

Undercounter & Slimline Cabinet Range

HR/LR 120 HRB/LRB120
HR/LR 140 HR/LR 150
HR/LR 200 HR/LR 240
HR/LR 360
HR/LR 410



SERVICE MANUAL



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INTRODUCTION

CABINET DESCRIPTION

The cabinets are manufactured as a one piece foamed shell.

The condensing unit is located on the base of the cabinet.

The cabinets conform to ISO Climate Class 4. (32^oc with 40% RH)

Temperature is controlled by a LAE microprocessor control with digital temperature display.

The HR 120, LR 120, HRB 120, LRB 120, HR 200, LR 200, HR 240, LR 240, HR 360 and LR 360 refrigeration system is integral with an air-cooled condensing unit with the refrigerant distribution into the evaporator controlled by capillary.

The HR 140, LR140, HR 150, LR 150, HR 410 and LR 410 refrigeration system is integral with an air-cooled compressor and static condenser with the refrigerant distribution into the evaporator controlled by capillary.

The HR 120, LR 120, HRB 120, LRB 120, HR 200, LR 200, HR 240, LR 240, HR 360 and LR 360 are forced air cooling. The air is circulated through the evaporator, via the fan/s into the storage area.

The HR 140, HR 150 and HR 410 are forced air cooling. The air is drawn over the evaporator and through the fan/s blowing into the storage area.

The LR 140, LR 150 and LR 410 have static freezer shelves with circulation in the storage compartment by natural convection.

The HR 120, LR 120, HRB 120, LRB 120, HR 200, LR 200, HR 240, LR 240, HR 360 and LR 360 have a plastic vaporiser tray with the hot gas line inserted into it to attain vaporisation.

The HR 140, HR 150, HR 200, LR 200 and HR 410 condensate vaporisation is provided by a self contained condensate vaporiser tray attached to the top of the compressor.

The HR 120, HRB 120, HR 140, HR 150, HR 200, HR 240 and HR 360 are timed off cycle defrost.

The LR 120, LRB 120, LR 200, LR 240 and LR 360 have electric defrost set at 4 times per 24 hours.

The LR 140, LR 150 and LR 410 refrigeration is provided by static freezer shelves requiring manual defrost.

The doors are fitted with pivot hinges, stainless steel door handle and magnetic door gasket.

All models are fitted with roller castors to the rear and M8 adjustable levelling bolts to front.

On glass door models the interior light is fitted to the top of the storage area at the front. The on/off switch is incorporated in the light.

Nomenclature based on –

H = High Temperature.

L = Low Temperature.

R = Refrigerator.

120/ 140/ 150/ 200/ 240/ 360/ 410 = Net Capacity (litres).

F = Forced Air.

S = Static Shelf.

U = Undermount.

G = Glass Door

Model Ref	HR 120	LR 120	HRB 120	LRB 120	HR 140	LR 140
Temperature range	+1 ⁰ C to + 4 ⁰ C	-18 ⁰ c to -21 ⁰ c	+1 ⁰ C to + 4 ⁰ C	-18 ⁰ c to -21 ⁰ c	+3 ⁰ C to + 5 ⁰ C	-18 ⁰ c to -21 ⁰ c
Capacity - litres	120	120	120	120	140	140
Shelves	2 x nylon coated shelves	2 x nylon coated shelves	2 x nylon coated shelves	2 x nylon coated shelves	2 x nylon coated shelves	2 x nylon coated shelves
Internal fittings	Fixed shelf supports	Fixed shelf supports	Fixed shelf supports	Fixed shelf supports	Fixed shelf supports.	Static refrigerated shelves
Refrigerant	300gms R134a	160gms R404A	160gms R134a	300gms R404A	115gms R134a	115gms R134a
External Dimensions	H 896mm x W 441mm x D 762mm	H 896mm x W 441mm x D 762mm	H 896mm x W 646mm x D 562mm	H 896mm x W 646mm x D 562mm	H 830mm x W 605mm x D 630mm	H 830mm x W 605mm x D 630mm

