

Installation Manual

Green PtP Module



Green PtP RX Module Climate Controller Communication

Ag/MIS/ImGb-2832-12/21 Rev 1.1

P/N: 116863



Green PtP Module

User Manual

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Product Software: N/A

This manual for use and maintenance is an integral part of the apparatus together with the attached technical documentation.

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1 Introduction

1.1 Disclaimer

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1.2 Introduction

Congratulations on your excellent choice of purchasing a Green PtP Unit!

In order to realize the full benefit from this product it is important that it is installed, commissioned and operated correctly. Before installation or using the device, this manual should be studied carefully. It is also recommended that it is kept safely for future reference. The manual is intended as a reference for installation, commissioning and day-to-day operation of the Munters Controllers.

1.3 Notes

Date of release: December 2021

Munters cannot guarantee to inform users about the changes or to distribute new manuals to them.

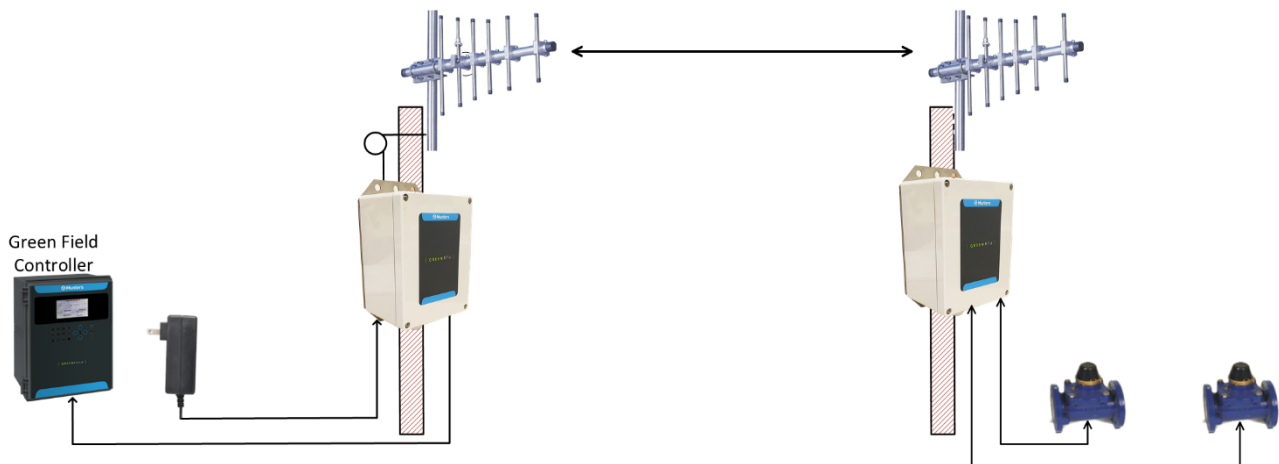
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2 Installation

This guide relates to the installation and setup of the Green Bidirectional Point to Point (PtP) modules in the different operational configurations. This guide applies to Green Bidirectional Point to Point (PtP) modules that support 433, 868 and 915MHz license free ISM wireless bands used in various regions around the globe.

NOTE Before commencing with the installation, please read the following.

- Do not locate this equipment near high voltage power lines. Take special precautions to avoid any contact with high voltage power lines when installing this equipment.
- Avoid locating this equipment close to a roof structure.
- Avoid locating this equipment near dense foliage and vegetation.



PtP Block Diagram

- Installing the PtP Modules Antenna and the Antenna Cable
- Installing and Wiring the PtP Module
- Wiring the Power Source
- Wiring the Inputs
- Wiring the Outputs
- Setup the PtP Modules System ID
- Setup the PtP Modules Operating Mode for the Outputs
- Setup the PtP Modules Operating Mode for the Inputs
- System Examples
- Some System Configuration Possibilities

2.1 Installing the PtP Modules Antenna and the Antenna Cable

NOTE Antennae structures and designs may differ based on the frequency band being used)

Industry best practices include:

- Mount the PtP Module(s) and the system antenna on a pole in free air space.
- The pole should be of a rigid construction with an outside diameter of between 30 and 50mm.
- The equipment should be located on the pole as high as is practically possible above ground level.
- Different antennae can be used depending on the topography of the terrain where the system is located. For example it would be possible to make use of a stubby antenna in small scale system that only requires line of sight (LOS) coverage of a few hundred meters between Modules.

This document will demonstrate the installation of an Omni directional dipole antenna; however the installation processes for a Yagi type directional antennae is practically the same.

