High
Efficiency
Solutions.

CAREL

ir33+

Application Guide

"Fit for purpose"
and world's best practice
in terms of food safety

Index

	Page
Features and benefits	4
ir33+ Technical tips	5
• Factory reset procedure	
• Relative and absolute alarms	
• Viewing the defrost probe	
• E1 error	
• External relay wiring	
ir33+ Programming	6
ir33+ Quick configuration parameters	7
ir33+ Parameters	8
ir33+ Alarms and display descriptions	11
ir33+ Controller applications:	
• Medium temperature, 12/24V	12
• Medium temperature with alarm	13
• Medium temperature with condenser alarm	14
• High temperature heating, failsafe control	15
• Low temperature with alarm	16
• Low temperature with door switch	17
• Low temperature with 2 evaporators	18
• Low temperature with 2 staged compressors	19
• Low temperature with real time defrost	20
• Low temperature with set point variation using real time	21
• Heat and cool	22

Features and Benefits

Flat

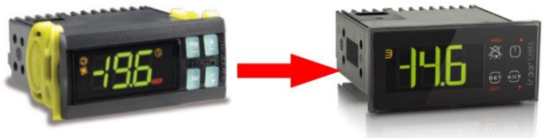
The surface of the controllers is perfectly flat and thin, allowing easy cleaning and ensuring the highest level of hygiene, in complete compliance with HACCP requirements.

Intuitive

New, more intuitive user interface.
The main functions are highlighted, such as set point display and auxiliary output activation.

Touch

The keypad is touch sensitive for a more attractive and appealing look.
This allows the possibility to create custom user interfaces based on different applications.



HACCP AUSTRALIA FOOD SAFETY PROGRAMME ACCREDITATION

Programming key (controller does not require power) - ALL MODELS!

- ir33+ is the natural evolution of the ir33.
- New, 30% larger, brighter display.
- Addition of the on/off function.
- New Alarm icon with direct muting of the buzzer.
- New keypad is touch sensitive allowing easy cleaning and ensuring the highest level of hygiene, in complete compliance with HACCP standards.
- Direct visualisation of the defrost temperature probe.
- Carel and Modbus supervisory protocols with auto recognition.

Larger Display

Intuitive Control

Easy to Customize

Multi-functional

Guaranteed Hygiene

Standards Compliance

Technical Tips

Factory reset

To restore the controller to factory defaults:

1/ Turn the power off.
2/ Press and hold the PRG key whilst powering the controller up.
3/ The display will show 'Std' indicating the reset has been performed.

Relative and absolute alarms

Relative alarms (A1 = 0) – Alarm points are relative to the set point.
eg, Set point = 1.0, AL = 2.0, the low alarm will trigger at -1.0

Absolute alarms (A1 = 1) – Alarm points are absolute values, independent of the set point
eg, Set point = 1.0, AL = -1.0, the low alarm will trigger at -1.0

Defrost probe reading

It is possible to view the defrost probe reading from parameter d/1, or by pressing UP + SET for 3 seconds from the main display. The standard display is shown again after 10 seconds.

E1 Error

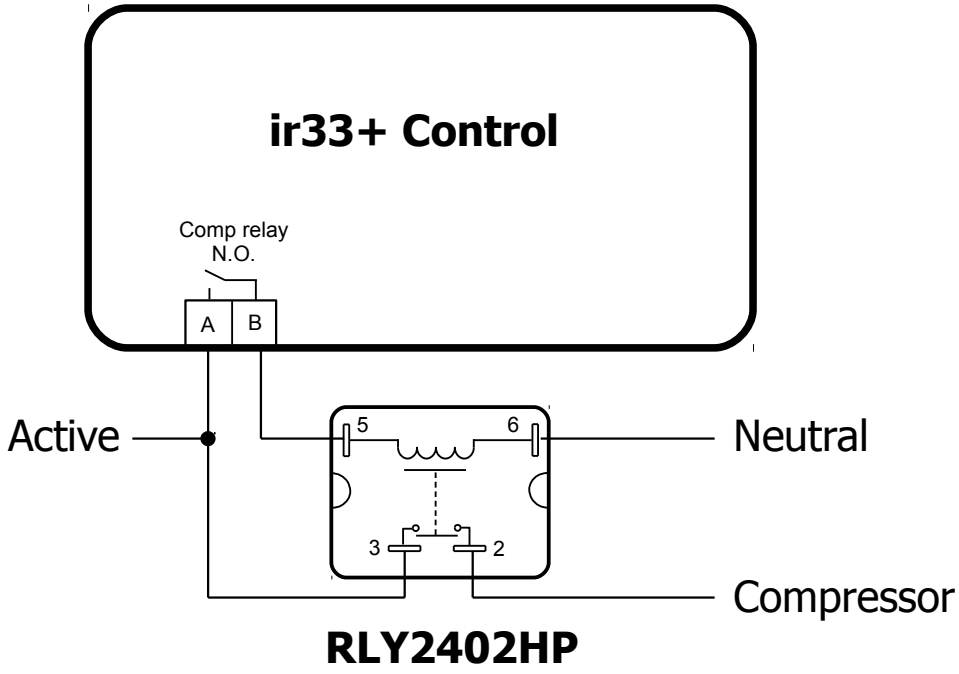
The controller is looking for probe 2 (default as defrost probe).
Check the wiring and condition of the probe connected.
If the second probe is not installed, check and set:

/A2 = 0
d0 = 2 or 3 (Defrost type 2 = elec/time, 3 = hot gas/time)
F0 = 0

External Relay

To prevent damage to the controller, Carel recommend installing an auxiliary relay when switching an inductive load (ie: a compressor).

This is an example of how to wire an external relay, switching power to the compressor.



RLY2402HP

Programming

Set Point

PRESS & HOLD SET for 1 second **"St"** will be displayed.

On release of the button the current value of set point will be displayed.

PRESS ARROW UP or DOWN to set the desired value for set point.**

PRESS "SET" to confirm the value.

Block level access

Once level F or C has been accessed and a parameter code is displayed:

PRESS & HOLD PRG for 1 second to display block code.

PRESS ARROW UP or DOWN to select the desired block code.

PRESS SET to enter the block. The first parameter of this block will be displayed.

Please note

Please read these instructions in conjunction with the parameter list.

It is recommended that the controllers be programmed before connecting or activating the plant to be controlled (eg. Compressors…).

** If the controller keypad is locked, the value will not change. See parameter H2.

Literature available

User manual: +0300028EN

Technical leaflet: +0500028IE

Frequent parameters (F)

PRESS & HOLD PRG for approx 5 seconds.

"0" will then flash, PRESS SET

A) PRESS ARROW UP or DOWN until reaching the parameter to be modified.

B) PRESS SET to display the associated value.

C) PRESS ARROW UP or DOWN to increase or decrease the value.

D) PRESS SET to temporarily save the value.

Repeat the operations A - D to set other parameters.

E) **PRESS & HOLD PRG** for 5 seconds to permanently save the new values.

All parameters (C)

PRESS & HOLD PRG for 5 seconds until the display flashes 0.

PRESS ARROW UP or DOWN to enter the password value "22" then SET.

Repeat the operations A - E to set other parameters and save.

HACCP parameters

To view the HACCP alarms details:

PRESS & HOLD SET & AUX, "HAn" will be displayed.

To clear the HACCP alarms when in HACCP menu:

PRESS & HOLD SET & AUX for 5 seconds, "rES" will be displayed.