Model Ref	HR 150	LR 150	HR 200	LR 200	HR 240	LR 240
Temperature range	+3 ⁰ C to + 5 ⁰ C	-18 ⁰ c to -21 ⁰ c	+3 ⁰ c to + 5 ⁰ c	-18 ⁰ c to -21 ⁰ c	+1 ⁰ C to + 4 ⁰ C	-18 ⁰ c to -21 ⁰ c
Capacity - litres	150	150	200	200	240	240
Shelves	2 x nylon coated shelves	3 (fixed freezer shelves)	2 x nylon coated shelves	2 x nylon coated shelves	4 x nylon coated shelves	4 x nylon coated shelves
Internal fittings	Fixed shelf supports.	Static refrigerated shelves	Fixed shelf supports.	Fixed shelf supports.	Fixed shelf supports.	Fixed shelf supports.
Refrigerant	120 gms R134a	115 gms R134a	190 gms R134a	235 gms R404A	220 gms R134a	320 gms R404A
External Dimensions	H 830mm x W 600mm x D 652mm	H 830mm x W 600mm x D 652mm	H 828mm x W 681mm x D 750mm	H 828mm x W 681mm x D 750mm	H 896mm x W 868mm x D 762mm	H 896mm x W 868mm x D 762mm

Model Ref	HR 360	LR360	HR 410	LR 410
Temperature range	+3 ⁰ c to + 5 ⁰ c	-18 ⁰ c to -21 ⁰ c	+3 ⁰ C to + 5 ⁰ C	-18 ⁰ c to -21 ⁰ c
Capacity - litres	360	360	410	410
Shelves	4 x nylon coated shelves	4 x nylon coated shelves	4 x nylon coated shelves	6 (fixed freezer shelves)
Internal fittings	Fixed shelf supports.	Fixed shelf supports.	Fixed shelf supports.	Static refrigerated shelves
Refrigerant	360 gms R134a	260 GMS R404A	180 gms R134a	200 gms R134a
External Dimensions	H 828mm x W 1210mm x D 750mm	H 828mm x W 1210mm x D 750mm	H 1875mm x W 600mm x D 652mm	H 1875mm x W 600mm x D 652mm

2. Controller and Operation.

BIT 20B11E and BIT 20B22E used upto 00-00-2005

The BIT 20B11E is fitted to the HR150, LR150, HR200, HR360, HR410 and LR410 (Foster part No. 00-554860).

The BIT 20B22E is fitted to the LR200 and LR360 (Foster part No. 00-554166).

The LAE BIT 12 RU front display fitted to both controllers (Foster part No. 00-554167).

They are a two piece controller, the Control Unit is fitted at the rear of the cabinet with the Display Unit fitted into the front top right hand side of the cabinet, interconnected by a ribbon cable.

Defrost type for HR models is a timed off cycle.

Defrost on the LR120, LRB120, LR 200, LR240 and LR360 is electric.

To defrost the LR150 and LR410 switch the machine off and allow the ice to melt, once it is clear of ice dry the cabinet thoroughly before switching the machine back on.

A manual defrost, for the HR models and the LR120, LRB120, LR 200, LR240 and LR360, can be initiated by pressing the red button on the control unit or by pressing the upward and downward arrows on the display simultaneously. During defrost the air temperature is displayed.

