put value 1 to the first TCU unit, if we have more than one TCU unit put value 2 in the second TCU unit value 3 to the third etc.
- Go to the **bAud** parameter (transmission speed); Values which should be set are: **0** (2400bauds) **1** (4800bauds) i **2** (9600bauds).

Table of transmission speeds, depending on the injection moulding machine (IMM):

IMM	Bauds
Engel	4800
Aurburg	4800
Ferromatic Milacron	4800
Krauss Maffei	4800
Wittmann	4800

- Go to the **Par** parameter (parity bit); values which should be set are: **0** (no parity), **1** (parity odd) and **2** (parity pairs).

Table value of **PAr**, depending on the injection moulding machine (IMM):

IMM	PAr
Engel	0
Aurburg	1
Ferromatic Milacron	1
Krauss Maffei	1
Wittmann	2

- Go to the **dEn** parameter (Data enable); values, which should be set are **0** and **1**.

When we have a TCU (temperature control unit) in communication with the **IMM**, the value of the **dEn** parameter must be:

- With interface 4-20mAmp must put value "1"
If customer work with one TCU unit but if customer works with several TCU units all TCU units must be set with value "0" less last one it must be set with value "1".
- With interface RS 485 must put value "1" in all TCU units.

10. Declaration of conformity

Declaración de conformidad CE
Déclaration de conformité CE
EG Konformitätsbescheinigung
CE Declaração de conformidade

CONSTRUCTOR

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Fax + 45 7020 3151
Mail Support@mouldpro.com

We declare, assuming full responsibility for this declaration that the product meets the following standards:

Directive 2006/42/CE

Directive 97/23/CE concerning pressure equipment (PED)

Directive 2004/108/CE on electromagnetic compatibility.

Directive 2006/95/CE low voltage

UNI EN 12100-1 :2005 Machine Safety Terminology

UNI EN 12100-2 :2005 Safety of machinery: Features and technical principles

11. DIAGRAMS

11.1 Electronic circuit