CAREL Australia Pty Ltd

Technical Support

ph: (02) 8762 9200 email: cst.au@carel.com

Quick Configuration

Param	User	Description	Model	Unit	Min.	Max.	Def.	New
Pro		**Probes**						
/A2	C	Probe 2 configuration (0= absent, 2= defrost, 3= condenser, 4= antifreeze)	C	-	0	4	2	
Ctl		**Control**						
St	**F**	**Temperature set point (medium temperature)**	**S**	**°C/°F**	**r1**	**r2**	**2.0**	
St	**F**	**Temperature set point (low temperature)**	**C**	**°C/°F**	**r1**	**r2**	**-18.0**	
rd	**F**	**Controller differential**	**SC**	**°C/°F**	**0.1**	**20**	**2.0**	
rn	C	Dead zone (when used in 1 heat 1 cool mode)	SC	°C/°F	0	60	4	
rr	C	Reverse (heat) differential in dead zone control	SC	°C/°F	0.1	20	2	
r1	C	Minimum set point allowed	MSC	°C/°F	-50	r2	-50	
r2	C	Maximum set point allowed	MSC	°C/°F	r1	200	60	
r3	**C**	**Mode (0= cool with defrost, 1= cool only, 2= heat)**	**SC**	**-**	**0**	**2**	**0**	
dEF		**Defrost**						
d0	**C**	**Defrost type (0= heater/temp term, 1= hot gas/temp term 2= heater/time term, 3= hot gas/time term, 4= heater/time with temp control)**	**SC**	**-**	**0**	**4**	**0**	
dI	**F**	**Interval between defrosts (if not using real time)**	**SC**	**hr/min**	**0**	**250**	**8**	
dt1	**F**	**End defrost temperature (if d0= 0 or 1)**	**SC**	**°C/°F**	**-50**	**200**	**4.0**	
dP1	**F**	**Maximum defrost duration**	**SC**	**min/sec**	**1**	**250**	**30**	
ALN		**Alarm**						
A1	C	Type of alarm for AL and AH (0= relative 1= absolute)	MSC	-	0	1	0	
AL	**F**	**Low alarm temp (see A1 for absolute or relative)**	**MSC**	**°C/°F**	**-50**	**200**	**0.0**	
AH	**F**	**High alarm temp (see A1 for absolute or relative)**	**MSC**	**°C/°F**	**-50**	**200**	**0.0**	
Ad	**F**	**Low and high temperature alarm delay**	**MSC**	**min**	**0**	**250**	**120**	
A4	C	Configuration of digital input 1 (0= Input not active, 1= Immediate external alarm, 2= Delayed external alarm, 3= If model M, probe selection, 3= Other models enable defrost, 4= Start defrost, 5= Door switch with compressor and fan stop - light managed, 6= Remote ON/OFF, 7= Curtain switch, 8= Low pressure switch, 9= Door switch with fan stop only- light managed, 10= Direct/reverse, 11= Light sensor, 12= Activation of the AUX output, 13= Door switch with compressor and fans off and light not managed, 14= Door switch with fans only off and light not managed)	SC	-	0	14	0	
CnF		**Configuration**						
H0	C	Serial address	MSC	-	0	207	195	
H1	C	Function of relay 4 (0= Alarm output normally energised, 1= Alarm output normally de-energised, 2= Auxiliary output, 3= Light output, 4= Auxiliary evaporator defrost output, 5= Pump down valve output, 6= Condenser fan output, 7= Delayed compressor output, 8= Auxiliary output with deactivation when OFF, 9= Light output with deactivation when OFF, 10= Not used, 11= Reverse output in control with dead band 12= Second compressor step output, 13= Second compressor step output with rotation)	MSC	-	0	13	1	
H2	C	Keypad and IR locking (1= unlocked, 5= locked)	MSC	-	0	6	1	

ir33+ Parameters

Param	User	Description	Model	Unit	Min	Max	Default	New
/2	C	Measurement stability	MSC	-	1	15	4	
/3	C	Probe display stability	MSC	-	0	15	0	
/4	C	Virtual probe (averaging on room & evap) 0 = not active	MSC	-	0	100	0	
/5	C	Select °C or °F (0 = °C)	MSC	-	0	1	0	
/6	C	Decimal point (0= decimal point between -19.9 & +19.9)	MSC	-	0	1	0	
/tl	C	Sensor displayed on controller (1 or 2 = Control sensor)	MSC	-	1	7	1	
/tE	C	Sensor shown on remote display	MSC	-	0	6	0	
/P	C	Type of probe (0= Carel NTC, 1= High Temp NTC)	MSC	-	0	1	0	
/A2	C	Probe 2 configuration (eg 0= absent, 2= evap, 3= condenser, 4= antifreeze)	C	-	0	4	2	
/A3	C	Probe 3 configuration (refer /A2)	MSC	-	0	4	0	
/A4	C	Probe 4 configuration (refer /A2)	MSC	-	0	4	0	
/c1	C	Calibration of probe 1	MSC	-	-20	20	0.0	
/c2-5	C	Calibration of probe 2-3-4 / c2=probe 2, / c3=probe 3, /...	MSC	-	-20	20	0.0	
St	F	**Temperature set point (medium temperature)**	S	°C/°F	r1	r2	2.0	
St	F	**Temperature set point (low temperature)**	C	°C/°F	r1	r2	-18.0	
rd	F	**Controller differential**	SC	°C/°F	0.1	20	2.0	
rn	C	Dead zone (when used in 1 heat 1 cool mode)	SC	°C/°F	0.0	60	4.0	
rr	C	Reverse (heat) differential in dead zone control	SC	°C/°F	0.1	20	2.0	
r1	C	Minimum set point allowed	MSC	°C/°F	-50	r2	-50	
r2	C	Maximum set point allowed	MSC	°C/°F	200	r1	60	
r3	C	Mode (0= cool with defrost, 1= cool only, 2= heat)	SC	-	0	2	0	
r4	C	Automatic night time set point variation	MSC	°C/°F	-20	20	3.0	
r5	C	Enable temperature monitoring (0= no, 1= yes)	MSC	-	0	1	0	
rt	F	Duration of current min max temperature monitoring session	MSC	hour	0	999	0	
rH	F	Max temperature recorded during period rt (display only)	MSC	°C/°F	-	-	-	
rL	F	Min temperature recorded during period rt (display only)	MSC	°C/°F	-	-	-	
c0	C	Compressor, fan and AUX start delay on power up	SC	min	0	15	0	
c1	C	Minimum time between successive compressor starts	SC	min	0	15	0	
c2	C	Minimum compressor OFF time	SC	min	0	15	2	
c3	C	Minimum compressor ON time	SC	min	0	15	0	
c4	C	Duty setting (in case of control probe failure)	SC	min	0	100	0	
cc	C	Duration of continuous cycle (manual activation)	SC	hour	0	15	0	
c6	C	Alarm bypass after continuous cycle	SC	hr/min	0	250	2	
c7	C	Maximum Pump-Down (PD) time (0= pump down disabled)	SC	sec	0	900	0	
c9	C	Enable autostart with pump down operation	SC	-	0	1	0	
c10	C	Select Pump-Down by time or pressure switch	SC	-	0	1	0	
c11	C	Second compressor start delay	SC	sec	0	250	4	
d0	**C**	**Defrost type (0= heater/temp, 1= hot gas/temp, 2= heater/time, 3 = hot gas/time, 4 =heater/time with temp control)**	**SC**	**-**	**0**	**4**	**0**	
dI	**F**	**Interval between defrosts (if not using real time)**	**SC**	**hr/min**	**0**	**250**	**8**	
dt1	**F**	**End defrost temperature (if d0 = 0 or 1)**	**SC**	**°C**	**-50**	**200**	**4.0**	
dt2	F	End defrost temperature, aux evaporator (if selected)	SC	°C	-50	200	4.0	
dP1	**F**	**Maximum defrost duration**	**SC**	**min/sec**	**1**	**250**	**30**	
dP2	F	Maximum defrost duration, aux evaporator	SC	min/sec	1	250	30	

