INSTALLATION, OPERATION AND MAINTENANCE MANUAL



TYPE : Ducted indoor unit

MODEL : GI07-09/30Pa – GI14-18/30Pa – GI14-18/75Pa – GI24/75Pa
GI36-40/75Pa - GI36-40/150Pa – GI50-64-80/150Pa

Wired remote control



Le spécialiste de la climatisation sans unité extérieure

LTB Air Conditioning

1 INTRODUCTION.

The present document constitutes the installation, operation and maintenance manual for the following indoor unit models (IU) of the type : ducted indoor units.

- GI07-09 / 30Pa (model code UGS101WA).
- GI14-18 / 30Pa (model code UGS102WA).
- GI14-18 / 75Pa (model code UGS201WA).
- GI24 / 75Pa (model code UGS202WA).
- GI36-40 / 75Pa (model code UGS204WA).
- GI36-40 / 150Pa (model code UGS301WA).
- GI50-64-80 / 150Pa (model code UGS302WA).

The fitting must be carried out by a person with the right competences and legal capacities. This person must respect the standing rules and regulations. The installer must ensure by an aeraulic study, that the available pressure of the unit he has selected (30 Pa, 75 Pa or 150 Pa) is compatible with the pressure drop of the network. The builder declines any responsibility and the guarantee will no longer be applicable if the fitting instructions have not been respected. A case of any doubt or for any additional detailed information, please contact your local retailer.

In this document we use **the term IU for the indoor unit and the term CU for the condensing unit.**

2 RECEIPT AND STORAGE OF THE PARCEL.

Please inspect the goods on receipt before unpacking. Any choc may have caused serious damage to unit's function which will not be taken under warranty.



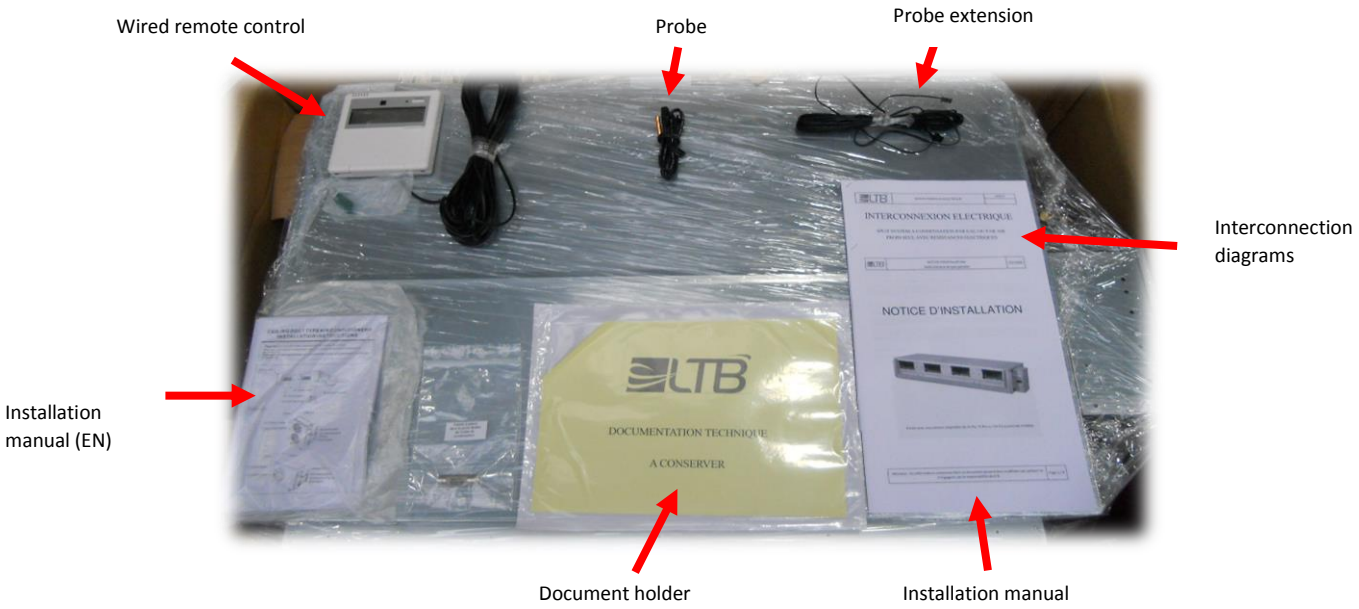
In case of any deterioration, detailed reservations must be made and immediately sent by registered letter to the carrier indicating the damages observed. A copy of the letter must also be sent to the builder or to the retailer.

The machine must not be carried or placed upside-down. It must be stocked inside and perfectly sheltered from rain and snow, etc. Weather variations (high or low temperatures) must not damage the unit. Very high temperatures (from 60°C) may damage certain plastic parts and cause permanent damage. Moreover, certain electronical components may not function properly.

3 DESCRIPTION OF THE PARCEL.

Each ducted indoor unit is supplied with :

- An installation, operation and maintenance manual.
- An electrical interconnection diagram describing the electrical connection between the IU and its CU.



In a plastic bag inside the package:

- **Pre-wired wired remote control with built-in room sensor.**
- **A probe, 8 m probe extension with connectors.**

In a document holder on the package:

- **An installation, operation and maintenance manual.**
- **The electrical interconnection diagrams of the CU to the UI.**

4 INSTALLATION OF THE INDOOR UNIT.

The installation must be performed by a person with the appropriate skills and qualifications.