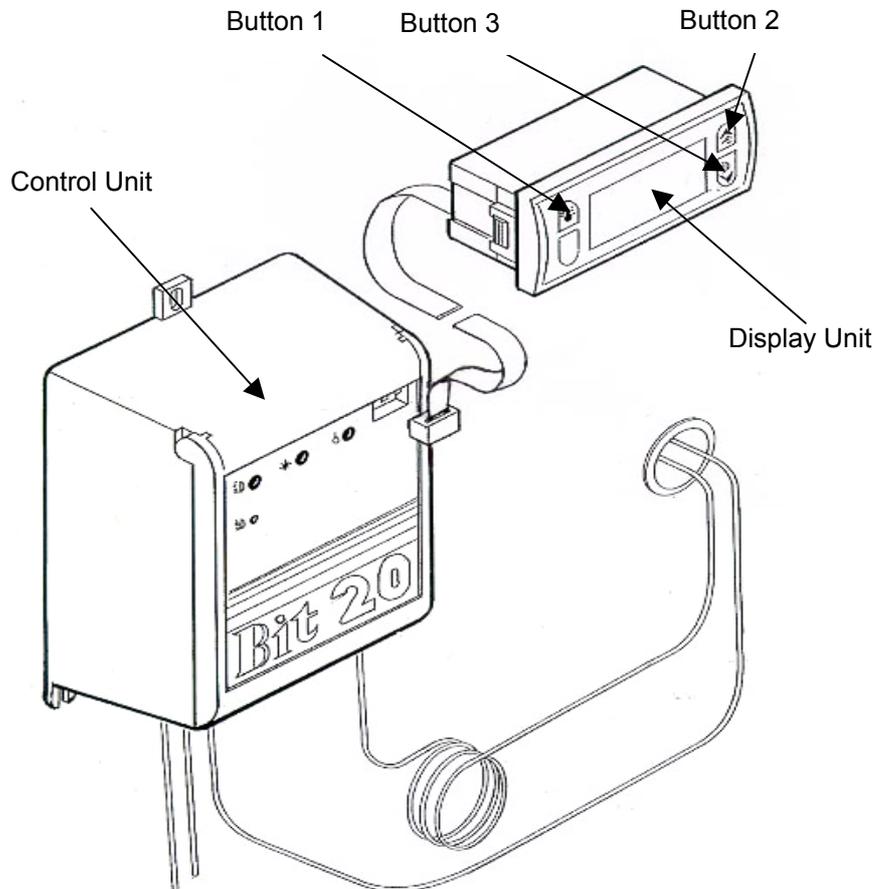
One probe is fitted measuring air temperature and is used to control cabinet temperature.

In the event of probe failure "E1" will be displayed.

In the event of air probe failure on HR models the refrigeration system will be controlled by a timed sequence. The controller parameter setting cF is set at 00 which allows for the compressor to be on for 3 minute and off for 4 minutes.

In the event of air probe failure on LR models the compressor will run continuously, the controller parameter setting cF is set at 1.

On the LR120, LRB120, LR 200, LR240 and LR 360 an evaporator probe is fitted, in the event of probe failure "E2" will be displayed. If the evaporator probe fails defrost will be controlled on a timed basis.



2. Controller Operation

2.1 Check set point 1.

Press button 1 

2.2 Increase set point

Press and hold button 1 

Press button 2  until required temperature is displayed.

2.3 Decrease set point

Press and hold button 1 

Press button 3  until required temperature is displayed.

2.4 Controller set up

Access to the controller is achieved by pressing in sequence: –

 +  +  And holding the keys in for a period of 4 seconds.

It is possible to scroll through the parameters by pressing  or .

The value of a selected parameter is checked by pressing  and may be

Altered by pressing  or  whilst still pressing .

Exit from set up occurs after 15 seconds if no button is pressed.

3. Controller Settings

3.1. BIT 20B 11E Controller settings for models below

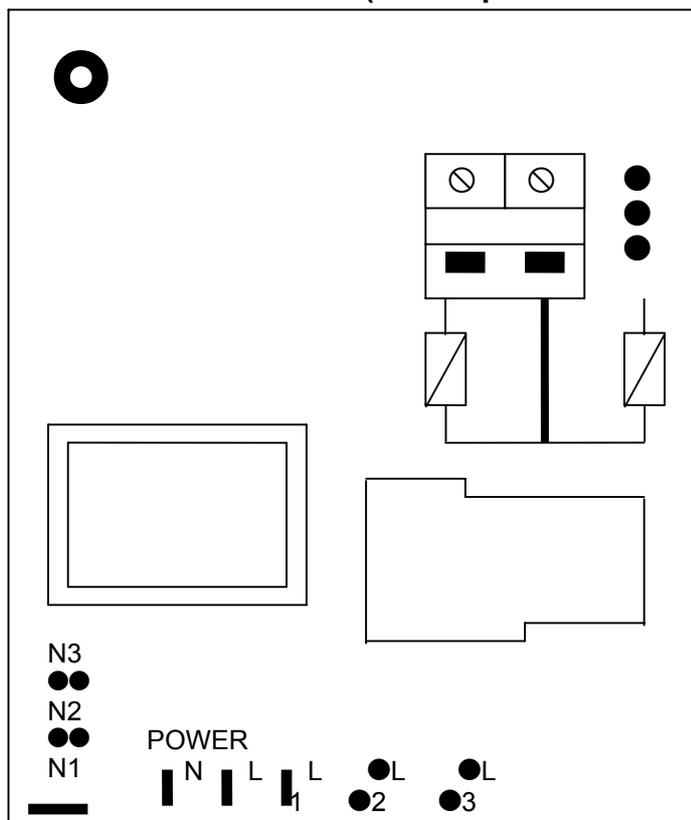
Parameter	Nmenonic	Std. Setting	HR120,140, 150,200, 360 & HR 410 Settings	LR140, 150 & LR410 Settings
Temperature Set Point	SP	3	3	-21
Min. Set Point	SL	-3	0	-23
Max. Set Point	Sh	12	10	-15
Hysteresis	Hy	3	3	3
Compressor Min. Pause	cr	3	4	4
Operation with T1 Fail	cF	0	0	1
Defrost Frequency	dF	6	4	0
Max. Defrost duration	dt	20	10	1
Defrost Limit Temp	dL	10	10	10
Defrost Mode	dm	1	1	1
Drain Time	dr	3	3	0
Display During Defrost	th	10	0	0
Display Offset	to	0	0	0
Display Slow Down	tS	3	0	0