Param	User	Description	Model	Unit	Min	Max	Default	New
d3	C	Defrost activation delay	SC	Min	0	250	0	
d4	C	Defrost at power up (0= no, 1= yes)	SC	-	0	1	0	
d5	C	Defrost delay at power up (if d4= 1)	SC	min	0	250	0	
d6	C	Display during def (0= flash dEF with temp, 1= locked, 2= dEF)	SC	-	0	2	1	
dd	F	Dripping time after defrost	SC	min	0	15	2	
d8	F	Bypass alarms after defrost	SC	hours	0	15	1	
d8d	C	Alarm delay after door open - from digital input	SC	min	0	250	0	
d9	C	Defrost priority over compressor protection	SC	-	0	1	0	
d/1/d/2	F	Display defrost probe temp (d/1= def P1, d/2= def P2)	MSC	°C/°F	-	-	-	
dC	C	Time basis for defrost (0= hr/min, 1= min/sec)	SC	-	0	1	0	
d10	C	Compressor run time for demand defrost	SC	hours	0	250	0	
d11	C	Compressor run time temp set for demand defrost	SC	°C/°F	-20	20	1.0	
d12	C	Advanced defrost	SC	-	0	3	0	
dn	C	Nominal defrost duration (smart defrost)	SC	-	1	100	65	
dH	C	Proportional factor for variation in 'dI' (smart defrost)	SC	-	0	100	50	
A0	C	Alarm and fan differential	MSC	°C	0.1	20	2.0	
A1	C	Type of alarm for AL and AH (0= relative, 1= absolute)	MSC	flag	0	1	0	
AL	**F**	**Low alarm threshold (see A1 for absolute or relative)**	**MSC**	**°C/°F**	**-50**	**200**	**0.0**	
AH	**F**	**High alarm threshold (see A1 for absolute or relative)**	**MSC**	**°C/°F**	**-50**	**200**	**0.0**	
Ad	**F**	**Low and high temperature alarm delay**	**MSC**	**min**	**0**	**250**	**120**	
A4	C	Configuration of digital input 1 (0= Input not active, 1= Immediate external alarm, 2= Delayed external alarm, 3= If model M, probe selection, 3= Other models enable defrost, 4= Start defrost, 5= Door switch with compressor and fan stop - light managed, 6= Remote ON/OFF, 7= Curtain switch, 8= Low pressure switch, 9= Door switch with fan stop only- light managed, 10= Direct/reverse, 11= Light sensor, 12= Activation of the AUX output, 13= Door switch with compressor and fans off and light not managed, 14= Door switch with fans only off and light not managed)	SC	-	0	14	0	
A5	C	Configuration of digital input 2 (as per A4)	MSC	-	0	14	0	
A6	C	Duty setting for compressor from digital input alarm	SC	min	0	100	0	
A7	C	External alarm delay if using digital input	SC	min	0	250	0	
A8	C	Enable alarms 'Ed1' and 'Ed2' (defrost end on time)	SC	flag	0	1	0	
Ado	C	Door switch light management mode	MSC	flag	0	1	0	
Ac	C	High condenser temp. alarm set point	SC	°C/°F	0.0	200	70.0	
AE	C	High condenser temp. alarm differential	SC	°C/°F	0.1	20	10.0	
Acd	C	High condenser temp. alarm delay	SC	min	0	250	0	
AF	C	Light sensor off time	SC	sec	0	250	0	
ALF	C	Antifreeze alarm set point	MSC	°C/°F	-50	200	-5	
AdF	C	Antifreeze alarm delay	MSC	min	0	15	1	
F0	C	Fan management (0= always on, 1= air - evap, 2= evap temp)	C	flag	0	2	0	
F1	F	Fan start temperature (only if F0= 1 or 2)	C	°C/°F	-50	200	5.0	
F2	**C**	**Fans cycle with compressor (0= no, 1= yes)**	**C**	**flag**	**0**	**1**	**0**	
F3	**C**	**Fans during defrost (0= on, 1= off)**	**C**	**flag**	**0**	**1**	**1**	
Fd	**F**	**Fans delay after dripping**	**C**	**min**	**0**	**15**	**1**	
F4	C	Condenser fan off temperature (on aux relay if enabled)	MSC	°C/°F	-50	200	40.0	
F5	C	Condenser fan differential	MSC	°C/°F	0.1	20	5.0	
H0	C	Serial address	MSC	-	0	207	195	

Param	User	Description	Model	Unit	Min	Max	Default	New
H1	C	Function of relay 4 (0= Alarm output normally energised, 1= Alarm output normally de-energised, 2= Auxiliary output, 3= Light output, 4= Auxiliary evaporator defrost output, 5= Pump down valve output, 6= Condenser fan output, 7= Delayed comp output, 8= Auxiliary output with deactivation when OFF, 9= Light output with deactivation when OFF, 10= Not used, 11= Reverse output in control with dead band, 12= 2nd comp step output, 13= 2nd comp step output with rotation)	MSC	-	0	13	1	
H2	C	Keypad and IR locking (1= unlocked, 5= locked)	MSC	-	0	6	1	
H4	C	Disable buzzer (0= enabled, 1= disabled)	MSC	-	0	1	0	
H6	C	Buttons to lock when keypad locked	MSC	-	0	255	0	
H8	C	Select output to activate with time band	MSC	-	0	1	0	
H9	C	Enable set point change with time	MSC	-	0	1	0	
Hdh	C	Anti-sweat heater control offset	MSC	°C/°F	-50	200	0	
HAn	C	Number of HA events occurred (High temp during operation)	MSC	-	0	15	0	
HA..HA2	C	HA HACCP alarms activated						
y__		Alarm 1 to 3 - Year	****	years	0	99	0	
N__		Alarm 1 to 3 - Month	****	months	1	12	0	
d__		Alarm 1 to 3 - Day of the month	****	days	1	7	0	
h__		Alarm 1 to 3 - Hour	****	hours	0	23	0	
n__		Alarm 1 to 3 - Minute	****	min	0	59	0	
t__		Alarm 1 to 3 - Duration	****	hours	0	99	0	
HFn	C	Number of HF events occurred (High temp after power loss)	MSC	-	0	15	0	
HF..HF2	C	HF HACCP alarms activated						
y__		Alarm 1 to 3 - Year	****	years	0	99	0	
N__		Alarm 1 to 3 - Month	****	months	1	12	-	
d__		Alarm 1 to 3 - Day of the month	****	days	1	7	-	
h__		Alarm 1 to 3 - Hour	****	hours	0	23	-	
n__		Alarm 1 to 3 - Minute	****	min	0	59	-	
t__		Alarm 1 to 3 - Duration	****	hours	0	99	-	
Htd		HACCP alarm delay	MSC	min	0	250	0	
td1-td8	C	Defrost time band 1-8	-SC	-	-	-	-	
d__		Day (1/7= Mon/Fri, 8= Mon-Fri, 9= Mon-Sat, 10= Sat-Sun, 11= everyday)	****	days	0	11	0	
h__		Hour	****	hours	0	23	0	
n__		Minute	****	min	0	59	0	
ton	C	Light/aux ON time setting	SC	-	-	-	-	
d__		Day	****	days	0	11	0	
h__		Hour	****	hours	0	23	0	
n__		Minute	****	min	0	59	0	
tof	C	Light/aux OFF time setting	SC	-	-	-	-	
d__		Day	****	days	0	11	0	
h__		Hour	****	hours	0	23	0	
n__		Minute	****	min	0	59	0	
tc	C	Real Time Clock - current date/time setting	MSC	-	-	-	-	
y__		Current years	****	years	0	99	00	
N__		Current month	****	months	1	12	1	
d__		Current day of the month	****	days	1	31	1	
u__		Current day of the week (1= Monday)	****	days	1	7	6	
h__		Current hour	****	hours	0	23	0	
n__		Current minute	****	min	0	59	0	

