FOSTER
REFRIGERATOR

SERVICE MANUAL

Packaged Coldroom

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Environmental Management Policy for Service Manuals and Duets.

Product Support and Installation Contractors

Foster Refrigerator recognises that its activities, products and services can have an adverse impact upon the environment.
The organisation is committed to implementing systems and controls to manage, reduce and eliminate its adverse environmental impacts wherever possible, and has formulated an Environmental Policy outlining our core aims. A copy of the Environmental Policy is available to all contractors and suppliers upon request.

The organisation is committed to working with suppliers and contractors where their activities have the potential to impact upon the environment. To achieve the aims stated in the Environmental Policy we require that all suppliers and contractors operate in compliance with the law and are committed to best practice in environmental management.

Product Support and Installation contractors are required to:

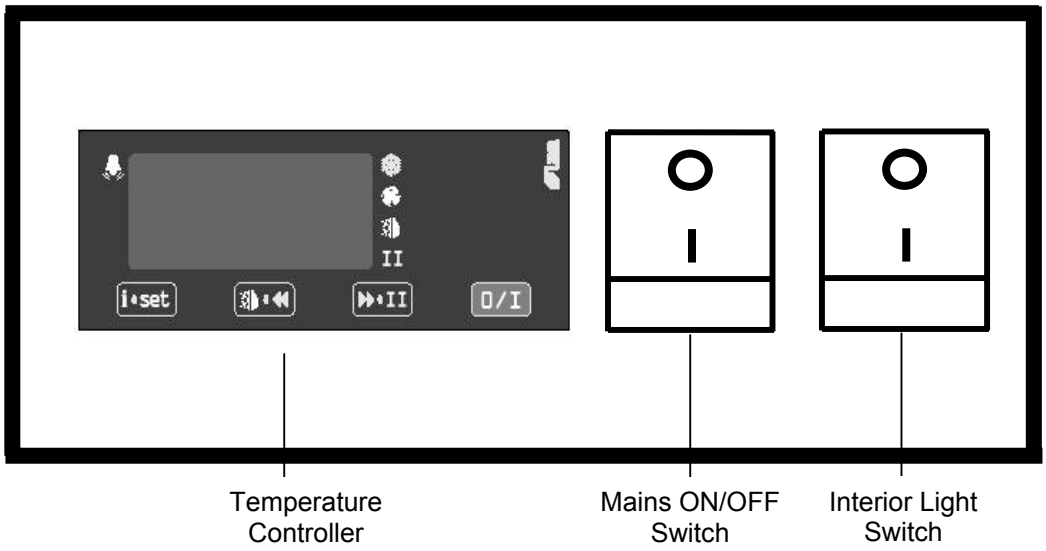
1. Ensure that wherever possible waste is removed from the client's site, where arrangements are in place all waste should be returned to Foster Refrigerator's premises. In certain circumstances waste may be disposed of on the clients site; if permission is given, if the client has arrangements in place for the type of waste.
2. If arranging for the disposal of your waste, handle, store and dispose of it in such a way as to prevent its escape into the environment, harm to human health, and to ensure the compliance with the environmental law. Guidance is available from the Environment Agency on how to comply with the waste management 'duty of care'.
3. The following waste must be stored of separately from other wastes, as they are hazardous to the environment: refrigerants, polyurethane foam, oils.
4. When arranging for disposal of waste, ensure a waste transfer note or consignment note is completed as appropriate. Ensure that all waste is correctly described on the waste note and include the appropriate six-digit code from the European Waste Catalogue. Your waste contractor or Foster can provide further information if necessary.
5. Ensure that all waste is removed by a registered waste carrier, a carrier in possession of a waste management licence, or a carrier holding an appropriate exemption. Ensure the person receiving the waste at its ultimate destination is in receipt of a waste management licence or valid exemption.
6. Handle and store refrigerants in such a way as to prevent their emission to atmosphere, and ensure they are disposed of safely and in accordance with environmental law.
7. Make arrangements to ensure all staff who handle refrigerants do so at a level of competence consistent with the City Guilds 2078 Handling Refrigerants qualification or equivalent qualification.
8. Ensure all liquid substances are securely stored to prevent leaks and spill, and are **not** disposed of to storm drains, foul drain, surface water to soil.

DISPOSAL REQUIREMENTS

If not disposed of properly all refrigerators have components that can be harmful to the environment. All old refrigerators must be disposed of by appropriately registered and licensed waste contractors, and in accordance with national laws and regulations.

Introduction
Constructed on site from foamed insulated panels provided with profiled edges and heavy duty Fosterloks for positive locking and long-term stability.
The condensing system is incorporated in the front coldroom panel locked into position.
The temperature controller, On/Off switch and light switch are located in the hinged front panel.
Access to the condensing system is by removal of the retaining screws from the right hand side of the hinged panel.

Control Panel used on High and Low temperature coldrooms from E5167380 Feb 2006



Controller Operation

LCD 28CS4E-B (00-555739) Controller

Operation Guidelines

LCD 16 Display (00-555740)

Initial Start Up.

Start Up & self Test:

The indication is only displayed during the first three seconds following the mains electrical power being applied to the unit. During this period the controller performs a self-check.

Once the self-check has been completed  will be displayed.

Press and hold  for three seconds. The unit will start and the air temperature will be displayed.

Check temperature set point.
Important to note that the ability to increase and decrease the set point is not a function available to the user on the freezer rooms as the set point is fixed, but limited adjustment is available on the High temperature rooms.
To make adjustments to the set point it is necessary to access the parameter and alter SPL and SPH accordingly.

Check set point by pressing the button 

To increase set point press  +  until required temperature is displayed.

To decrease set point press  +  until required temperature is displayed.

Factory Temperature Set Point
Refrigerator +1°C to +4°C. Freezer -18°C to -21°C. Exit from set up occurs after 10 seconds if no button is pressed.

Manual Defrost.
To initiate a manual defrost press and hold  dEF will be displayed release. 

On completion of the defrost REC will be displayed until the cabinet temperature is achieved and then it will revert to displaying the normal cabinet temperature.

Set Unit to Standby.

Press  display shows OFF

Standby Indication
This indication is displayed while the unit is not operating but with mains power applied to the unit. This mode may be used for internal cleaning regimes and short periods when the unit is not required.
For extended periods of inactivity the mains supply should be isolated.