This document explains how to choose the place and installation of the ducted indoor unit.

As for the condensing unit, please refer to its own documentation.

Where to fit the IU**:**

The ducted indoor units must be fitted in a safe environment. Places with corrosive vapours must be avoided as well as liquid projections, dust or marine environments.

It must be ensured that the ducted indoor unit remains **accessible** for its maintenance and **the service spaces must be respected** that are defined for:

- Easy access to the IU to enable safe maintenance.
- Being isolated from sources of heat and steam.
- ID plate reading.
- Allowing air filter cleaning.
- Being isolated from electromagnetic disturbances.

Setting up**:**

The unit must be set to respect the good practice and the standards in force. It is necessary to make sure of the solidity of the support on which the ducted indoor unit is installed, and to adapt the choice and the method of fixing accordingly.

All precautions must be taken to prevent the transmission of vibrations.

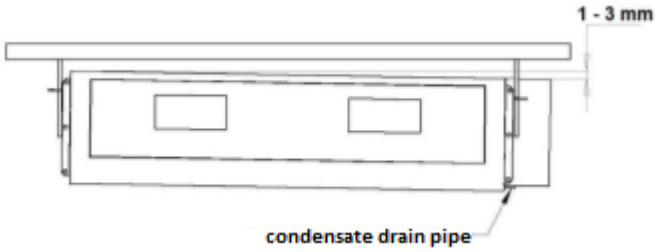
The installer must manually check the rotation of the turbines in the volute and the tightening of the turbines on the motor transmission shaft, before the final connection of the supply plenum.

5 INSTALLATION : CONDENSATE CONNECTION.

The installation must be carried out by a person with the appropriate skills and qualifications.

The condensate connection allows the evacuation of the water which is formed during the passage of the air on the cold battery of the ducted indoor unit. This water must be quickly evacuated by a gravity flow network and connected to wastewater. The unit is not equipped with a lift pump.

A flow network consists of the following:



- Adjust duct discharge slope with a 1 to 3 mm spirit level on the water flow side to facilitate condensate drainage.
- Install the water flow pipe with a slope of 1 to 2 cm per meter minimum.
- Insulate the water flow duct with an insulation of a minimum thickness of 5mm.
- **Always check the correct condensate flow by pouring water into the condensate tray**.

6 INSTALLATION : FRIGORIFIC CONNECTIONS.

All precautions must be taken while fitting the frigorific connections. The number of angles must be limited, make a 2% slope on the suction line as well as oil traps for the oil to circulate correctly. It must also be ensured that the connections are closed in order to prevent any impurity or moisture penetration during installation.

The maximum distance between the CU and the IU is 20 linear meters and the maximum altitude difference is 5 m. The length of the liquid line as that of the suction line must not be bigger than 20 meters.

REMINDER: Repeat realization of the flares for the connection on the flare connections if there is any burr or crack. If the flaring surface is too small or too large: IMPORTANT LEAK RISK**.**

- **Check the connections on leaking according to the standards of good practice.**
- **Use specific sealants at your disposal.**
- **Carry out the isolation finishing between the frigorific connections and the casing of the ducted indoor unit.**

7 INSTALLATION : AERAULIC CONNECTION.

The installation must be carried out by a person with the appropriate skills and qualifications.

The installer must ensure by aeration study, that the available pressure of the unit he has selected (30 Pa, 75 Pa or 150 Pa) is compatible with the pressure drop of the network.

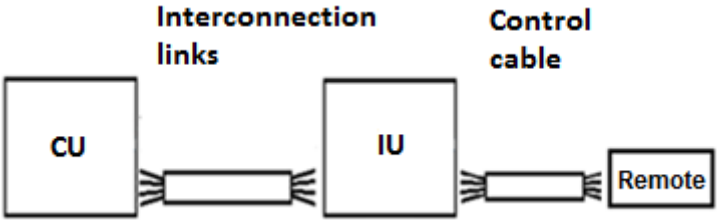
- **Connect the air inlet and outlet according to the standards of good practice.**
- **Check the presence of the air inlet filter, its condition, its position.**
- **If possible, use insulated acoustic ducts for bigger acoustic comfort.**
- **Use a flexible sleeve when connecting the ducts to the air inlet and air outlet of the plenum in order to absorb the vibrations.**

8 INSTALLATION : ELECTRICAL CONNECTION / INTERCONNECTION.

The installation must be carried out by a person with the appropriate skills and qualifications. The system must be turned off and recorded before any intervention, by cutting off the power supply.