1. Remove the antenna and the antenna's "U" bolt(s) or mounting clamp from the packaging.
2. Install the antenna at the top of the mounting pole with the cable and or cable connection facing downwards as shown in the images below.



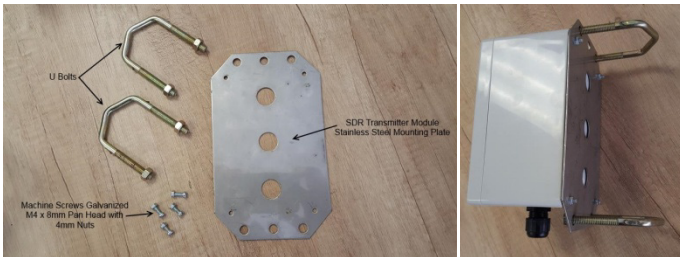
3. Fit the washers provided with each U Bolt / Bolt and tighten the nuts accordingly without damaging the mounting pole.



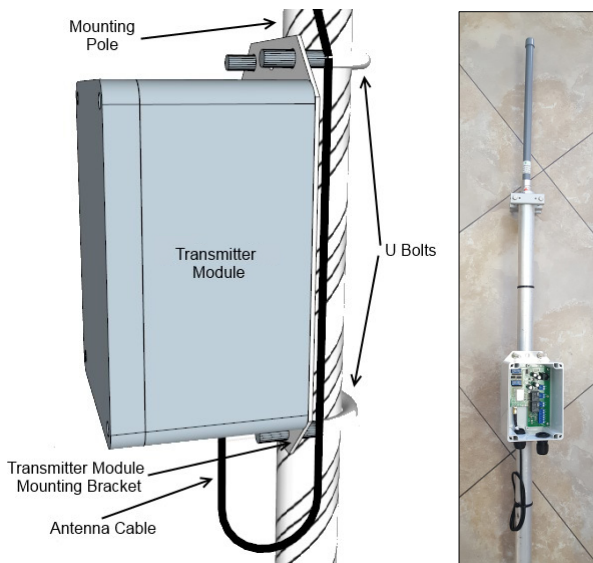
4. Referring to image above, connect the 1M RG58 antenna cable to the antenna and loop the cable once (to allow for contraction and expansion) and fix the antenna cable to the post using a cable tie. Leave the other end of the cable loose for now.

2.2 Installing and Wiring the PtP Module

1. Remove the module from its packaging then remove the modules lid. The lids fasteners are spring loaded and need to be pushed and turned 90° anticlockwise simultaneously to release them.
2. Install the PtP modules stainless steel mounting plate using four M4 x 8mm pan head galvanized or stainless steel machine screws and four M4 nuts. Fit the mounting plate to the module using the four mounting holes provided in the corners of the box. See the images below.



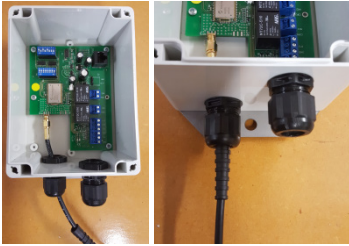
3. Install the PtP module at the top of the mounting pole, approximately 0.5m below the antenna with the cable glands facing downwards. Pass the two U Bolts around the mounting pole and through the transmitter modules mounting bracket. Fit the washers and nuts and tighten the nuts. See the images below.



4. Extract the Cable Glands to be found inside the module and remove the wrapping. Install each Cable Glands into the holes provided in the base of the module as seen in the image below.



5. Feed the antenna cable through the lower cable gland and fasten the SMA connector to the PtP board as shown in the images below. Push the protection boot down through the cable gland and tighten the glands compression fitting around the boot to create a water tight connection.

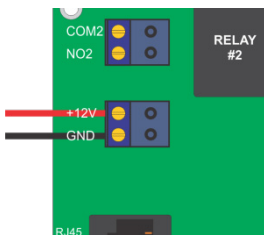


6. Disassemble the right hand upper cable gland by removing the compression nut, the split rubber insert and the rubber seal. Where possible use a multi-core cable which will carry the power to the unit as well as the input or output signals. A single cable will provide better weatherproofing of the housing. Pass the one end of the multi-core cable through the cable glands compression nut, the rubber seal and the cable gland. Fit the split rubber insert around the multi-core cable and insert this into the cable gland as per the image below.