Alarm and Warnings

High temperature alarm

HI Will be displayed.
The alarm will sound but can be silenced by pressing any of the buttons, however it will return after the pre-set designated period. The unit returning to normal operating temperature will automatically cancel the alarm.
Possible Causes: Evaporator fan not working. Restricted airflow through airduct. Evaporator iced up. Compressor not working.

Low temperature alarm.

LO Will be displayed.
The alarm will sound but can be silenced by pressing any of the buttons and the unit will continue to operate, however it will return after the pre-set designated period. The unit returning to normal operating temperature will automatically cancel the alarm.
Possible Causes: Controller faulty (not switching compressor off). Compressor secondary relay will not de-energise (low temperature models).

Door Open Alarm. (*Only applies to cabinets fitted with door switches*.)

DO Will be displayed.
The alarm will sound but can be silenced by pressing. 
The display will continue to display the alarm message until cancelled by shutting the door.
Possible Causes: Faulty door switch. Door left open for more than 5minutes.

High Pressure Alarm (Only applies to machines fitted with a condenser probe).

HP Will be displayed
This alarm relate to the condenser which must be checked and cleaned at regular intervals the frequency being determined by site conditions.
The alarm will sound but can be silenced by pressing any of the buttons and the unit will continue to operate, however it will return after the pre-set designated period. The unit returning to normal operating temperature will automatically cancel the alarm.
Possible Causes: Condenser fan not working. Condenser blocked/ dirty. Condenser obstructed.

Air Temperature Probe Failure.

E1 Will be displayed.
The alarm will sound but can be silenced by pressing any button.
There is no further action that can be taken by the user in this instance. During this period the unit will continue to operate but have a reduced performance.
Action: Replace Probe.

Evaporator Temperature Probe Failure. (Automatic Defrost Cabinets Only)

E2 Will be displayed.
The alarm will sound but can be silenced by pressing any button.
There is no further action that can be taken by the user in this instance. During this period the unit will continue to operate satisfactorily, but this failure will have an effect on the defrost and therefore efficiency if allowed to continue.
Action: Replace Probe.

Information Menu

Pressing and releasing i•set activates the information menu. From this menu you can display the temperature relating to T1 (air probe), T2 (evaporator probe, if fitted) and T3 (condenser probe, if fitted).
The maximum temperature (THI) and the minimum temperature (TLO) the cabinet has achieved since it was last re-set.
The total operating time of the condenser (CND), since it was last cleaned, and the keyboard status (LOC).

The information to be displayed can be selected sequentially by pressing i•set repeatedly or scrolling through the menu using the ◀◀ or ▶▶II buttons.

Once selected press i•set to display the value

Exit from the info menu by pressing O/I or is automatic after 6 seconds if no buttons are pressed.

To reset the temperature settings recorded in THI and TLO and the hours counted in CND, access the info menu press i•set to display the value plus O/I simultaneously for resetting to be completed.

To check the LOC status scroll through to LOC, press i•set to display status – YES to lock keys. – NO to leave keys accessible.
NOTE: with the keys locked it is not possible to turn the unit off or ON or to check the set point

Parameter Setting and Adjustment

It is strongly advised that before adjusting any Service Parameters a thorough understanding of the following instructions should be obtained.

The parameters are accessed by pressing the following keys in succession ◀◀ + **"set"** + ▶▶II and keeping them pressed for 5 seconds.

After this period the first parameter **'SCL'** will be displayed.

Press button ▶▶II to pass from one parameter to the next and button ◀◀ to go back.

Press i•set to display the value + ◀◀ or ▶▶II to change it.

Exit from set up is by pressing O/I or is automatic if no buttons are pressed for 30 seconds

NOTE:

When receiving a replacement controller the unit will be set with the default settings. Change the settings to those relating to the particular model. After changing parameter 'SCL' from '1' to '2' moving through parameters 'SPL', 'SP', 'FDD', IISL' and 'IISP' you may find that '-or' will be displayed. '-or' indicates that the control setting is out of range.

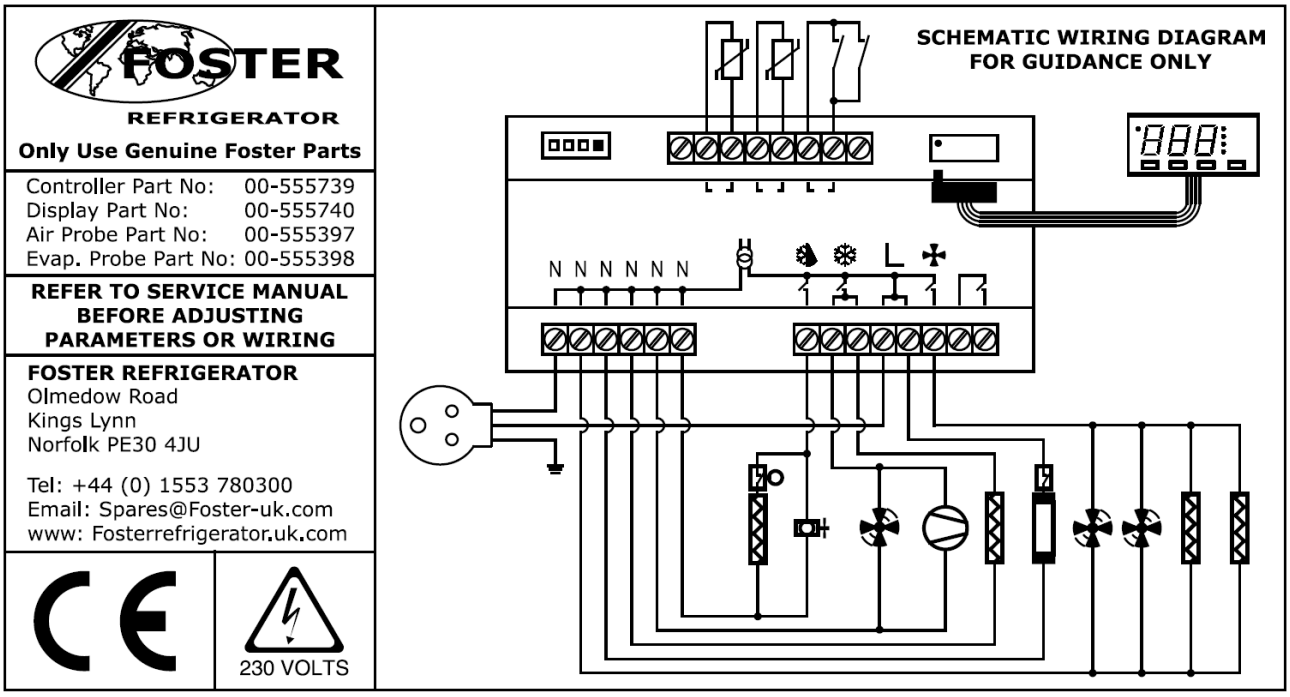
To get the parameter back into range, for example 'SPL', press i•set to display the value + ▶▶II continue pressing both buttons until the display shows the temperature required then release both buttons.
Use the same procedure to adjust all of the parameters displaying '-or'.