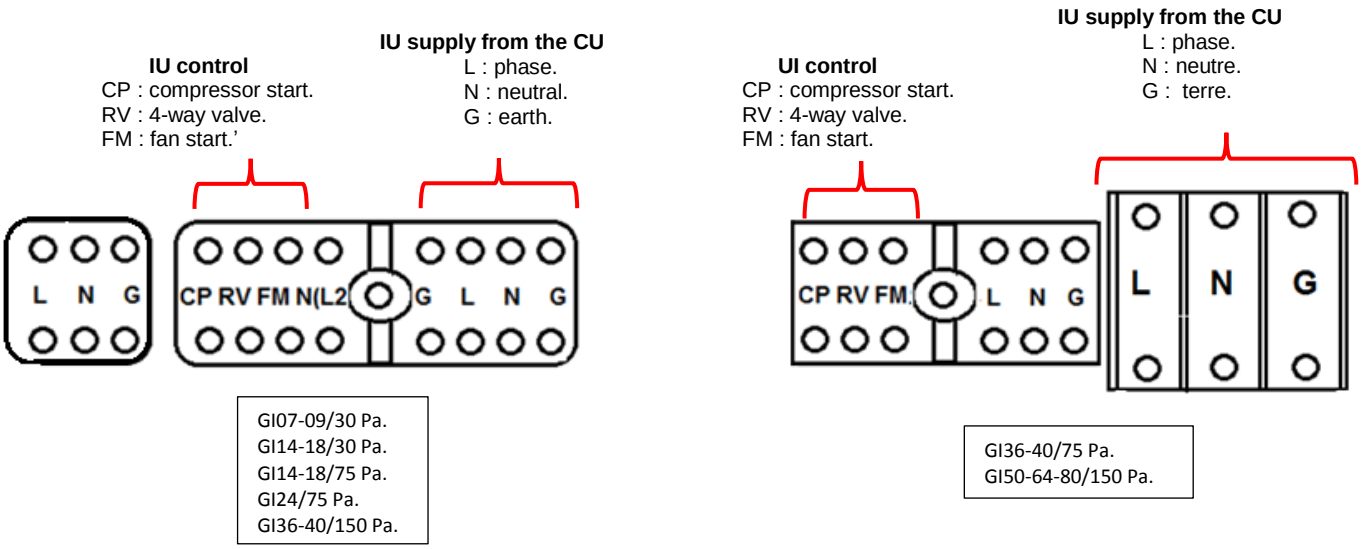
The choice of interconnection cables must be made by the installer to comply with the standards in force at the time of installation. Among other things, **the installer will have to pay attention to the electrical powers absorbed in all life phases of the installation. The final choice remains the responsibility of the installer.**

An interconnection consists of a connecting cable between the CU and the IU. This cable allows the power supply of the UI on the one hand, and the passage of control commands between the CU and the IU on the other hand:



The power supply of the IU must be done by the CU, at the terminals provided for this purpose and marked "ALIM.UI" on the terminal block of the CU.

To access the power terminal block and the printed circuit board, remove the protective cover from the electrical box. Below the terminal block:



The connecting cable between the CU and the IU must be of type:

CU model	Nombre de conducteur					Interconnection cable
	Electrical supply	Compressor	4-way valve	Fan	Defrosting probe	
FW cooling only	3	1	-	-	-	4G1.5
FW reversible	3	1	1	-	-	5G1.5
FA cooling only	3	1	-	1	-	5G1.5
FA reversible	3	1	1	1	2	8G1.5

The maximum absorbed intensity of the ducted indoor unit is given in the table below :

Model	GI07-09 30 Pa	GI14-18 30Pa	GI14-18 75Pa	GI24 75Pa	GI36-40 75Pa	GI36-40 150Pa	GI50-64-80 150Pa
I max	0.45 A	0.60 A	0.95 A	1.44 A	2.04 A	3.60 A	5.75 A

CUs are delivered with a 6A fuse (see F2). The fuse must be of the engine accompaniment type (eg. aM).

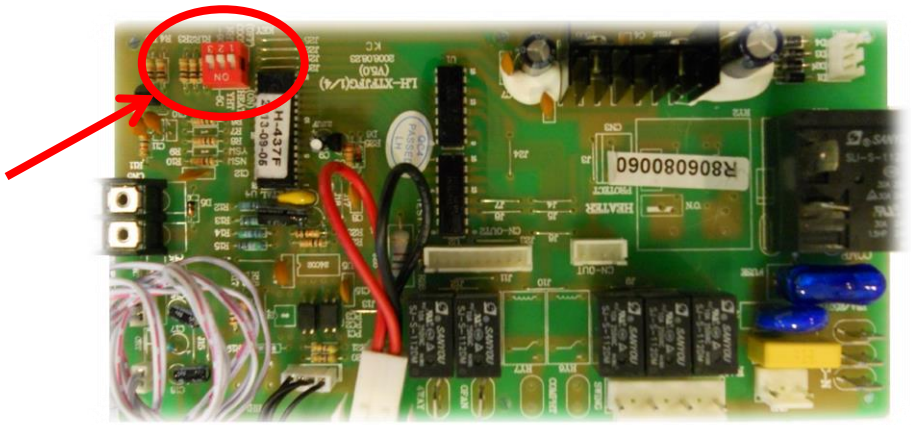
9 INSTALLATION: CONFIGURATION OF THE IU.

The installation must be carried out by a person with the appropriate skills and qualifications.

During the installation of the UI, **the installer must check the proper configuration of the switches** on the printed circuit board specific to each category of ducted indoor unit.

The positioning of the switches is done during the interconnection of the UI to the GC. The installer should refer to the interconnection diagram supplied with the indoor units.

	Switch 1	Switch 2	Switch 3
CU cooling only	OFF	OFF	OFF
CU reversible	ON	ON	OFF



The unit is delivered with a temperature probe of 5kΩ at +25°C, the probe is connected to the OPT connector.