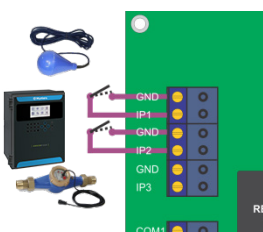
2.3 Wiring the Power Source

The PtP module requires a 12VDC (Min. 0.10A) power source where the POSITIVE wire is connected to the +12V terminal and the NEGATIVE wire is connected to the GND terminal as per the image below.



2.4 Wiring the Inputs

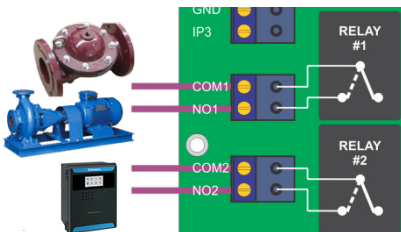
The PtP module is equipped with two digital inputs. Inputs are triggered when the GND terminal is bridged with the InPut terminal (IP1 or IP2). Any switching device can be connected to the input such as a reed relay (from a water meter), a float switch, a simple toggle switch or a relay's contacts. They are connected as per the image below.



Make sure input wire lengths are not excessive as this could lead to false signal or no signal triggering. Keep this distance as short as possible and use at least 1.0mm² wire.

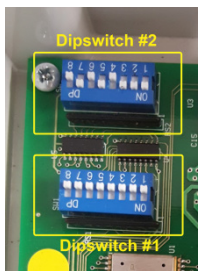
2.5 Wiring the Outputs

The PtP module is equipped with two relay outputs. The outputs are normally open circuits and will close when a signal is received from the Master module(s). Outputs can be used to activate pumps, valves, provide water meter back indication and numerous other processes.



2.6 Setting the PtP Modules System ID

All settings on the PtP Modules are carried out by adjusting the dip (Dipswitch bank #1 and #2) switch setting within the module. Note that power must be off while making any dip switch setting changes.



PtP Modules that are linked together in a single system must be set with a common system ID. Dip Switch SW1 is used to set the System ID. The System ID can be set in the range from 0 to 255 using binary. The dip switch numbers conform to the following binary numbers –

- SW1.1 = 128
- SW1.2 = 64
- SW1.3 = 32
- SW1.4 = 16
- SW1.5 = 8
- SW1.6 = 4
- SW1.7 = 2
- SW1.8 = 1

E.g. In order to set a System ID of 119, switches 1.2 (64), 1.3 (32), 1.4 (16), 1.6 (4), 1.7 (2) and 1.8 (1) must be on and the others off. This setting is thus $64 + 32 + 16 + 4 + 2 + 1 = 119$

Take note that the last digit in the system ID relates to the frequency channel being used. There are ten channels available (0 to 9) and in areas where a number of different systems are installed, it would be prudent to select a channel that is not in use to prevent unwanted interference by other systems. In the ID example above, system ID 119 uses channel 9.

Systems with duplicated System ID's should not be located within a 50km radius of each other. It is advisable to log the GPS coordinates of each system installed for future record keeping.

2.7 Setting the PtP Modules Operating Mode for the Outputs

Each output relay within a PtP Module can be set as “Active” or “Inactive”. If an output relay is set in the “Active” mode, the PtP module will listen for an incoming signal from a Master (Transmitter) PtP module and react accordingly. If an output relay is set in the “Inactive” mode, the PtP module will ignore any signal relating to this specific output relay.

- Dip Switch SW2 switch 8 is used to set the mode for Output Relay #1 within a PtP Module.

SW2.8	On	Active
	Off	Inactive

- Dip Switch SW2 switch 7 is used to set the mode for Output Relay #2 within a PtP Module.

SW2.7	On	Active
	Off	Inactive

2.8 Setting the PtP Modules Operating Mode for the Inputs

Each digital input within a PtP Module can be set in “Pulse” or “Switch” mode. If a digital input is set in “Pulse” mode, the PtP module will act as a Master and transmit a pulse type signal. A PtP module that has its relay output (with the same number as the input) set as “Active”, will receive the incoming signal and switch the relay output as a pulse.

If a digital input is set in “Switch” mode, the PtP module will act as a Master and transmit a switch type signal. A PtP module that has its relay output (with the same number as the input) set as “Active”, will receive the incoming signal and switch the relay output as a switch.

- Digital Input #1 on a Master module will only operate with Output Relay #1 on a Slave module if Output Relay #1 is “Active”. If Output Relay #1 on the Slave module is set as “Inactive”, it will ignore the incoming signal.
- Digital Input #2 on a Master module will only operate with Output Relay #2 on a Slave module if Output Relay #2 is “Active”. If Output Relay #2 on the Slave module is set as “Inactive”, it will ignore the incoming signal.