LCD 28CS4E-B (00-555735) Controller Parameter lists

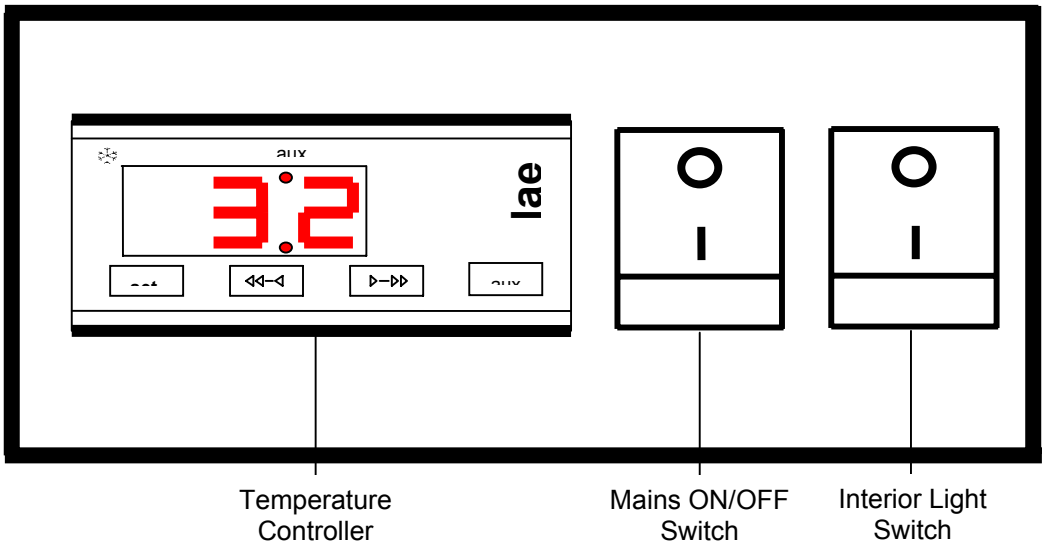
Mnem.	Definition	Min.	Max	Default	Dim.	FPC HT	FPC LT
ScL	Readout scale	**1°C; 2°C; °F**		**1°C**	flag	**2**	**2**
SPL	Minimum setpoint [I]	**-30**	**SPH**	**-25**	°C	**1**	**-21**
SPh	Maximum setpoint [I]	**SPL**	**30**	**10**	°C	**3**	**-21**
SP	Setpoint [I]	**SPL**	**SPH**	**-20**	°C	**1**	**-21**
hYS	Thermostat hysteresis [I]	**0.1**	**10**	**2.5**	°K	**3**	**3**
crt	Minimum compressor rest time	**0**	**30**	**1**	min.	**2**	**2**
cdc	10 min. run cycle with PF1	**0**	**10**	**6**	min.	**7**	**7**
cSd	Compressor Stop delay after door open	**0**	**30**	**1**	min.	**1**	**1**
dFr	Defrost frequency [I]	**0**	**24**	**3**	1/24h	**4**	**4**
dLi	Defrost end temperature	**-30**	**30**	**15**	°C	**20**	**50**

dto	Maximum defrost duration	**1**	**120**	**20**	min.	**20**	**20**
dty	Defrost type	**FAN; ELE; GAS**		**ELE**	flag	**OFF**	**ELE**
drn	Drain down time	**0**	**30**	**3**	min.	**2**	**2**
ddY	Display control during defrost	**0**	**60**	**10**	min.	**10**	**20**
Fid	Fan operation in defrost	**NO**	**YES**	**NO**	flag	**YES**	**NO**
Fdd	Evaporator. Fan re-start	**-30**	**30**	**-50**	°C	**5**	**5**
Ftc	Fan timed control [I]	**NO**	**YES**	**YES**	flag	**NO**	**NO**
Atl	Low temperature alarm	**-12**	**0**	**0**	°K	**-5**	**-5**
Ath	High temperature alarm	**0**	**12**	**5**	°K	**5**	**5**
Atd	Temperature alarm delay	**0**	**120**	**30**	min.	**90**	**90**
Ado	Door alarm delay	**0**	**30**	**5**	min.	**5**	**5**
Aht	Condenser HP Alarm	**0**	**70**	**60**	°C	**60**	**60**
Ahm	AHT alarm management	**NON; ALR; STP**		**NON**	flag	**NON**	**NON**
Acc	Condenser cleaning	**0**	**52**	**0**	wks	**0**	**0**
hdS	Eco->Heavy Duty sensitivity	**1**	**5**	**3**	flag	**3**	**3**
iiSM	2nd parameter set management	**NON; MAN; HDD**		**NON**	flag	**NON**	**NON**
iiSL	Minimum setpoint [II]	**-30**	**IISH**	**-25**	°C	**-25**	**-25**
iiSH	Maximum setpoint [II]	**IISL**	**30**	**10**	°C	**10**	**10**
iiSP	Setpoint [II]	**IISL**	**IISH**	**-20**	°C	**-20**	**-20**
iiHY	Thermostat hysteresis [II]	**0.1**	**10**	**3**	°K	**3**	**3**
iidF	Defrost frequency [II]	**0**	**24**	**1**	1/24h	**1**	**1**
iiFt	Fan timed control [II]	**NO**	**YES**	**NO**	flag	**NO**	**NO**
Sb	Stand By button function	**NO**	**YES**	**YES**	flag	**NO**	**NO**
dS	Door switch enabling	**NO**	**YES**	**NO**	flag	**NO**	**NO**
oAu	AUX Output Control	**NON; 0-1; ALR**		**ALR**	flag	**NON**	**NON**
oS1	Air probe offset	**-12.5**	**12.5**	**0**	°K	**0**	**0**
t2	Evaporator. Probe enabling	**NO**	**YES**	**YES**	flag	**NO**	**YES**
OS2	Evaporator. Probe offset	**-12.5**	**12.5**	**0**	°K	**0**	**0**
T3	Condenser. Probe enabling	**NO**	**YES**	**NO**	flag	**NO**	**NO**
oS3	Condenser. Probe offset	**-12.5**	**12.5**	**0**	°K	**0**	**0**
tLd	Logging Temp. Delay	**1**	**30**	**5**	min.	**5**	**5**
Sim	Display slowdown	**0**	**100**	**3**	exp.	**3**	**3**
Adr	Unit address	**1**	**255**	**1**	exp.	**1**	**1**