- In the case of a connection with a cooling only CU, this probe is useless. (Do not connect anything to OPT)
- In the case of a connection with a reversible water condensing CU (FW), connect the probe to OPT with the extension cable and leave it in the electrical box.
- In the case of a connection with a reversible air condensing CU (FA), connect the probe extension to OPT and connect the extension to terminals S1/S2 of the CU. (the remaining probe is not used). **Keep the probe extension as far away from a power cable as possible.**

10 INSTALLATION: CHARGE OF REFRIGERANT GAS.

The intervention must be carried out by a person with the appropriate skills and qualifications. In particular, it must have the **certificate of suitability for the handling of refrigerants**. In addition, the company employing this person must have a **certificate of ability**.
Refer to the manual of the condensing unit (CU) installed with the IU.

11 INSTALLATION: THE WIRED REMOTE CONTROL.

The location of the remote control for the ducted unit must meet the following conditions:

- Being in the room to be air conditioned: the sensor measuring the atmosphere to be air conditioned is in the remote control.
- Be placed at a height between 1.20m and 1.60m.
- Not being directly exposed to the sun.
- Do not be in a humid environment.
- Be protected from various splashes.
- Allow easy reading of the display.
- The connecting cable must have a maximum length of 50m.
- The connecting cable must be removed from a power cable for interference reasons.
- The remote control must be connected directly to the printed circuit board of the ducted indoor unit using a cable with two conductors. Check the correct connection of the cable to the two clamping terminals on the electronic board. There is no polarity for the connection.



It is possible to use an infrared remote control to control the ducted indoor unit. It is necessary to point the infrared remote control on the wired control to transmit the signal. This infrared remote control comes as an option and is as below:

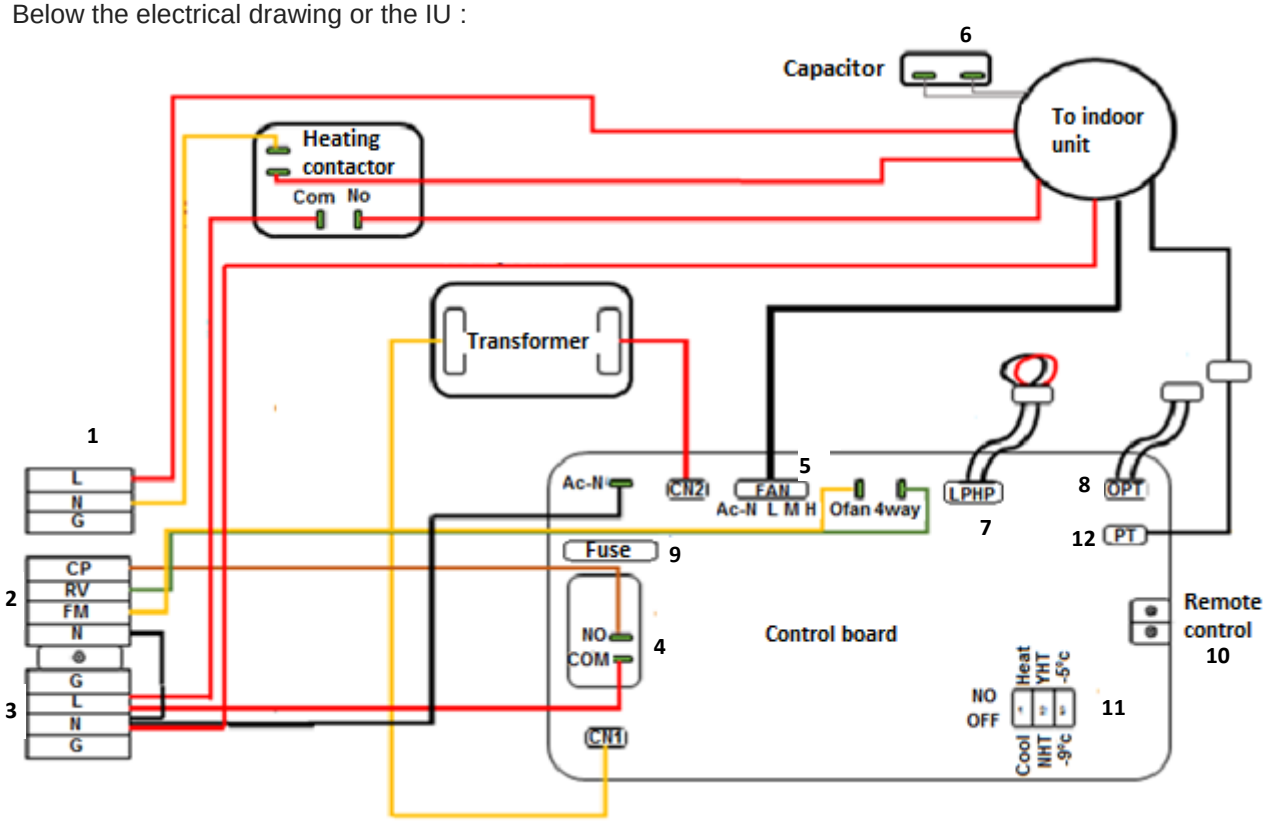


When inserting the batteries, the "Cool" and "Heat" modes are displayed alternately for 10 seconds. Wait for the end of the cycle before giving a run command to the IU.