This method of setting makes allowance for a single Master PtP Module to transmit the status of both Digital Inputs to two separate Slave PtP Modules that have their respective Output Relays set as “Active”

- In “Switch” function the status of the digital inputs on the Master (Tx) module(s) will be replicated on the outputs of the Slave (Rx) module(s). For example if GND is bridged with IP1 on the Master module, relay 1 on the Slave module will be activated causing COM1 and NO1 on the Slave module to be connected. When the bridge between GND and IP1 is removed on the Master module, relay 1 on the Slave module will be de-activated causing COM1 and NO1 on the Slave module to be disconnected.

- In “Pulse” function the status of the digital inputs on the Master (Tx) module(s) will be replicated on the outputs of the Slave (Rx) module(s) with a pulse of approximately 0.5 seconds in length. Typically this would be used to replicate the pulses generated by a water meter. For example if GND is bridged with IP1 on the Master module, relay 1 on the Slave module will be activated causing COM1 and NO1 on the Slave module to be connected for around 0.5 seconds.

Dip Switch SW2 switch 6 is used to set the mode for Digital Input #1 within a PtP Module.

SW2.6	On	Switch
	Off	Pulse

Dip Switch SW2 switch 5 is used to set the mode for Digital Input #2 within a PtP Module.

SW2.5	On	Switch
	Off	Pulse

Note that it's possible to set PtP modules in pulse and switch function operating within the same system.

2.9 System Examples

Example #	PtP#1	Direction 1 to 2	PtP#2	Direction 2 to 3	PtP#3
1	Input 1	→	Relay 1		
2	Input 1	→	Relay 1		
	Relay 1	←	Input 1		
3	Input 1	→	Relay 1		
	Input 2	→	Relay 2		
4	Input 1	→	Relay 1		
	Input 2	→	Relay 2		
	Relay 1	←	Input 1		
	Relay 2	←	Input 2		
5	Input 1	→	Relay 1		
	Input 2	→	→	→	Relay 2
6	Input 1	→	Relay 1		
	Input 2	→	→	→	Relay 2
	Relay 1	←	Input 1		
	Relay 2	←	←	←	Input 2
7	Input 1	→	Relay 1		
	Input 2	→	→	→	Relay 2
	Relay 1	←	Input 1		
	Relay 2	←	Input 2		
8	Input 1	→	Relay 1		
	Input 2	→	→	→	Relay 2
	Relay 1	←	←	←	Input 1
	Relay 2	←	←	←	Input 2
9	Input 1	→	Relay 1		

Example #	PtP#1	Direction 1 to 2	PtP#2	Direction 2 to 3	PtP#3
			Input 2	→	Relay 2
11	Input 1	→	Relay 1		
			Input 2	→	Relay 2
			Relay 2	←	Input 2
12	Input 1	→	Relay 1		
			Input 2	→	Relay 2
			Relay 2	←	Input 2
	Relay 1	←	Input 1		
13	Input 1	→	Relay 1		
			Input 2	→	Relay 2
	Relay 1	←	←	←	Input 1
14	Input 1	→	Relay 1		
			Input 2	→	Relay 2
	Relay 1	←	←	←	Input 1
	Relay 2	←	←	←	Input 2

2.10 Some System Configuration Possibilities

- #1- Digital Input #1 on PtP#1 to Switch Output Relay #1 on PtP#2

	Switch No.	Setting for PtP Module #1		Setting for PtP Module #2	
System ID	1.1 to 1.8	Setting	Mode	Setting	Mode
Output Relay #1	2.8	Off	Inactive	On	Active
Output Relay #2	2.7	Off	Inactive	Off	Inactive
Digital Input #1	2.6	On	Switch	Off	Pulse
Digital Input #2	2.5	Off	Pulse	Off	Pulse

- #2 - Digital Input #1 on PtP#1 to Switch Output Relay#1 on PtP#2 and Digital Input #1 on PtP#2 to Switch Output Relay#1 on PtP#1.