3.2. BIT 20 b22e Controller settings for models below.

Parameter	Nmenonic	Std. Setting	LR120, LRB120, LR 200, LR240 and LR360
Temperature Set Point	SP	3	-21
Min. Set Point	SL	-3	-23
Max. Set Point	Sh	12	-15
Hysteresis	Hy	3	3
Compressor Min. Pause	cr	3	1
Operation with T1 Fail	cF	0	1
Defrost Frequency	dF	6	4
Max. Defrost duration	dt	20	10
Defrost Limit Temp	dL	10	10
Defrost Mode	dm	1	1
Drain Time	dr	3	3
Display During Defrost	th	10	0
Display Offset	to	0	0
Display Slow Down	tS	3	0

4. Electrical connections

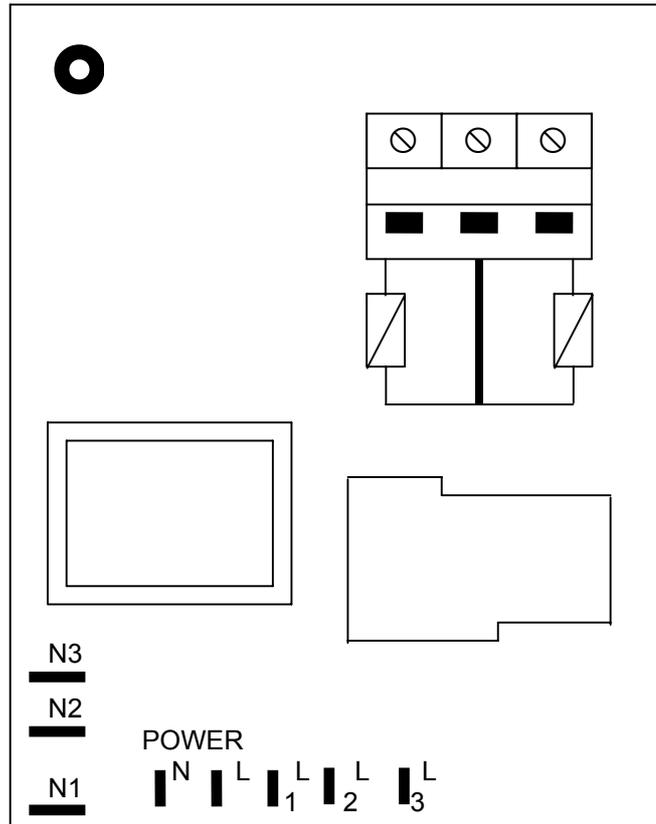
4.1 .BIT 20 B11E Controller. (Foster part No. 00-554860)



Power Supply N = Neutral
 Power Supply L = Live
 L - Power in plus evaporator fan and light (if fitted) live feed.
 N – Neutral in.
 L1 - Compressor feed.
 L2 and L3 not used.
 N1- Compressor, evaporator fan and light (if fitted) neutral.