For a cooling only unit it is recommended to forbid to display the heating mode ("Heat"). To do this, when switched on and when the "Cool" and "Heat" modes are alternately displayed, press "ON/OFF" when the cursor appears in front of the "Cool" mode. Thus, the heating mode selection is impossible. To reset the configuration, remove the batteries for a few seconds.

12 UTILISATION : ELECTRICAL DRAWING.

Below the electrical drawing or the IU :

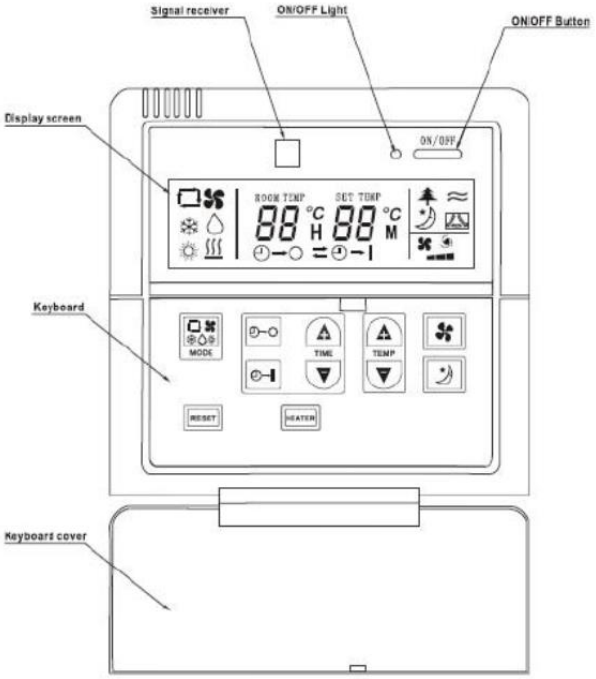


1	Do not connect anything to this terminal block.	7	LP / HP safety connector. Do not touch.
2	Control terminal block: compressor (CP), 4-way valve (RV), fan (FM).	8	Connector for CU's defrost sensor.
3	Main power terminal block (L, N, G).	9	Fuse protection of the printed circuit board.
4	Compressor power contactor.	10	Terminal block connection to the wired remote control.
5	Connector for connecting fan motor speeds.	11	Switches for IU configuration.
6	Fan motor capacitor.	12	Connector for the IU battery probe.

In cooling request, the printed circuit board closes the contact of the contactor 4, allowing the terminal (CP) to be powered by a voltage 230 V 50 Hz. The compressor contactor of the CU must then close and feed the compressor which will start. The terminal (FM) is also powered by a voltage 230 V 50 Hertz for the fan-condenser of a air condensing CU.

Note: Depending on the ducted indoor units, the terminal blocks may be slightly different than the one shown above. Please connect according to the electrical interconnection diagram supplied with the manual.

13 USE: OPERATION OF THE REMOTE CONTROL.



LCD Display	Function	Note	LCD Display	Function	Note
	Automatic Operation			Timer Off	Will not show when Timer Off is not set.
	Fan			Timer On	Will not show when Timer Off is not set.
	Cool			Combined use of Timer On and Timer Off	Will not show if the function is not set.
	Dry			Ionizer	Will not show when it is not set.
	Heat			Fresh air	Will not show when it is not set.
	Electric Heater			Right and left wind direction	Will not show when it is not set.
ROOM TEMP 88	Room Temperature	Stands for Hour when timing,"ROOMTEMP" will not show.		Sleep mode On/Off	Will not show when it is not set.
SET TEMP 88	Set Temperature	Stands for Minute when timing,"SET TEMP"will not show		Fan speed	Show in the order of Auto, L-speed, M-speed,H-speed.
H M	H Indicates hour M Indicates minute	H and M will not show,if timer is not set.	°C	Celsius temperature	Will not show when Timer is set.

Keyboard Display	Names	Function	Note
MODE	MODE	Press this button to select your desired mode. Each time the button is pressed, the operation mode changes in sequence from AUTO-FAN-COOL-DRY-HEAT.	
	Timer Off	Press it to enter Timer Off mode. Shows Timer Off display and the timer . Press time up/down button to adjust time. Another press to cancel it.	Time Up/Down to be used coordinately.
	Timer On	When unit is off, One press is Timer on ,shows sign of time on display and Timer.Press up/down button to adjust time. Another press to cancel.	Time Up/Down to be used coordinately.
TIME	Time Up/Down	In timer Mode, each press to this button, the set time can be increased or decreased by 10 minutes. It has continuous press function.	Timer On/Off button to be used coordinately
TEMP	Temperature Up/Down	After Cool or Heat Automatic operation mode is selected, press this button to adjust the temperature you want. Each press can increase or decrease the set temperature by 1℃.	
	Fan Speed	Press it to select your desired fan speed. Each time the button ispressed, it change in sequence ferm AUTO-L-speed, M-speed,H-speed.	
	Sleep Mode	Press this button to enter Sleep mode, the unit will adjust the temperature and air volume automatically to make your sleep more comfortable.	
RESET	Reset	Press this button, the display will be cleared , and the current operation stops. Operation Mode needs to be reset.	
HEATER	Electric heater	When heating capacity is not enough please press it to enter auxiliary electric heating mode.	This function is invalid for cooling only units.