Alarms and Display Descriptions

Code	Description	Icon displayed	Alarm Relay	Buzzer	Reset
rE	Control probe fault		On	On	Auto
E0	Probe 1 fault		Off	Off	Auto
E1	Probe 2 fault		Off	Off	Auto
E2	Probe 3 fault		Off	Off	Auto
E3	Probe 4 fault		Off	Off	Auto
LO	Low temperature alarm		On	On	Auto
HI	High temperature alarm		On	On	Auto
AFr	Antifreeze protection alarm		On	On	Manual
IA	Immediate alarm from external contact		On	On	Auto
dA	Delayed alarm from external contact		On	On	Auto
Pd	Maximum pump down time		On	On	Auto/Man
LP	Low pressure alarm		On	On	Auto/Man
AtS	Auto start in pump down		On	On	Auto/Man
cht	High condenser temperature pre-alarm	---	Off	Off	Auto/Man
CHT	High condenser temperature alarm		On	On	Manual
dor	Door open alarm		On	On	Auto
Etc	Real time clock fault		Off	Off	Auto
EE	EEPROM error (unit parameters)		Off	Off	Auto
EF	EEPROM error (operating parameters)		Off	Off	Auto
HA	HACCP alarm "HA"		Off	Off	Auto
HF	HACCP alarm "HF"		Off	Off	Auto
dEF	Defrost in progress	---			
dFb	Start of manual defrost	---			
dFE	End of manual defrost	---			
cc	Continuous cycle	---			
ccb	Start of continuous cycle	---			
ccE	End of continuous cycle	---			
On	Controller enabled	---			
OFF	Controller in standby	---			

Mute alarms - press PRG

Manual reset alarms - press PRG + ▲ for 3 seconds

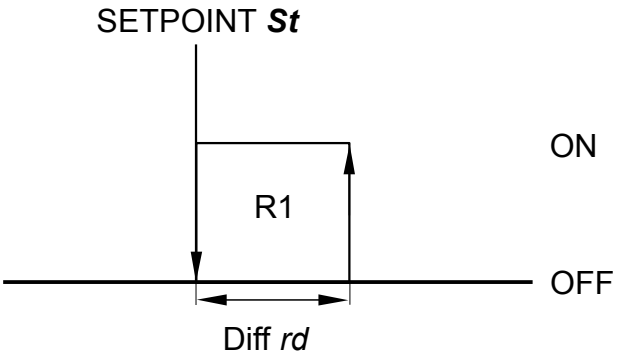
On/OFF - To turn the controller on or off, press and hold ▲ for 3 seconds

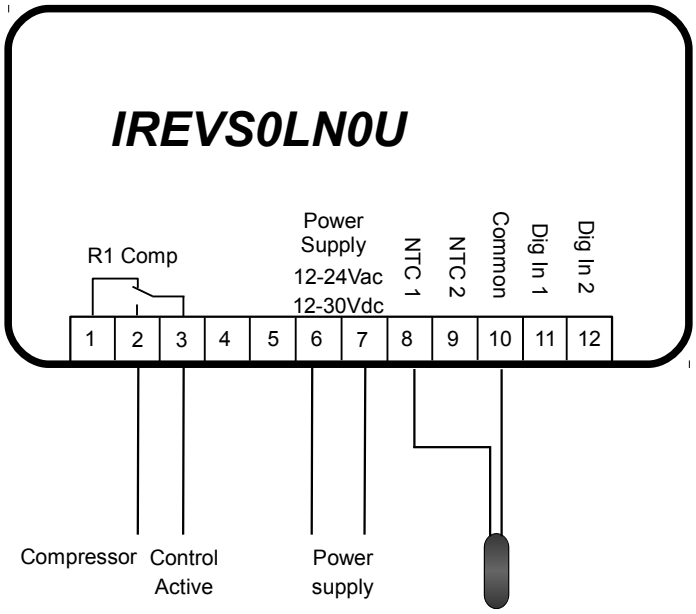
CAREL

ir33+ Refrigeration Series

APPLICATION GUIDE

Medium temperature 12/24Vac, 12/30Vdc





PARAMETERS
St = Setpoint
rd = Differential

CAREL

Phone 02-8762 9200
Email cst.au@carel.com

Part number	Description
IREVS0LN0U	Panel mount controller, 1 relay
NTC015HP03	NTC 1.5m sensor
+0500028IE	Technical leaflet
+0300028EN	User manual

Drawn by: BF Date: 03/04/2014

Checked by: EB Date: 03/04/2014 | Drawing: IREVS0LN0U_med_temp | Rev: 1.3

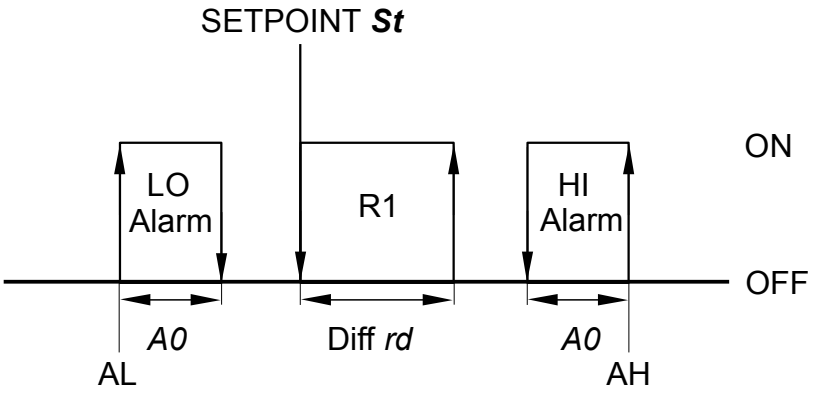
Connected
NOT Connected
Normally Open contact
Normally Closed contact

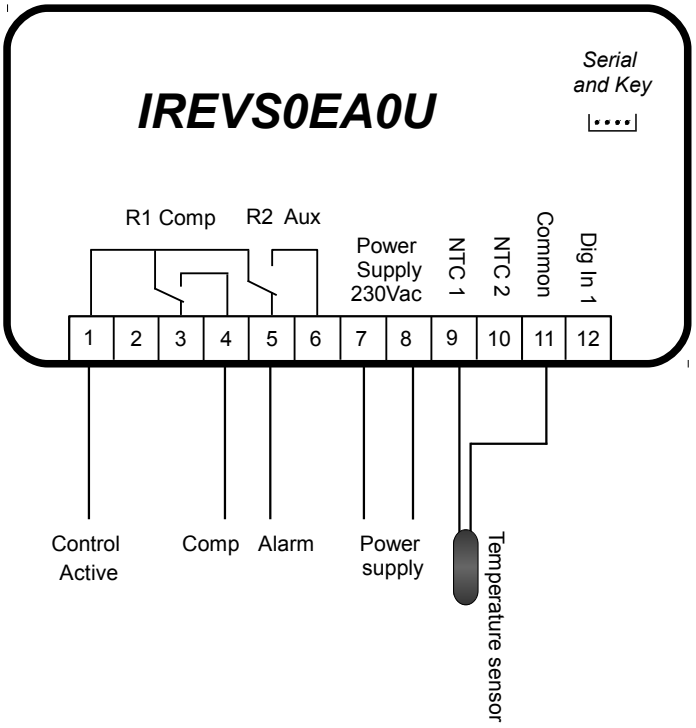
CAREL

ir33+ Refrigeration Series

APPLICATION GUIDE

Medium temperature with alarm, 230Vac





PARAMETERS
St = Set point
rd = Differential
A0 = Alarm differential
A1 = Alarm type (0 = relative, 1 = absolute)
AL = Low alarm threshold
AH = High alarm threshold
Ad = Alarm delay (mins)
H1 = 0 Aux config (R2 de energises on alarm - failsafe)