LCD 28CS4E-B (00-555735) Controller Electrical Connections



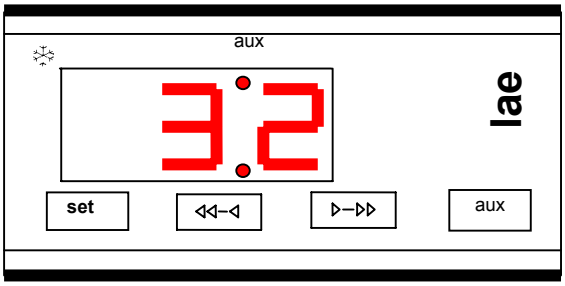
Detail shows high temperature controller FPC2H Models up to E5167380



High Temperature Room Control Panel.

When the controller is switched on a single line appears on the display for 3 seconds to indicate the autotest period.
After this period the air temperature measured by the T1 probe is displayed.

LDU 15 Controller



Check temperature set point.

Check set point by pressing the **"set"** button

To increase set point press **"set"** + ▷–▷▷

To decrease set point press **"set"** + ◁◁–◁

Factory Temperature Set Point +1°C.
Exit from set up occurs after 10 seconds if no button is pressed.
Alarms and Warnings

HI	High Temperature Alarm
LO	Low Temperature Alarm
E1	T1 Probe Failure
DF	Defrosting in Progress
CLN	Clean Condenser

Controller Set Up.

The parameters are accessed by pressing the following keys in succession ◁◁–◁ + **"set"** + ▷–▷▷ and keeping them pressed for 3 seconds.
Access to the parameters has been achieved with the first parameter **SCL** being displayed.

To pass from one parameter to the next press either the ◁◁–◁ or ▷–▷▷ key

To display the value press. **"set"**

To change the value press **"set"** + ▷–▷▷ to increase, or **"set"** + ◁◁–◁ to decrease.

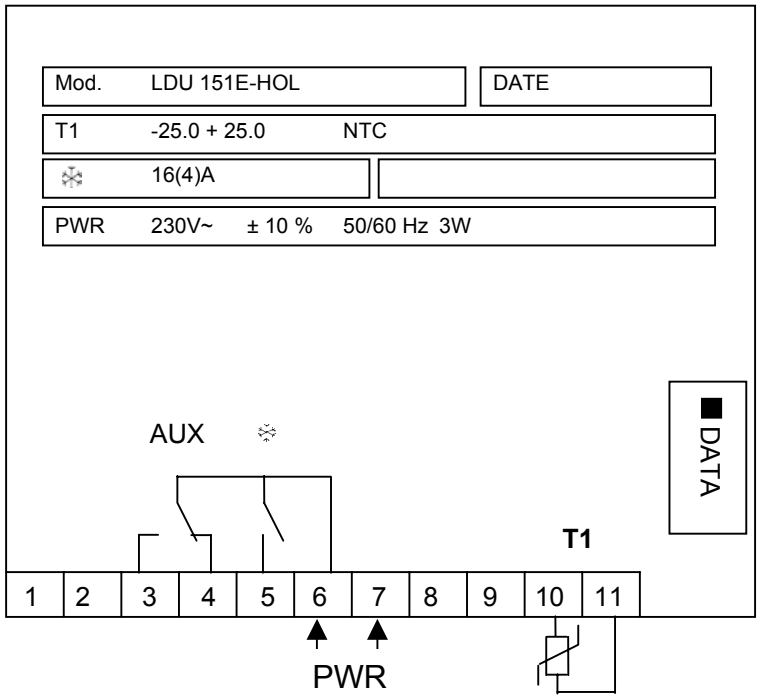
Exit from set up by pressing **"aux"** or is automatic after 30 seconds if no buttons are pressed.

Controller Parameters

LDU151E-BG Controller 00-555357

Display	Parameter	LDU151E-B Default Values	High Temp Room
SCL	Readout Scale	1°C	1°C
SPL	Minimum Temperature Set Point	00	00
SPH	Maximum Temperature Set Point	08	08
SP	Effective Temperature Set Point	03	02
HYS	Hysteresis	3	3
CRT	Compressor Rest Time (minutes)	1	1
CDC	Compressor Regulation with T1 Fail	7	7
DFR	Defrosting Frequency (/24 hours)	4	4
DTO	Defrosting Duration (minutes)	20	20
DDY	Defrost Display Control	1	1
ATL	Low Alarm Differential	-3	-3
ATH	High Alarm Differential	5	10
ATD	Temperature Alarm Delay (minutes)	60	90
ACC	Condenser Clean Interval	00	00
OAU	Auxiliary Output Mode of Operation	NON	NON
BAU	Auxiliary Button Mode of Operation	NON	NON
OS1	T1 Offset	00	00
SIM	Display Slowdown	00	00
ADR	Address	01	01

LDU 151E-BG Electrical Connections

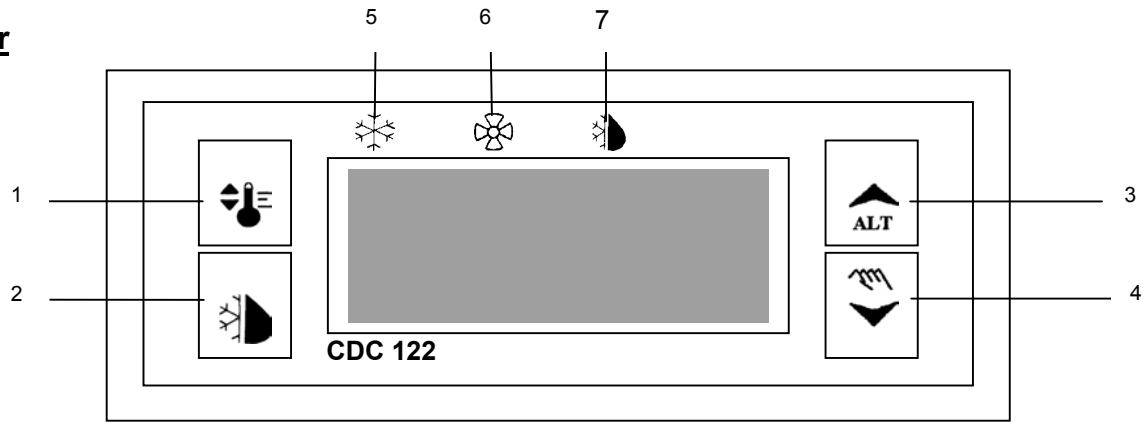


Low Temperature Room Control Panel.