Starting the unit :

- Press the "ON/OFF" button to turn the unit on, then select the operating mode.
- Press the "+" and "-" keys to select the desired set point temperature (between 16°C and 31°C).
- Press the "fan speed" button to select the required airflow.

It is possible to shift the start or stop of the unit by a timer:

- Press the "Start Clock" or "Stop Clock" button when the unit is to be turned on or off (if the unit is running when you press this button, the unit will be stopped).
- Press the "Time + / -" button to program the time difference between switching the unit on and off.

Please note :

- For a better comfort at night, press the "sleep mode" button, so that the unit automatically selects the set temperature and ventilation speed adapted to your sleep.
- There is no clock function allowing a daily programming of the start-up or shutdown.

To reset the unit, press the "Reset" key.

14 USE : ERROR CODES.

Fault codes	Description	Possible causes
E1	Communication problem between the IU and the remote control.	False contact between the remote control and the IU. Line loss between the remote control and the IU.
E2	Room temperature sensor problem (in the remote control).	Probe cut off or out of service
E3	Battery temperature probe problem (on the IU). PT connector on the board.	Probe cut off or out of service
E4	Defrost probe problem (on the CU). OPT connector on the board.	Probe of the outdoor unit not connected. Switch badly positioned on the card.
E5	Not enough cooling capacity in cooling mode	HP or LP cut. (too long start) Undersized unit.
E6	Anti-frost protection in cooling mode.	LP too low. Air flow too low.
E7	Not enough heating capacity in thermodynamic heating mode.	HP or LP cut. (too long start) Undersized unit.
E8	Overheating in thermodynamic heating mode.	Unit badly or overcharged. Probe out of service.
E9	Connector on the badly connected board.	"LP / HP-pressure" connector incorrectly connected.
EA	Connector on the badly connected board.	"LP / HP-pressure" connector incorrectly connected.

15 MAINTENANCE



The maintenance must be carried out by a person with the appropriate skills and qualifications.

Before maintenance, the unit needs to be switched off and necessary measures needs to be taken to prevent it from restarting (record the installation).

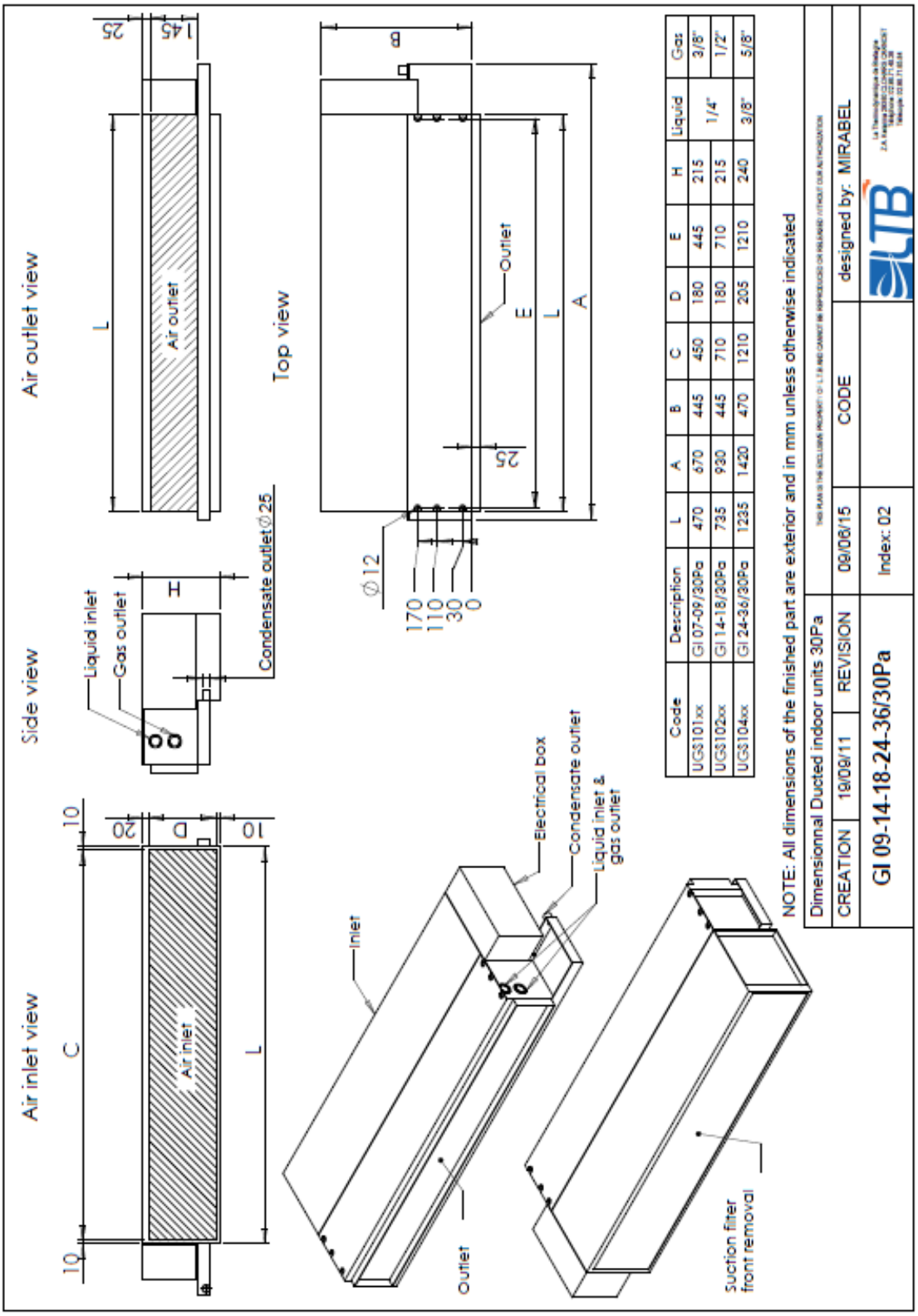
The maintenance frequencies are to be adapted according to the environment and the context of the use of the condensing unit, with **at least one maintenance every year**.