CAREL

Phone 02-8762 9200
Email cst.au@carel.com

Part number	Description
IREVS0EA0U	Panel mount controller, 2 relay
NTC015HP03	NTC 1.5m sensor
+0500028IE	Technical leaflet
+0300028EN	User manual

Drawn by: BF Date: 03/04/2014

Checked by: EB Date: 03/04/2014

Drawing: IREVS0EA0U_med_temp_alarm

Rev: 1.1

Connected

NOT Connected

Normally Open contact

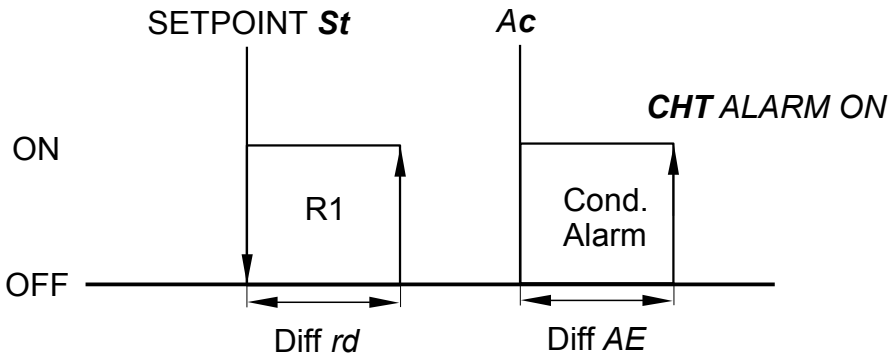
Normally Closed contact

CAREL

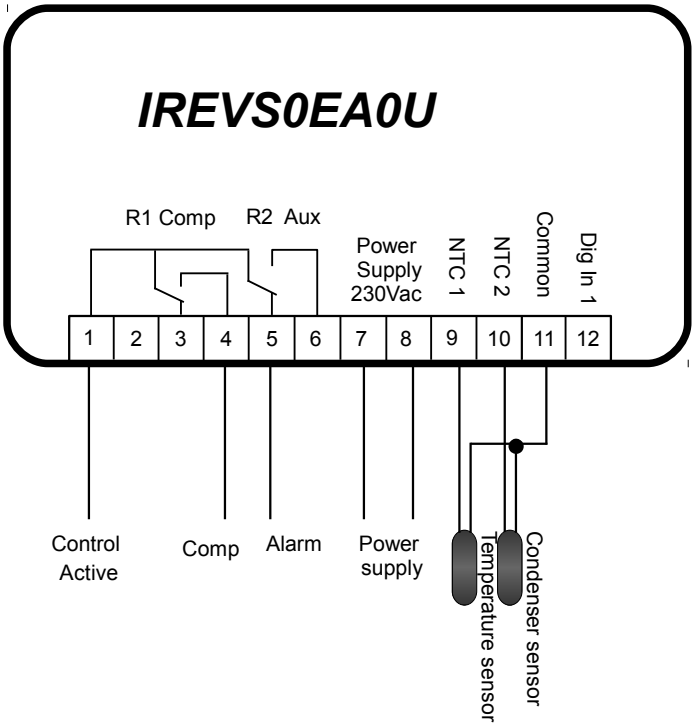
ir33+ Refrigeration Series

APPLICATION GUIDE

Medium temperature with condenser alarm, 230Vac



Note: Relay R2 is assigned as a general alarm relay. It will alarm in the event of any serious fault.



PARAMETERS
/A2 = 3 Condenser probe enable
St = Set point
rd = Differential
Ac = High condenser temperature alarm
AE = High cond. temp. alarm differential
Acd = High cond. temp. alarm delay
H1 = 0 Aux config (R2 de energises on alarm - failsafe)

CAREL

Phone 02-8762 9200
Email cst.au@carel.com

Part number	Description
IREVS0EA0U	Panel mount controller, 2 relay
NTC015HP03	NTC 1.5m sensor
+0500028IE	Technical leaflet
+0300028EN	User manual

Drawn by: BF Date: 03/04/2014

Checked by: EB Date: 03/04/2014

Drawing: IREVS0EA0U_med_temp_cond_alarm

Rev: 1.3

Connected

NOT Connected

Normally Open contact

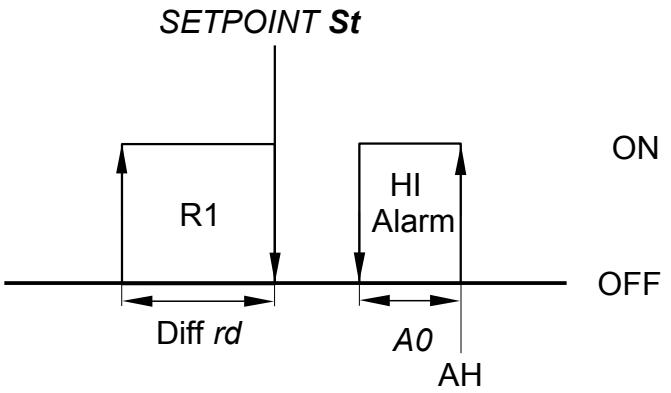
Normally Closed contact

CAREL

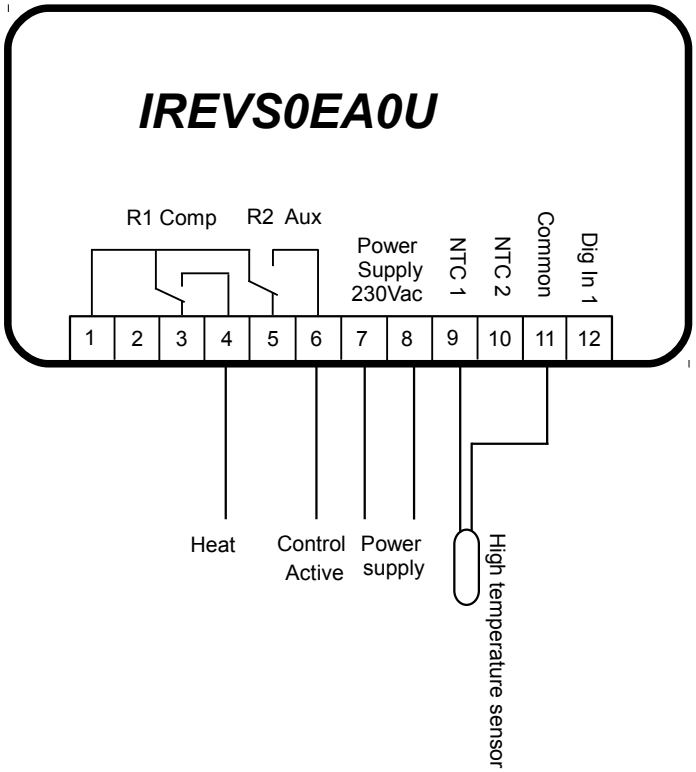
ir33+ Refrigeration Series

APPLICATION GUIDE

Heating with fail safe cut out, 230Vac



Note: Relay R2 is assigned as a general alarm relay. It will alarm in the event of any serious fault.