CDC Controller from December 2004 to February 2005

When the unit is switched on the display shows "- - -" for a period of five seconds, during which the controller performs a self-check. The display then shows the air temperature measured by probe 1.

CDC Controller



Check Set Point – Low point of temperature band.

Press and hold button 1 ( )

Increase Set Point

Press and hold button 1 ( ). Press button 3 (ALT) until required temperature is displayed.

Decrease Set Point.

Press button. 1 ( ). Press button 4 ( ) until required temperature is displayed.

Manual Defrost

Press and hold button 2 ( ). Press button 4 ( ) a timed defrost will follow.

Indicators

LED 5 Compressor on ( ). LED 6 Evaporator Fan on ( ). LED 7 Defrost on ( )

Alarms and Warnings

PF1 indicates air probe failure.

PF2 indicates evaporator probe failure.

Access to the control parameters is achieved by pressing sequences: -

( ) + ( ) + (ALT) and holding in the keys for a period of 4 seconds.

It is possible to scroll through the parameters by pressing: - ( ) or (ALT)

The value of a selected parameter is checked by pressing:-( ) and may be altered by pressing, at the same time, ( ) + (ALT) or ( )

Exit from set up occurs after 10 seconds if no key is pressed

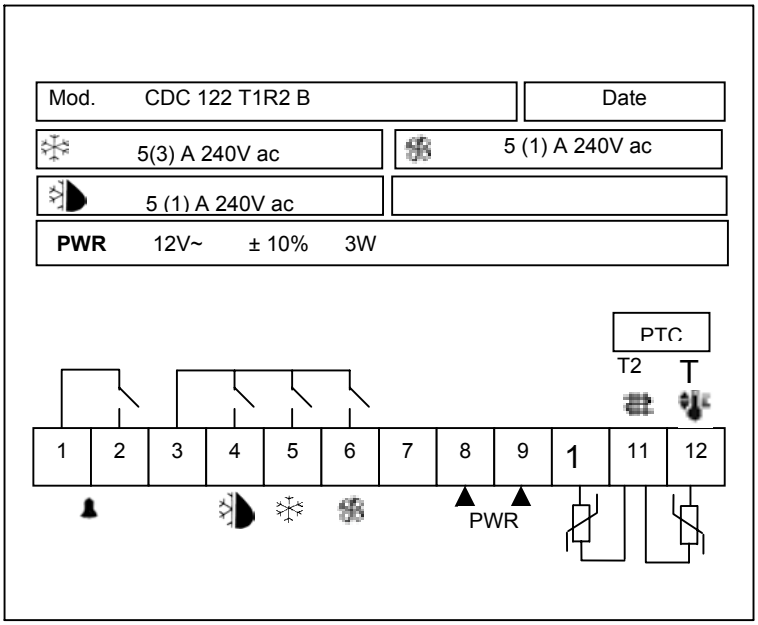
If an alarm condition is entered the alarm buzzer will sound and '**ALM'** will flash on the display. The alarm may be acknowledged by pressing any key causing the buzzer to cease and the display will alternate between '**ALM'** and air temperature while the alarm condition persists. The alarm will re-sound every 30 minutes while an alarm condition persists.

LAE CDC 122-T1-R2BS PARAMETER SETTINGS (15246156).

Display:	Parameter:	CDC122T1R2B (Default Values)	Low Temp Rooms
SPL	Minimum temperature setpoint	**-30**	**-25**
SPH	Maximum temperature setpoint	**20**	**-15**
HYS	Hysteresis	**02**	**3**
COF	Refrigeration minimum off time	**00**	**0**
CON	Refrigeration minimum on time	**00**	**0**
CDC	Compressor duty cycle	**05**	**7**
CRS	Compressor restart delay	**00**	**0**
DRE	Defrost repetition time	**06**	**6**
DLI	Defrost limit temperature	**10**	**50**
DTO	Defrost time out	**30**	**20**
DRP	Dripping time	**03**	**3**
DIS	Display in defrost	**5**	**20**
DTY	Defrost type	**ELE**	**ELE**
DOP	Defrost optimisation	**CON**	**CON**
FCT	Evaporator fan control	**01**	**-01**
FRS	Fan restart after defrost	**-10**	**5**
FID	Fan operation during defrost	**00**	**00**

ALO	Low alarm threshold	**-32**	**-25**
AHI	High alarm threshold	**22**	**-12**
ADL	Temperature alarm delay	**10**	**90**
AIN	Alarm input selection	**01**	**01**
OS1	Air probe offset	**00**	**00**
OS2	Evaporator probe offset	**00**	**00**
OS3	Display probe offset	**00**	**00**
SIM	Thermal mass simulation	**00**	**00**
ADR	Address / peripheral number	**01**	**01**

CDC 122 T1R2 B Electrical Connections



Operation Guidelines for Foster controller part number 00-555462 low temperature models FPC2L up to E5165449.

LCD 15 Controller

Initial Start Up.

Start Up & self Test: 

The indication is only displayed during the first three seconds following the mains electrical power being applied to the unit. During this period the controller performs a self-check.

Once the self-check has been completed  will be displayed.

Press and hold  for three seconds. The unit will start and the air temperature will be displayed.

Check temperature set point.

Important to note that the ability to increase and decrease the set point is not a function available to the user as the set point is fixed. To make adjustments to the set point it is necessary to access the parameter and alter SPL and SPH accordingly.

Check set point by pressing the button 

To increase set point press  +  until required temperature is displayed.

To decrease set point press i•set + ◀◀ until required temperature is displayed.

Factory Set Temperature Range
Freezer -18°C to -21°C.

Exit from set up occurs after 10 seconds if no button is pressed.

Manual Defrost.
To initiate a manual defrost press and hold ◀◀ when dEF is displayed release. ◀◀

On completion of the defrost rEc will be displayed until the cabinet temperature is achieved after which it will revert to displaying the normal cabinet temperature.

Alarm and Warnings

High temperature alarm. HI Will be displayed.
The alarm will sound but can be silenced by pressing any of the buttons, however it will return after the pre-set designated period as set in parameter **'ATH'**. The unit returning to normal operating temperature will automatically cancel the alarm.
Possible Causes: Evaporator fan not working. Restricted airflow through airduct. Evaporator iced up. Compressor not working.