During maintenance, it is among others recommended to:

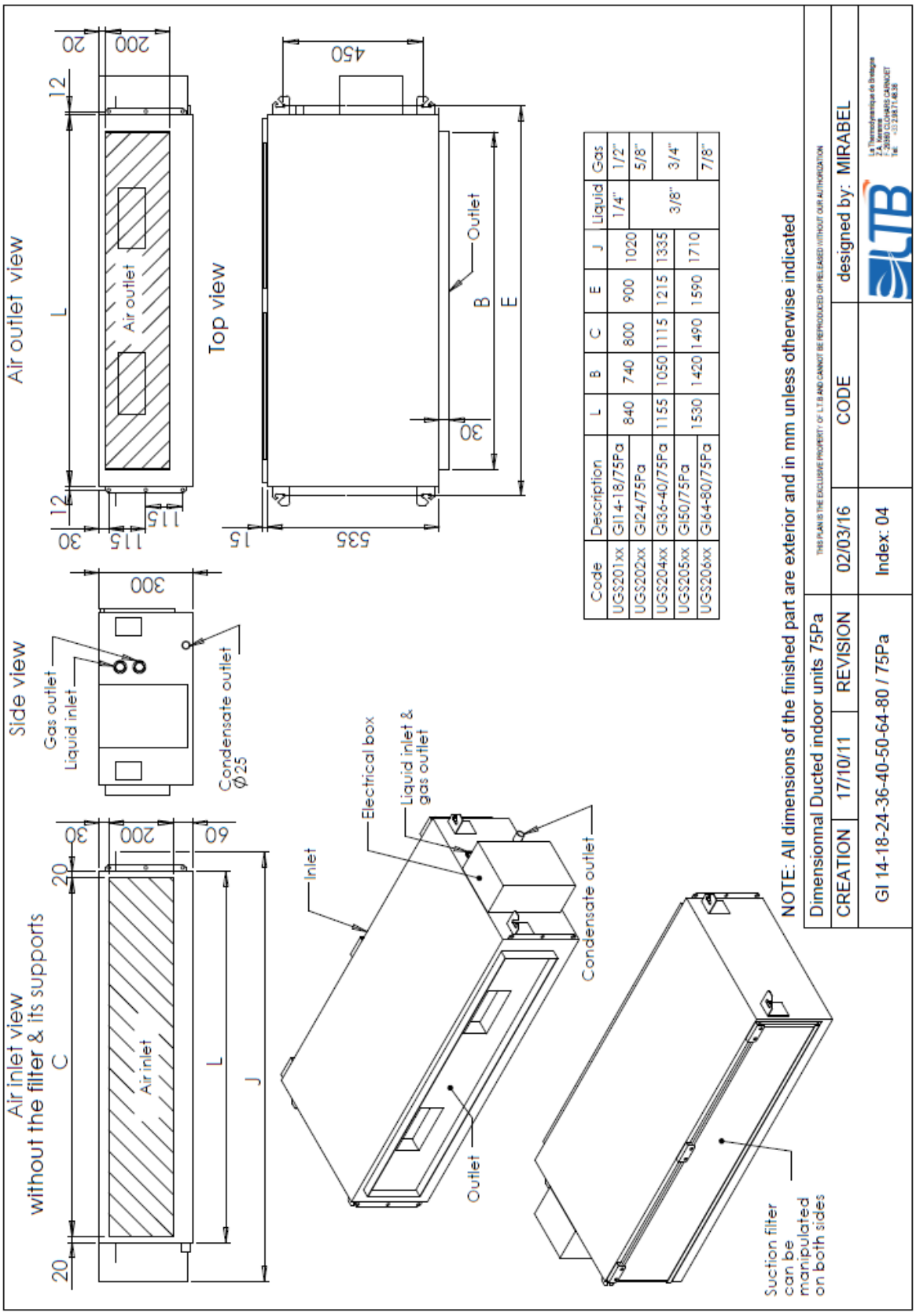
- Check the condition of the air intake filter, clean it or change it if necessary.
- Check the correct operation of the ducted indoor unit (air inlet- and air outlet temperature)
- Check after a long use, the supports of the ducted indoor unit and the state of the fixings.
- Check the condition of the connection sleeves as well as the diffusion sleeves.
- Check that there is no leak of refrigerant.
- Check that there is no premature wear of the various components.
- Check that the electrical connections are well tightened.
- Check the correct positioning of the probes and their fixation.
- Check the flow of the condensate tray of the IU, the condensate discharge line and clean if necessary.
- Check that there is no abnormal heating of the electric cables.
- If you need to clean, disinfect the battery of the ducted indoor unit protect the electrical and electronic components.