N2 and N3 not used.

4.2 BIT 20B22E Controller. (Foster part No. 00-554166)



Power Supply N = Neutral

Power Supply L = Live

L1 - Compressor feed.

L2 – Evaporator fans and mullion heater/s.

L3 – Defrost heater

N1- Compressor.

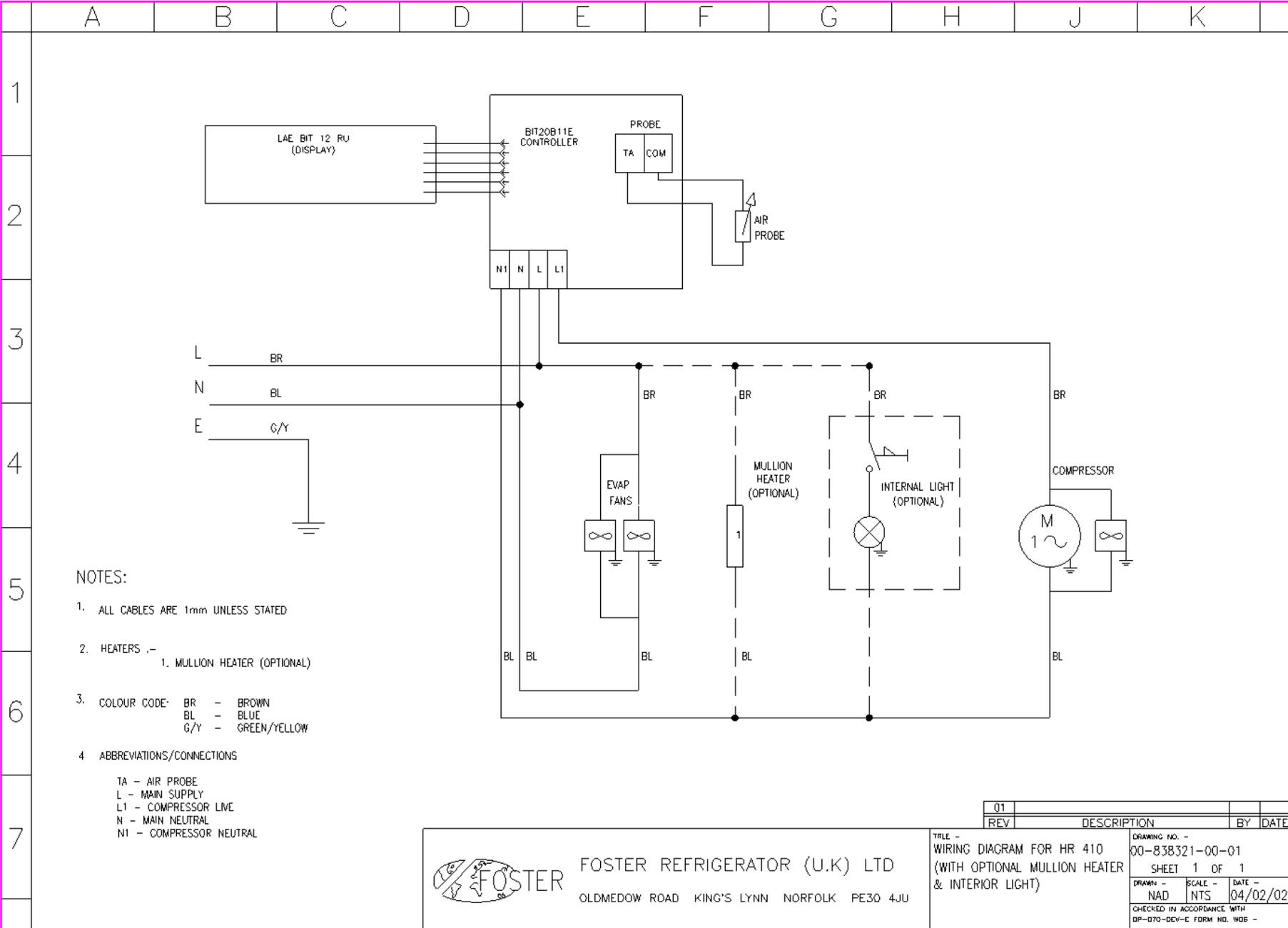
N2 - Evaporator fans and mullion heater.