Low temperature alarm. LO Will be displayed.

The alarm will sound but can be silenced by pressing any of the buttons and the unit will continue to operate, however it will return after the pre-set designated period as set in parameter '**ATH'**. The unit returning to normal operating temperature will automatically cancel the alarm.
Possible Causes: Controller faulty (not switching compressor off). Compressor secondary relay will not de-energise.

Door Open Alarm. (*Only applies to rooms fitted with door switches*.) DO Will be displayed.

The alarm will sound but can be silenced by pressing any button.
The display will continue to display the alarm message until cancelled by shutting the door.
After 1 minute the compressor will stop, as set in parameter '**CSD**'.
Possible Causes: Faulty door switch. Door left open for more than 5 minutes, as set in parameter '**ADO'.**

High Pressure Alarm (Only applies to units fitted with a condenser probe). Will be displayed HP

This alarm relate to the condenser which must be checked and cleaned at regular intervals the frequency being determined by site conditions.
The alarm will sound but can be silenced by pressing any of the buttons and the unit will continue to operate, however it will return after the pre-set designated period as set in parameter 'ATH'. The unit returning to normal operating temperature will automatically cancel the alarm.
Possible Causes: Condenser fan not working. Condenser blocked/ dirty. Condenser obstructed.

Air Temperature Probe Failure. E1 Will be displayed.

The alarm will sound but can be silenced by pressing any button.
There is no further action that can be taken by the user in this instance. During this period the unit will continue to operate but have a reduced performance with the compressor running for 7 minutes and resting for 3 minutes as set in parameter **'CDC**'.
Action: Replace Probe.

Evaporator Temperature Probe Failure. (Automatic Defrost Cabinets Only) E2 Will be displayed.

The alarm will sound but can be silenced by pressing any button.
There is no further action that can be taken by the user in this instance. During this period the unit will continue to operate satisfactorily with the defrost being controlled on a timed basis and not temperature which may have an effect on the overall efficiency if allowed to continue.
Action: Replace Probe.

Parameter Setting and Adjustment

It is strongly advised that before adjusting any Service Parameters a thorough understanding of the following instructions should be obtained.

The parameters are accessed by pressing the following keys in succession ◀◀ + **"set"** + ▶▶II and keeping them pressed for 5 seconds.

After this period the first parameter **'SCL'** will be displayed.

Press button ⏭II to pass from one parameter to the next and button ⏮ to go back.

Press i•set to display the value + ⏮ or ⏭II to change it.

Exit from set up is by pressing O/I or is automatic if no buttons are pressed for 30 seconds

NOTE:
When receiving a replacement controller the unit will be set with the default settings. Change the settings to those relating to the particular model. After changing parameter 'SCL' from '1' to '2' moving through parameters 'SPL', 'SP', 'FDD', IISL' and 'IISP' you may find that '-or' will be displayed. '-or' indicates that the control setting is out of range.

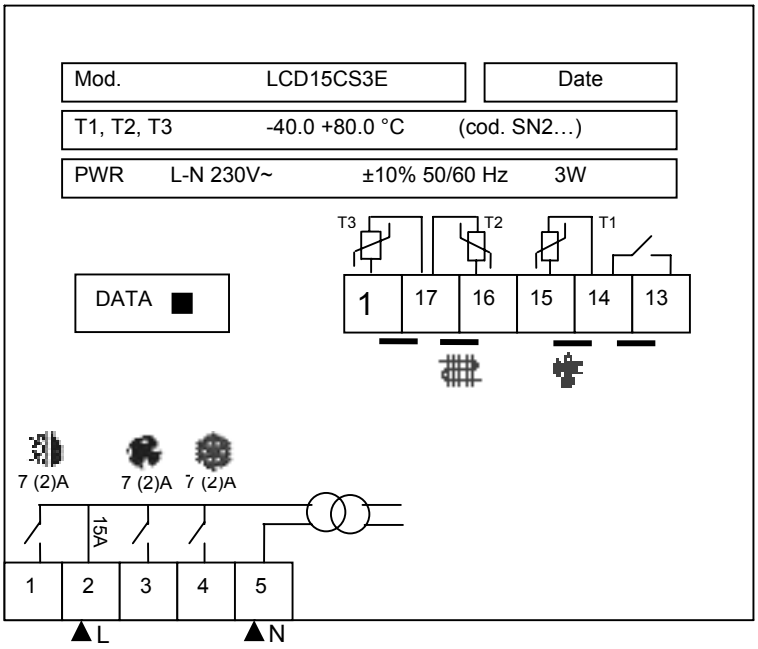
To get the parameter back into range, for example 'SPL', press i•set to display the value + ⏭II and continue pressing both buttons until the display shows the temperature required then release both buttons. Use the same procedure to adjust all of the parameters displaying '-or'.

Foster Controller part number 00-555462 Parameter list

Display:	Parameter:	LCD 15C S3E (Default Values)	FPC (Lt Rooms)
SCL	Readout scale	**1°C**	**2°C**
SPL	Minimum setpoint [I]	**-25**	**-25**
SPH	Maximum setpoint [I]	**10**	**-15**
SP	Setpoint [I]	**-20**	**-21**
HYS	Thermostat hysteresis [I]	**3**	**3**
CRT	Minimum compressor rest time	**2**	**1**
CDC	10 min. run cycle with PF1	**5**	**7**
CSD	Cmpr.Stop delay after door open	**1**	**1**
DFR	Defrost frequency [I]	**4**	**4**
DLI	Defrost end temperature	**15**	**50**
DTO	Maximum defrost duration	**20**	**15**
DTY	Defrost type	**ELE**	**ELE**
DRN	Drain down time	**3**	**3**
DDY	Display control during defrost	**5**	**20**
FID	Fan operation in defrost	**NO**	**NO**
FDD	Evapor. Fan re-start	**-10**	**5**
FTC	Fan timed control [I]	**YES**	**NO**
ATL	Low temperature alarm	**-5**	**-5**
ATH	High temperature alarm	**5**	**5**
ATD	Temperature alarm delay	**30**	**90**
ADO	Door alarm delay	**5**	**0**
AHT	Condenser HP Alarm	**60**	**60**
AHM	AHT alarm management	**ALR**	**NON**
ACC	Condenser cleaning	**20**	**0**
HDS	Eco->Heavy Duty sensitivity	**3**	**3**
IISM	2nd parameter set management	**NON**	**NON**
IISL	Minimum setpoint [II]	**-25**	**-25**
IISH	Maximum setpoint [II]	**10**	**10**
IISP	Setpoint [II]	**-20**	**-20**
IIHY	Thermostat hysteresis [II]	**3**	**3**