	Switch No.	Setting for PtP Module #1		Setting for PtP Module #2	
System ID	1.1 to 1.8	Setting	Mode	Setting	Mode
Output Relay #1	2.8	On	Active	On	Active
Output Relay #2	2.7	Off	Inactive	Off	Inactive
Digital Input #1	2.6	On	Switch	On	Switch
Digital Input #2	2.5	Off	Pulse	Off	Pulse

- #3 - Digital Input #1 & #2 on PtP#1 to Switch Output Relay #1 & #2 on PtP#2

	Switch No.	Setting for PtP Module #1		Setting for PtP Module #2	
System ID	1.1 to 1.8	Setting	Mode	Setting	Mode
Output Relay #1	2.8	Off	Inactive	On	Active

	Switch No.	Setting for PtP Module #1		Setting for PtP Module #2	
Output Relay #2	2.7	Off	Inactive	On	Active
Digital Input #1	2.6	On	Switch	Off	Pulse
Digital Input #2	2.5	On	Switch	Off	Pulse

- #5 - Digital Input #1 & #2 on PtP#1 to Switch Output Relay #1 on PtP#2 and Output Relay#2 on PtP#3

	Switch No.	Setting for PtP Module #1		Setting for PtP Module #2		Setting for PtP Module #3	
System ID	1.1 to 1.8	Setting	Mode	Setting	Mode	Setting	Mode
Output Relay #1	2.8	Off	Inactive	On	Active	Off	Inactive
Output Relay #2	2.7	Off	Inactive	Off	Inactive	On	Active
Digital Input #1	2.6	On	Switch	Off	Pulse	Off	Pulse
Digital Input #2	2.5	On	Switch	Off	Pulse	Off	Pulse

- #6 - Digital Input #1 on PtP#1 to Switch Output Relay#1 on PtP#2 and Digital Input #2 on Ptp#1 to switch Output Relay#2 on PtP#3.
Digital Input #1 on PtP#2 to Switch Output Relay #1 on PtP#1 and Digital Input #2 on PtP#3 to Switch Output Relay#2 on PtP#1

	Switch No.	Setting for PtP Module #1		Setting for PtP Module #2		Setting for PtP Module #3	
System ID	1.1 to 1.8	Setting	Mode	Setting	Mode	Setting	Mode
Output Relay #1	2.8	On	Active	On	Active	Off	Inactive
Output Relay #2	2.7	On	Active	Off	Inactive	On	Active
Digital Input #1	2.6	On	Switch	On	Switch	Off	Pulse
Digital Input #2	2.5	On	Switch	Off	Pulse	On	Switch

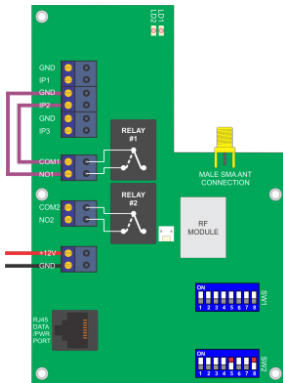
- #7 - Digital Input #1 on PtP#1 to Switch Output Relay#1 on PtP#2 and Digital Input #2 on PtP#2 to Pulse Output Relay#2 on PtP#1.

	Switch No.	Setting for PtP Module #1		Setting for PtP Module #2	
System ID	1.1 to 1.8	Setting	Mode	Setting	Mode
Output Relay #1	2.8	On	Active	On	Active
Output Relay #2	2.7	Off	Inactive	Off	Inactive
Digital Input #1	2.6	On	Switch	Off	Pulse
Digital Input #2	2.5	Off	Pulse	Off	Pulse

- #9 – Digital Input #1 on PtP#1 to Switch Output Relay#1 on PtP#2 then Digital Input #2 on PtP#2 to Switch Output Relay#2 on PtP#3.

System ID	Switch No.	Setting for PtP Module #1		Setting for PtP Module #2		Setting for PtP Module #3	
		Setting	Mode	Setting	Mode	Setting	Mode
Output Relay #1	2.8	Off	Inactive	On	Active	Off	Inactive
Output Relay #2	2.7	Off	Inactive	Off	Inactive	On	Active
Digital Input #1	2.6	On	Switch	Off	Pulse	Off	Pulse
Digital Input #2	2.5	Off	Pulse	On	Switch	Off	Pulse

This example can be used as a single channel (1 Input to 1 Output) repeater if Output Relay#1 on PtP#2 was hardwired to Digital Input#2 on PtP#2 as per the image below.