All interventions on the refrigerant circuit must comply with the rules of practice and regulations in force. In particular, it is necessary to recover the refrigerant before opening the circuit and put the circuit under nitrogen for any solder.

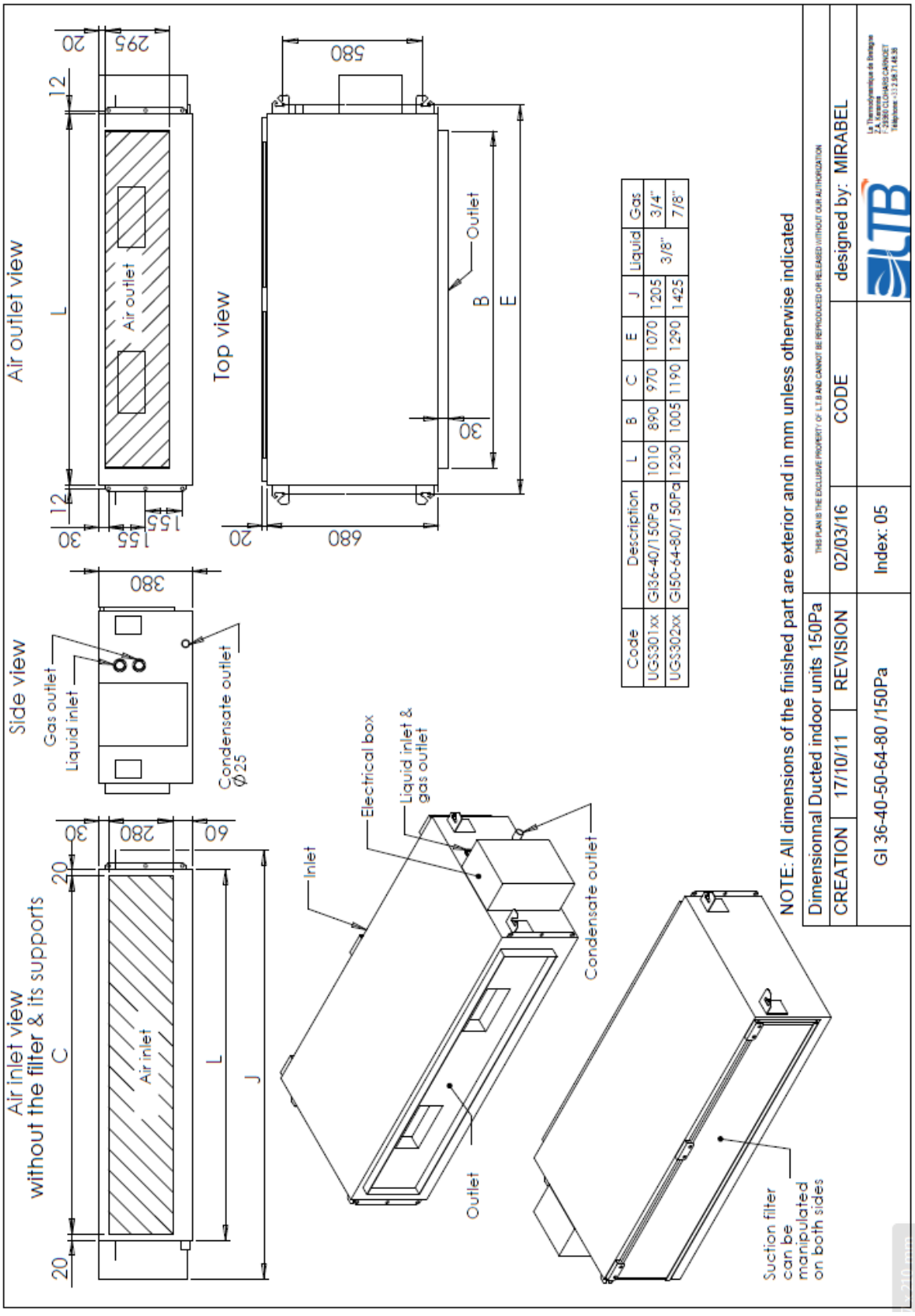
16 DIMENSIONAL DRAWING



Code	Description	L	A	B	C	D	E	H	Liquid	Gas
UGS101xx	GI 07-09/30Pa	470	670	445	450	180	445	215	1/4"	3/8"
UGS102xx	GI 14-18/30Pa	735	930	445	710	180	710	215		1/2"
UGS104xx	GI 24-36/30Pa	1235	1420	470	1210	205	1210	240	3/8"	5/8"



Code	Description	L	B	C	E	J	Liquid	Gas
UGS201xx	GI14-18/75Pa	840	740	800	900	1020	1/4"	1/2"
UGS202xx	GI24/75Pa							5/8"
UGS204xx	GI36-40/75Pa	1155	1050	1115	1215	1335	3/8"	3/4"
UGS205xx	GI50/75Pa	1530	1420	1490	1590	1710		7/8"
UGS206xx	GI64-80/75Pa							



Code	Description	L	B	C	E	J	Liquid	Gas
UG3301xx	GI36-40/150Pa	1010	890	970	1070	1205	3/8"	3/4"
UG3302xx	GI50-64-80/150Pa	1230	1005	1190	1290	1425		7/8"