PARAMETERS
/P = 1 NTC high temp sensor
St = Set point
rd = Differential
r2 = Max setpoint allowed
r3 = 2 Control type (Heating)
C0 = 2
A0 = Alarm differential
A1 = Alarm type (0 = relative, 1 = absolute)
AH = High alarm threshold
Ad = Alarm delay (mins)
H1 = 0 Aux config (R2 de energises on alarm - failsafe)

CAREL

Phone 02-8762 9200
Email cst.au@carel.com

Part number	Description
IREVS0EA0U	Panel mount controller, 2 relay
NTC030HT00	NTC high temperature 3.0m sensor
+0500028IE	Technical leaflet
+0300028EN	User manual

Drawn by: Pv Date: 04/07/2016

Checked by: BF Date: 04/07/2016

Drawing: IREVS0EA0U_failsafe_heat_HTprobe

Rev: 1.4

Connected

NOT Connected

Normally Open contact

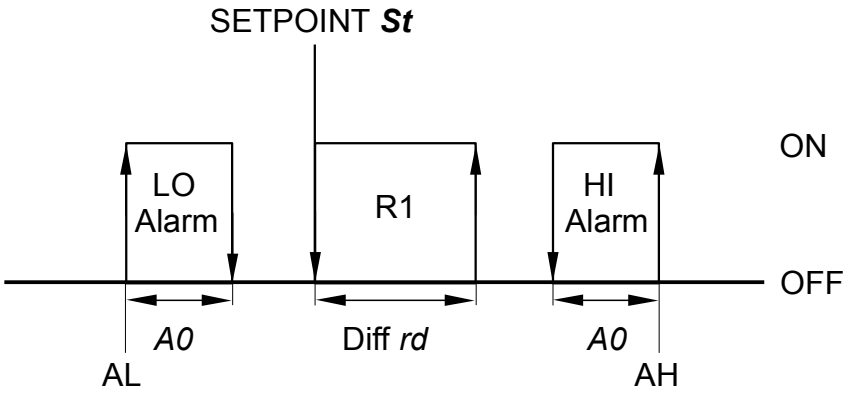
Normally Closed contact

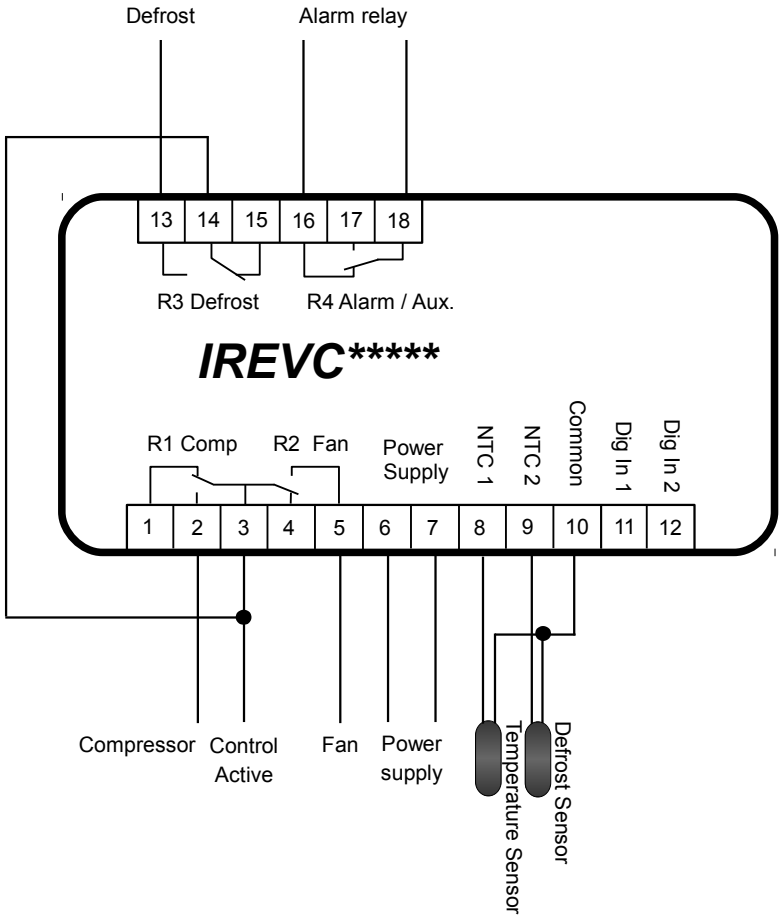
CAREL

ir33+ Refrigeration Series

APPLICATION GUIDE

Low temperature with alarm





PARAMETERS
St = Set point
rd = Differential
d0 = Defrost type (0 = elec / temp, 1 = h.gas / temp, 4 = elec / temp - time)
dI = Defrost intervals (hours)
dt1 = Defrost termination temp (evap temp)
dP1 = Max defrost duration (mins)
A0 = Alarm differential
A1 = Alarm type (0 = relative, 1 = absolute)
AL = Low alarm threshold
AH = High alarm threshold
Ad = Alarm delay (mins)
H1 = 0 Aux config (R4 de energises on alarm - failsafe)

CAREL

Phone 02-8762 9200
Email cst.au@carel.com

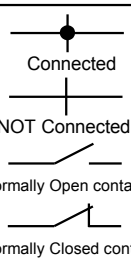
Part number	Description
IREVC*****	Panel mount controller, 4 relays
NTC015HP03	NTC 1.5m sensor
+0500028IE	Technical leaflet
+0300028EN	User manual