N3 –Defrost heater.

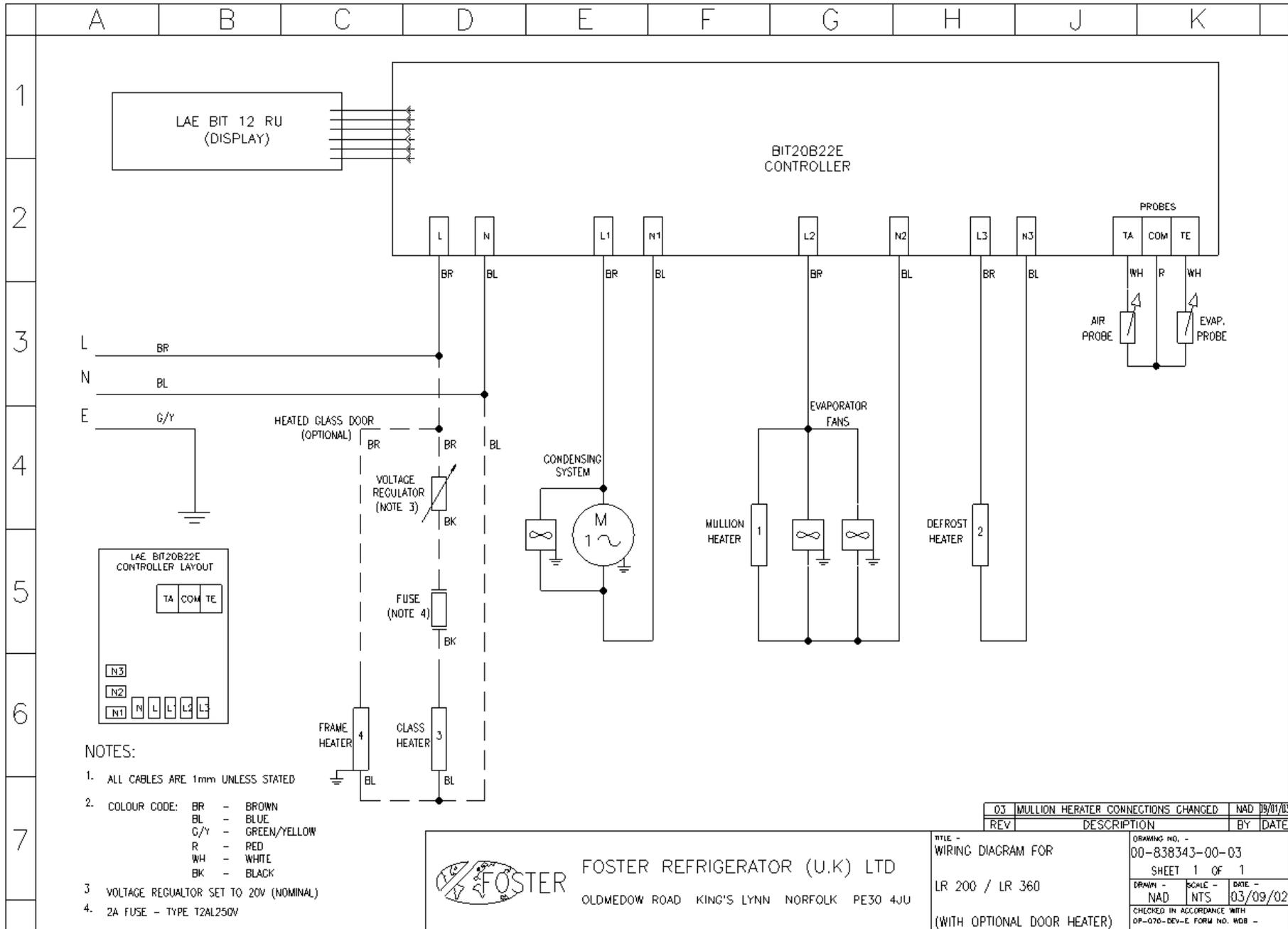
5. Technical Specification

Model	Gas	Gas Charge	Compressor	Capillary	Defrost Type	Heat Output	Extraction Rate	Voltage	Power Consumption		Fuse Rating Amps
									Watts	Amps	
HR120	R134a	300 grms	GD40MBD	3mts x 042	Timed Off Cycle	357w	192w	230/50/01	165w	1.3	10
LR 120	R404A	160 grms	ML90FB	3mts x 042	Electric	585w	241w	230/50/01	344w	2.4	10
HRB 120	R134a	300 grms	GD40MBD	3mts x 042	Timed Off Cycle	357w	192w	230/50/01	165w	1.3	10
LRB 120	R404A	160grms	ML90FB	3mts x 042	Electric	585w	241w	230/50/01	344w	2.4	10
HR 140	R134a	180 grms	GD30MBa	Part of evaporator assembly	Timed Off Cycle	265w	116w	230/50/1	137w	0.9	10
HR140G	R134a	200grms	GD40MBa	Part of evaporator assembly	Timed Off Cycle	355w	153w	230/50/1	202w	1.3	10
LR140	R134a	200 grms	GL50AA	Part of evaporator assembly	Manual Defrost	197w	63w	230/50/1	134w	0.9	10
HR 150	R134a	120 grms	GD30Mba	Part of evaporator assembly	Timed Off Cycle	265w	116w	230/50/1	137w	0.9	10
HR 150G	R134a	115 grms	GD40MB	Part of evaporator assembly	Timed Off Cycle	355w	153w	230/50/1	202w	1.3	10
LR 150	R134a	115 grms	GL 50AA	Part of evaporator assembly	Manual Defrost	197w	63w	230/50/1	134w	0.9	10
HR 200	R134a	190 grms	GD40MBD	3mts x 042	Timed Off Cycle	399w	192w	230/50/1	207w	1.4	10
HR 200G	R134a	190 grms	GD40MBD	3mts x 042	Timed Off Cycle	399w	192w	230/50/1	207w	1.4	10
LR 200	R404A	235 grms	ML90FB	3mts x 042	Electric	638w	241w	230/50/1	397w	2.6	10