IIDF	Defrost frequency [II]	**4**	**4**
IIFT	Fan timed control [II]	**YES**	**YES**
SBY	Stand By button function	**YES**	**NO**
DS	Door switch enabling	**NO**	**NO**
OS1	Air probe offset	**0**	**0**
T2	Evapor. Probe enabling	**YES**	**YES**
OS2	Evapor. Probe offset	**0**	**0**
T3	Condens. Probe enabling	**NO**	**NO**
OS3	Condens. Probe offset	**0**	**0**
TLD	Logging Temp. Delay	**5**	**5**
SIM	Display slowdown	**3**	**3**
ADR	Unit address	**1**	**1**

LCD151CSE Electrical Connections



Parts Lists

PC2H-ZF High Temp System

Item	Description	Part Number
Compressor	CAJ9510Z 230/50/1	15422115
Compressor	MX18TB R404 HBP	00-555675
Condenser Coil		00-555561
Condenser Fan	Ring Mount 25W C/W Blade	00-555569
Evaporator Fan Guard	White	01-252381-01
Evaporator Coil		00-555565
Evaporator Fan	Ring Mount 25w C/W Blade	00-555568
Drier	DML 033S	00-555388
HP Pressure Switch	28 BAR	00-555386
Vap Tray Heater Rod	PA389-2 250W 240V	15240025
Vap Tray Temperature Switch	Cut Out 70°c Cut In 55°c	00-555621
Accumulator	3/8 Inlet 1/2 Outlet	15480002
Controller	LCD28CS4E-B (From Feb 2006)	00-555739
Display	LCD 16	00-555740
Air Probe	SN2K250T1 For LCD 28 Controller	00-555397
Controller	LDU151E-BG c/w NTC2K Probe (Up to Feb 2006)	00-555357
Air Probe	NTC 2K	00-555397
ON / Off Rocker Switch	ARCO C1550+EN60	15243562
Light Switch	C1353AT+EN60 2W	15243565
Bulkhead Light	Loblite 7000.00 White	00-555548
Light Bulb	60W BC Pearl 240V R/S	00-555637

Refrigerant	1200 grms R404A	
Capillary	3 metres 0.064	

PC2L-ZF Low Temp System

Item	Description	Part Number
Compressor	MS34FB R404 LBP	00-555683
Compressor	CAJ2464Z-SE 230/50	15422412
Condenser Coil		00-555561
Condenser Fan	Ring Mount 25W C/W Blade	00-555569
Evaporator Fan Guard	White	01-252381-01
Evaporator Coil		00-555566
Evaporator Fan	Ring Mount 25w C/W Blade	00-555568
Drier	DML 033S	00-555388
HP Pressure Switch	28 BAR	00-555386
Vap Tray Heater Rod	PA389-2 250W 240V	15240025
Vap Tray Temperature Switch	Cut Out 70°c Cut In 55°c	00-555621
Hot Gas Valve Solenoid	NEV-60	15451251
Accumulator	3/8 Inlet 1/2 Outlet	15480002
Controller	LCD28CS4E-B (From Feb 2006)	00-555739
Display	LCD 16	00-555740
Air Probe	SN2K250T1 For LCD 28 Controller	00-555397
Evaporator Probe	SN2K250T2 For LCD 28 Controller	00-555398
Controller	LCD 15C S3E (From Feb 2005 to Feb 2006)	00-555462
Air Probe	NTC 2K For LCD 15 Controller	00-555397
Evaporator Probe	NTC 2K For LCD 15 Controller	00-555398
Controller	CDC122T1R2TS C/W Probe (From December 04 to Feb 05)	15246156
Air Probe	T1 Probe 3.5 metre (for CDC122T1R2TS)	00-555199
Evaporator Probe	T2 Probe 3.5 metre (for CDC122T1R2TS)	00-555200
ON / Off Rocker Switch	ARCO C1550+EN60	15243562
Light Switch	C1353AT+EN60 2W	15243565
Bulkhead Light	Loblite 7000.00 White	00-555548
Light Bulb	60W BC Pearl 240V R/S	00-555637
Pressure Relief Valve	Kason 1830	15714027
Drip Tray Heater Rod	600W 230V	01-252076-01
Evaporator Klixon	Cut Out 20°c Cut In 5°c	16240094
Drain Pan Klixon	Cut Out 20°c Cut In 5°c	16240094
Door Frame Heater		01-252938-01
Refrigerant	900 Grms R404A	
Capillary	3 metres 0.064	

WPC2H-ZF High Temp System

Item	Description	Part Number
Compressor	MX18TB R404 HBP	00-555675
Compressor	CAJ9510Z 230/50/1	15422115
Water Cooled Condenser		00-555567
Condenser Fan	Motor 10w	00-555570
Evaporator Fan Guard	White	01-252381-01
Evaporator Coil		00-555565
Evaporator Fan	Ring Mount 25w C/W Blade	00-555568
Drier	DML 033S	00-555388
HP Pressure Switch	28 BAR	00-555386
Vap Tray Heater Rod	PA389-2 250W 240V	15240025
Vap Tray Temperature Switch	Cut Out 70°c Cut In 55°c	00-555621
Accumulator	3/8 Inlet 1/2 Outlet	15480002
Controller	LCD28CS4E-B (From Feb 2006)	00-555739
Display	LCD 16	00-555740
Air Probe	SN2K250T1 For LCD 28 Controller (Up to Feb 2006)	00-555397
Controller	LDU151E-BG c/w NTC2K Probe	00-555357
Probe	NTC 2K	
ON / Off Rocker Switch	ARCO C1550+EN60	15243562
Light Switch	C1353AT+EN60 2W	15243565
Bulkhead Light	Loblite 7000.00 White	00-555548
Light Bulb	60W BC Pearl 240V R/S	00-555637

Water Circulating Pump	EUROPA SG5	00-555582
Water Circulating Pump Valve	22mmx1.1/2"Union	00-555583
Water Reservoir	304 Stainless Steel	01-250637-01
High Pressure Stat	KP5 Auto Reset	15452109
Glycol Heat Exchanger Fan Motor	Grid Mount 16W	15470027
Glycol Heat Exchanger Fan Blade	Elco A200-31 5170	00-555622
Glycol Heat Exchanger Coil		00-555563
Glycol Heat Exchanger Complete	Complete Housing with Coil, Fan Motor & Blade.	
Refrigerant	650 Grms R404A	
Capillary	3 metres 0.064	