Drawn by: BF Date: 03/04/2014

Checked by: EB Date: 03/04/2014

Drawing: IREV_low_temp_alarm

Rev: 1.1

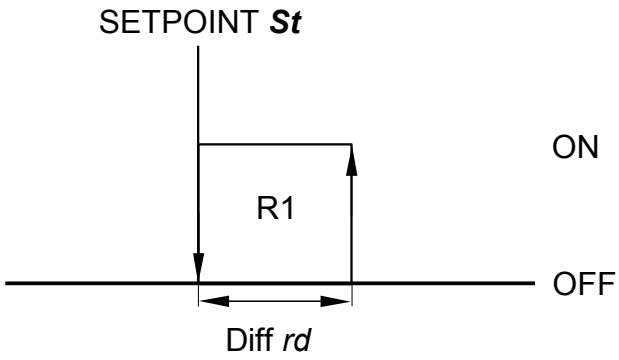


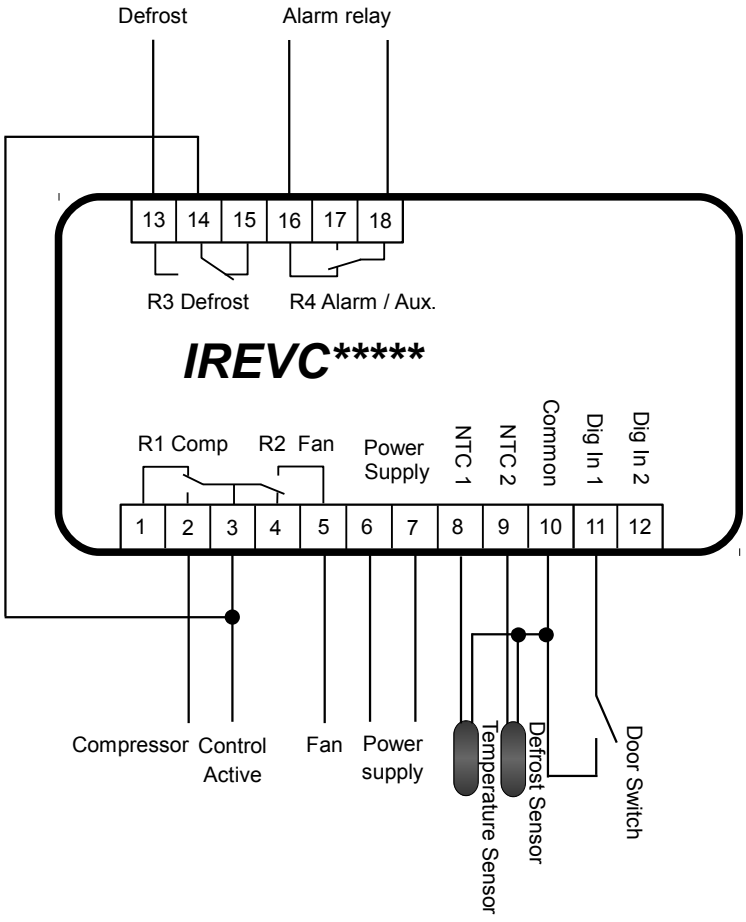
CAREL

ir33+ Refrigeration Series

APPLICATION GUIDE

Low temperature with door switch





PARAMETERS
St = Set point
rd = Differential
d0 = Defrost type (0 = elec / temp, 1 = h.gas / temp, 4 = elec / temp - time)
dI = Defrost intervals (hours)
dt1 = Defrost termination temp (evap temp)
dP1 = Max defrost duration (mins)
d8d = Door alarm delay (mins)
A4 = Door switch digital input (13 = fan & comp off only, 14 = fans off only)
H1 = 0 Aux config (R4 de energises on alarm - failsafe)

CAREL

Phone 02-8762 9200
Email cst.au@carel.com

Part number	Description
IREVC*****	Panel mount controller, 4 relays
NTC015HP03	NTC 1.5m sensor
+0500028IE	Technical leaflet
+0300028EN	User manual

Drawn by: BF Date: 03/04/2014

Checked by: EB Date: 03/04/2014

Drawing: IREV_low_temp_doorswitch

Rev: 1.2

Connected

NOT Connected

Normally Open contact

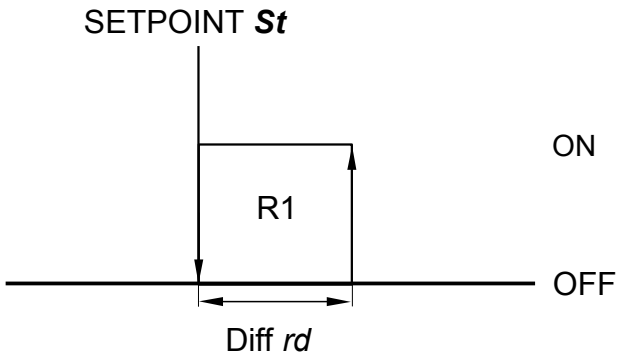
Normally Closed contact

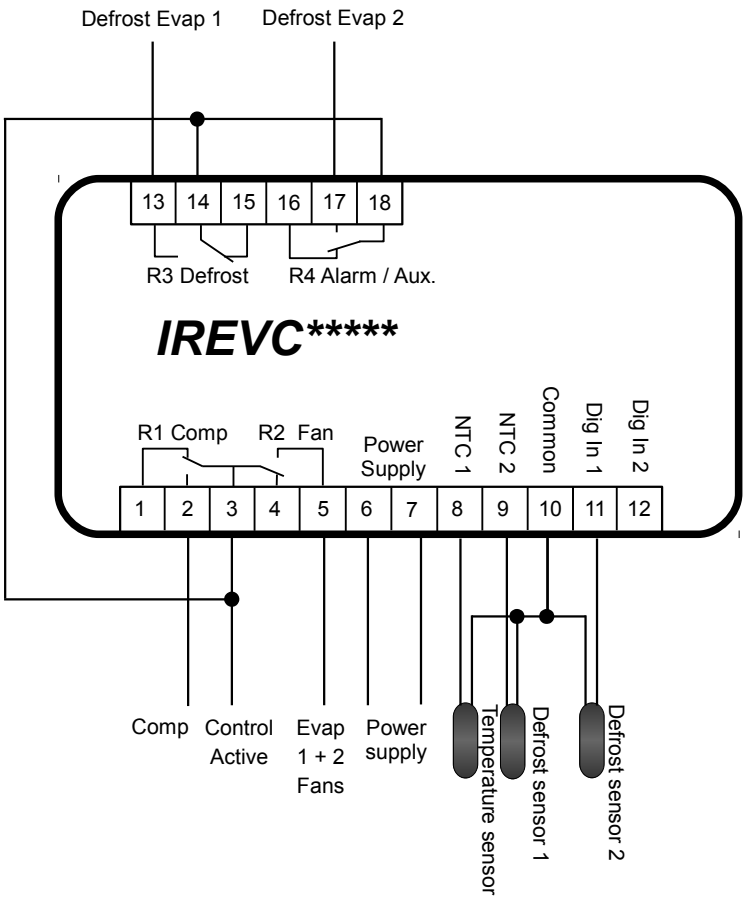
CAREL

ir33+ Refrigeration Series

APPLICATION GUIDE

Low temperature 2 evaporators





PARAMETERS
/A3 = 2 Defrost probe (2nd evap probe enable)
St = Set point
rd = Differential
d0 = Defrost type (0 = elec / temp, 1 = h.gas / temp, 4 = elec / temp - time)
dI = Defrost intervals (hours)
dt1 = Defrost termination temp (evap temp)
dt2 = Defrost termination temp 2nd evap
dP1 = Max defrost duration (mins)
dP2 = Max defrost duration 2nd evap (mins)
H1 = 4 Aux config (2nd evap defrost output)

CAREL

Phone 02-8762 9200
Email cst.au@carel.com

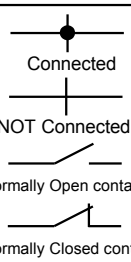
Part number	Description
IREVC*****	Panel mount controller, 4 relays
NTC015HP03	NTC 1.5m sensor
+0500028IE	Technical leaflet
+0300028EN	User manual