HR 240	R134a	220 grms	GL60TB	3mts x 042	Timed Off Cycle	514w	310w	230/50/1	204w	1.5	10
LR 240	R404a	320 grms	ML90FB	3mts x 042	Electric	613.5w	241w	230/50/1	372.5w	2.6	10
HR 360	R134a	360 grms	AEZ4425Y	3mts x 042	Timed Off Cycle	603	324w	230/50/1	279w	1.9	10
HR 360G	R134a	360 grms	AEZ4425Y	3mts x 042	Timed Off Cycle	603	324w	230/50/1	279w	1.9	10
LR360	R404a	260 grms	CAE2417Z	3mts x 042	Electric	685	243w	230/50/1	442w	2.5	10
HR 410	R 134A	180grms	GL60TB	Part of evaporator assembly	Timed Off Cycle	451w	233w	230/50/1	218	1.3	10
HR 410G	R134A	200grms	GL80AA	Part of evaporator assembly	Timed Off Cycle	546w	285w	230/50/1	261	1.5	10
LR 410	R 134A	200 grms	GL 90AA	Part of evaporator assembly	Manual Defrost	575w	206w	230/50/1	369	2.8	10

6. High Temperature Controller Wiring Diagram



6. Low Temperature Controller Wiring Diagram



03	MULLION HEATER CONNECTIONS CHANGED	NAD	09/01/03
REV	DESCRIPTION	BY	DATE



FOSTER REFRIGERATOR (U.K) LTD
 OLDMEDOW ROAD KING'S LYNN NORFOLK PE30 4JU

TITLE - WIRING DIAGRAM FOR
 LR 200 / LR 360
 (WITH OPTIONAL DOOR HEATER)

DRAWING NO. - 00-838343-00-03	
SHEET 1 OF 1	
DRAWN - NAD	SCALE - NTS
DATE - 03/09/02	
CHECKED IN ACCORDANCE WITH DP-070-DEV-E FORM NO. WDB -	

Foster Refrigerator
Oldmedow Road
Kings Lynn
Norfolk
PE30 4JU

Tel: 01553 691122
Fax: 01553 691447
Website: www.fosterrefrigerator.co.uk
Email: sales@foster-uk.com

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