WPC2L-ZF Low Temp System

Item	Description	Part Number
Compressor	MS34FB R404 LBP	00-555683
Compressor	CAJ2464Z-SE 230/50	15422412
Water Cooled Condenser		00-555567
Condenser Fan	Motor 10w	00-555570
Evaporator Fan Guard	White	01-252381-01
Evaporator Coil		00-555566
Evaporator Fan	Ring Mount 25w C/W Blade	00-555568
Drier	DML 033S	00-555388
HP Pressure Switch	28 BAR	00-555386
Vap Tray Heater Rod	PA389-2 250W 240V	15240025
Vap Tray Temperature Switch	Cut Out 70°c Cut In 55°c	00-555621
Hot Gas Valve Solenoid	NEV-60	15451251
Accumulator	3/8 Inlet 1/2 Outlet	15480002
Controller	LCD28CS4E-B (From Feb 2006)	00-555739
Display	LCD 16	00-555740
Air Probe	SN2K250T1 For LCD 28 Controller	00-555397
Evaporator Probe	SN2K250T2 For LCD 28 Controller	00-555398
Controller	LCD 15C S3E (From Feb 2005 to Feb 2006)	00-555462
Air Probe	NTC 2K For LCD 15 Controller	00-555397
Evaporator Probe	NTC 2K For LCD 15 Controller	00-555398
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Air Probe	T1 Probe 3.5 metre (for CDC122T1R2TS)	00-555199
Evaporator Probe	T2 Probe 3.5 metre (for CDC122T1R2TS)	00-555200
ON / Off Rocker Switch	ARCO C1550+EN60	15243562
Light Switch	C1353AT+EN60 2W	15243565
Bulkhead Light	Loblite 7000.00 White	00-555548
Light Bulb	60W BC Pearl 240V R/S	00-555637
Pressure Relief Valve	Kason 1830	15714027
Drip Tray Heater Rod	600W 230V	01-252076-01
Evaporator Klixon	Cut Out 20°c Cut In 5°c	16240094
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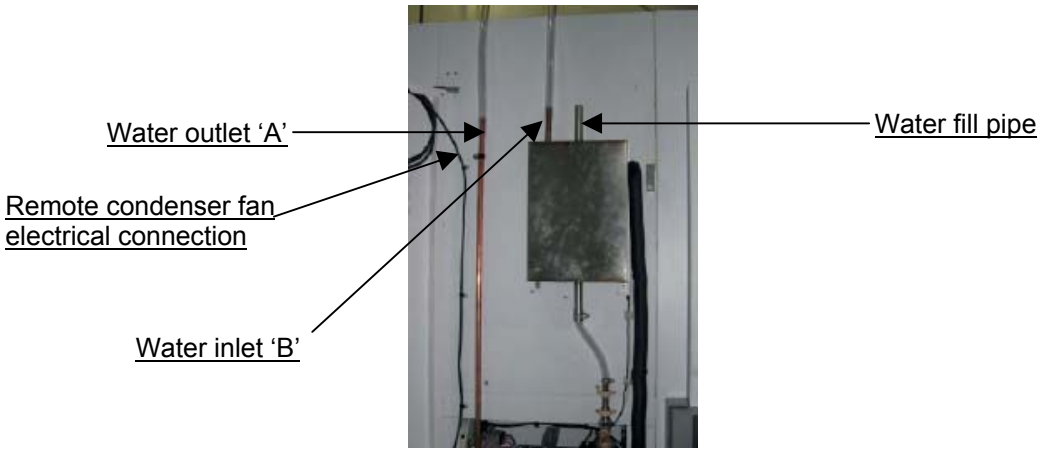
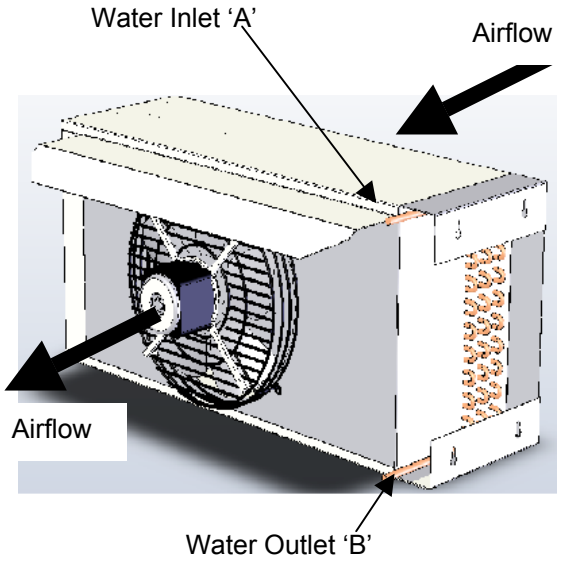
Water Circulating Pump	EUROPA SG5	00-555582
Water Circulating Pump Valve	22mmx1.1/2"Union	00-555583
Water Reservoir	304 Stainless Steel	01-250637-01
High Pressure Stat	KP5 Auto Reset	15452109
Glycol Heat Exchanger Fan Motor	Grid Mount 16W	15470027
Glycol Heat Exchanger Fan Blade	Elco A200-31 5170	00-555622
Glycol Heat Exchanger Coil		00-555563
Glycol Heat Exchanger Complete	Complete Housing with Coil, Fan Motor & Blade.	
Door Frame Heater		01-252938-01
Refrigerant	400 Grms R404A	
Capillary	3 metres 0.064	

Water Cooled Condensing System Filling Instruction

Filling the system with water
Fill the 5-litre container with clean water.
Remove the plastic cap from the end of the 'Water Fill Pipe'.
Insert the funnel in to the end of the Water Fill Pipe.
Slowly and with care, avoiding any spillage, poor 2 litres of the water into the tank.
Plug the mains lead in to the power source and turn the unit ON.
After a short period the water pump will start to circulate the water round the system.
Leave the pump to run for a further 2 minutes.
Switch the unit Off before adding the remaining 3 litres of the water.
Switch the unit On and leave running for a few minutes to check that the water is circulating correctly.
Check the water level in of the tank by placing a hand against the front, the tank if filled with sufficient water will be warm half way up, if not it may be necessary to add more water.
Refit the plastic cap to the water fill pipe.



Heat Exchanger Detail



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