3 Operating the System

- Power Up
- General Notes

3.1 Power Up

- Apply 12VDC power to the PtP Module.
- At power up, both LED's (LD1 and LD2) in the PtP Module will flash twice and go off.
- Simulate the activation of Input #1 on the PtP#1 Module by bridging the GND terminal with the IP1 terminal. LD1 LED will illuminate for a few seconds while the PtP#1 Module transmits. If the signal has been successfully received by one or more PtP Module(s) LD2 LED will illuminate for a second confirming that a signal has been received by a PtP Module. This is acknowledgment (ACK) that the signal was received by the receiving PtP Module. If no acknowledgment is received, PtP#1 Module will continue trying to by retransmitting the signal until an acknowledgment is received.
- During this simulation when a PtP Module receives the signal from the PtP#1 Module the LD2 LED illuminates for a second or so then acknowledges that it has received the signal by sending a confirmation transmission at which time the LD1 LED will illuminate for a few seconds.
- When a Switch or Pulse signal is received by a PtP Module an audible click from one of the relays can be heard. You can also use a multi-meter to check which relay is activated. To check relay #1 (output #1), set the multi meter to continuity mode (an audible sound should be heard if the red and black probe are bridged together) place the black probe on the COM1 terminal and the red probe on NO1 terminal. When the relay is activated an audible sound should be heard from the multi-meter. This can be repeated for relay #2 (output #2) using terminals COM2 and NO2.
- The system is now ready for normal operation.

3.2 General Notes

- Do not drop any of the modules as this could lead to permanent damage to the module enclosures or sensitive electronic components.
- Keep the components in the original packaging until they are on site and ready to be installed. This provides optimum protection to the equipment during the transport process.
- Avoid exposing the equipment to high vibration and or shock as this can lead to permanent damage to the equipment.
- Do not attempt to modify the equipment or the electronics as this will deem the warranty void and may lead to permanent damage of the equipment.

4 Warranty

Warranty and technical assistance

Munters products are designed and built to provide reliable and satisfactory performance but cannot be guaranteed free of faults; although they are reliable products they can develop unforeseeable defects and the user must take this into account and arrange adequate emergency or alarm systems if failure to operate could cause damage to the articles for which the Munters plant was required: if this is not done, the user is fully responsible for the damage which they could suffer.

Munters extends this limited warranty to the first purchaser and guarantees its products to be free from defects originating in manufacture or materials for one year from the date of delivery, provided that suitable transport, storage, installation and maintenance terms are complied with. The warranty does not apply if the products have been repaired without express authorisation from Munters, or repaired in such a way that, in Munters' judgement, their performance and reliability have been impaired, or incorrectly installed, or subjected to improper use. The user accepts total responsibility for incorrect use of the products.

The warranty on products from outside suppliers fitted to the PtP, (for example cables, antennas, etc.) is limited to the conditions stated by the supplier: all claims must be made in writing within eight days of the discovery of the defect and within 12 months of the delivery of the defective product. Munters has thirty days from the date of receipt in which to take action, and has the right to examine the product at the customer's premises or at its own plant (carriage cost to be borne by the customer).

Munters at its sole discretion has the option of replacing or repairing, free of charge, products which it considers defective, and will arrange for their despatch back to the customer carriage paid. In the case of faulty parts of small commercial value which are widely available (such as bolts, etc.) for urgent despatch, where the cost of carriage would exceed the value of the parts, Munters may authorise the customer exclusively to purchase the replacement parts locally; Munters will reimburse the value of the product at its cost price.

Munters will not be liable for costs incurred in demounting the defective part, or the time required to travel to site and the associated travel costs. No agent, employee or dealer is authorised to give any further guarantees or to accept any other liability on Munters' behalf in connection with other Munters products, except in writing with the signature of one of the Company's Managers.

WARNING: In the interests of improving the quality of its products and services, Munters reserves the right at any time and without prior notice to alter the specifications in this manual.

The liability of the manufacturer Munters ceases in the event of:

- dismantling the safety devices;
- use of unauthorised materials;
- inadequate maintenance;
- use of non-original spare parts and accessories.

Barring specific contractual terms, the following are directly at the user's expense:

- preparing installation sites;
- providing an electricity supply (including the protective equipotential bonding (PE) conductor, in accordance with CEI EN 60204-1, paragraph 8.2), for correctly connecting the equipment to the mains electricity supply;
- providing ancillary services appropriate to the requirements of the plant on the basis of the information supplied with regard to installation;
- tools and consumables required for fitting and installation;
- lubricants necessary for commissioning and maintenance.

It is mandatory to purchase and use only original spare parts or those recommended by the manufacturer.

Dismantling and assembly must be performed by qualified technicians and according to the manufacturer's instructions.

The use of non-original spare parts or incorrect assembly exonerates the manufacturer from all liability.

Requests for technical assistance and spare parts can be made directly to the nearest [Munters office](#).