Drawn by: BF Date: 03/04/2014

Checked by: EB Date: 03/04/2014

Drawing: IREV_low_temp_2_evap

Rev: 1.2

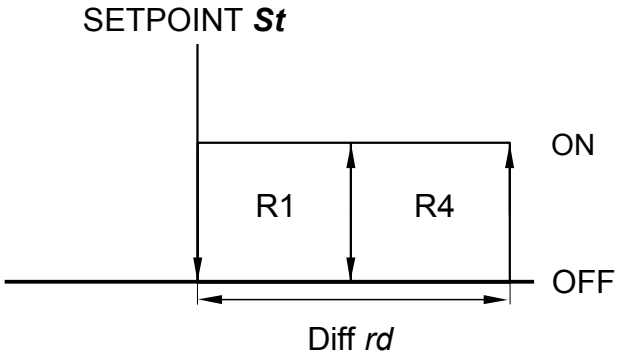


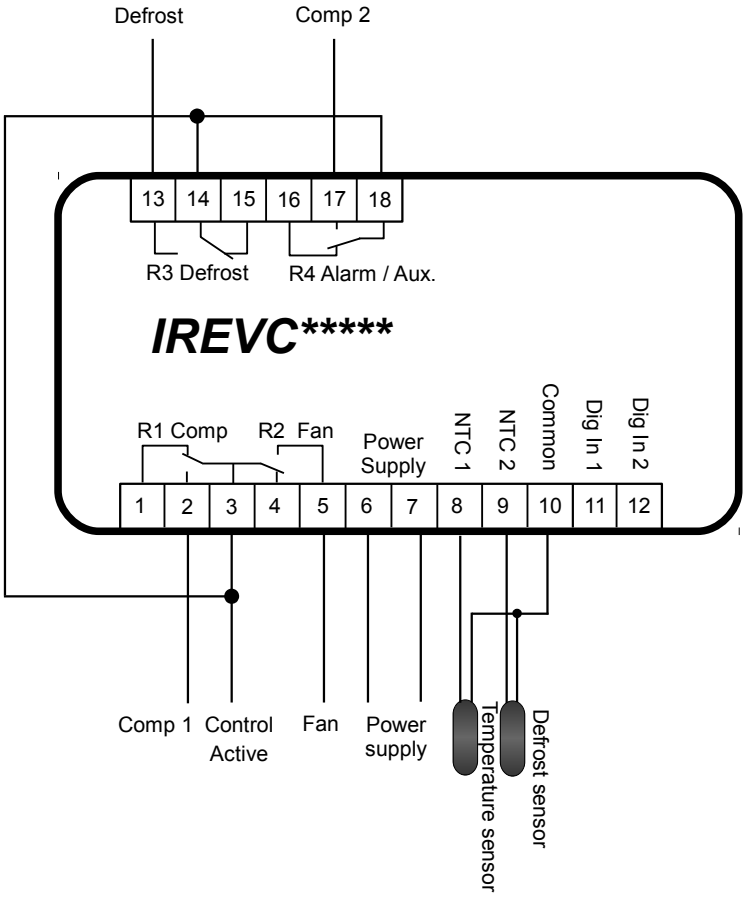
CAREL

ir33+ Refrigeration Series

APPLICATION GUIDE

Low temperature 2 staged compressors





PARAMETERS
St = Set point
rd = Differential
c11 = 2nd comp start delay (sec)
d0 = Defrost type (0 = elec / temp, 1 = h.gas / temp, 4 = elec / temp - time)
dI = Defrost intervals (hours)
dt1 = Defrost termination temp (evap temp)
dP1 = Max defrost duration (mins)
H1 = Aux config (12 = 2nd comp step, 13 = 2nd comp step + rotation)

CAREL

Phone 02-8762 9200
Email cst.au@carel.com

Part number	Description
IREVC*****	Panel mount controller, 4 relays
NTC015HP03	NTC 1.5m sensor
+0500028IE	Technical leaflet
+0300028EN	User manual

Drawn by: BF Date: 03/04/2014

Checked by: EB Date: 03/04/2014

Drawing: IREV_low_temp_2_staged_compressors

Rev: 1.1

Connected

NOT Connected

Normally Open contact

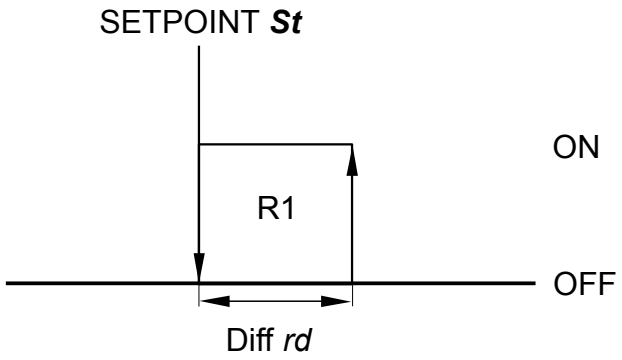
Normally Closed contact

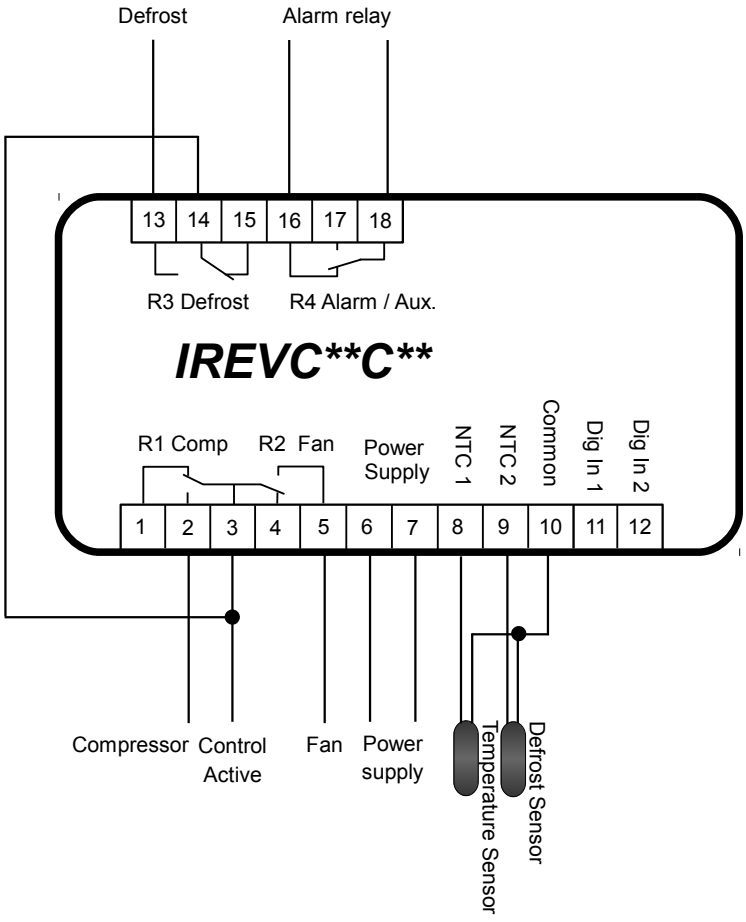
CAREL

ir33+ Refrigeration Series

APPLICATION GUIDE

Low temperature with defrost using Real Time Clock





PARAMETERS
St = Set point
rd = Differential
d0 = Defrost type (0 = elec / temp, 1 = h.gas / temp, 4 = elec / temp - time)
dI = Defrost intervals, (set incase of Etc fault, hours)
dt1 = Defrost termination temp (evap temp)
dP1 = Max defrost duration (mins)
H1 = 0 Aux config (R4 de energises in alarm - failsafe)
td1 – **td8** = Defrost time bands
d__ = day of the week (8 = Mon – Fri, 10 = Sat – Sun, 11 = everyday)
h__ = hour of schedule
n__ = minute of schedule
tc = Current time and date
y__ = current year
N__ = current month
d__ = day of the month
u__ = day of the week (1 = Mon)
h__ = current hour
n__ = current minute

CAREL

Phone 02-8762 9200
Email cst.au@carel.com

Part number	Description
IREVC**C**	Panel mount controller, 4 relays, RTC
NTC015HP03	NTC 1.5m sensor
+0500028IE	Technical leaflet
+0300028EN	User manual

Drawn by: BF Date: 03/04/2014

Checked by: EB Date: 03/04/2014

Drawing: IREV_low_temp_RTC_defrost

Rev: 1.3

Connected

NOT Connected

Normally Open contact

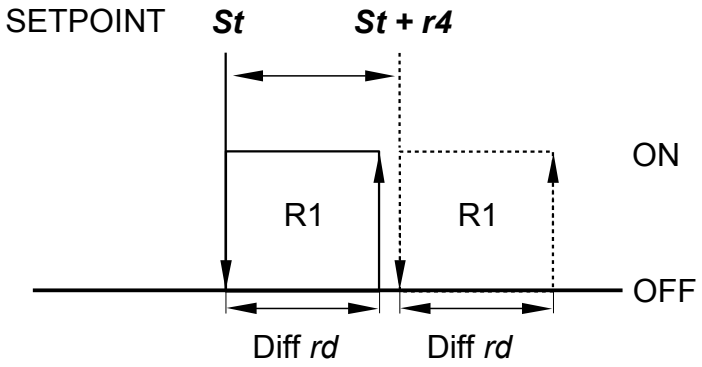
Normally Closed contact

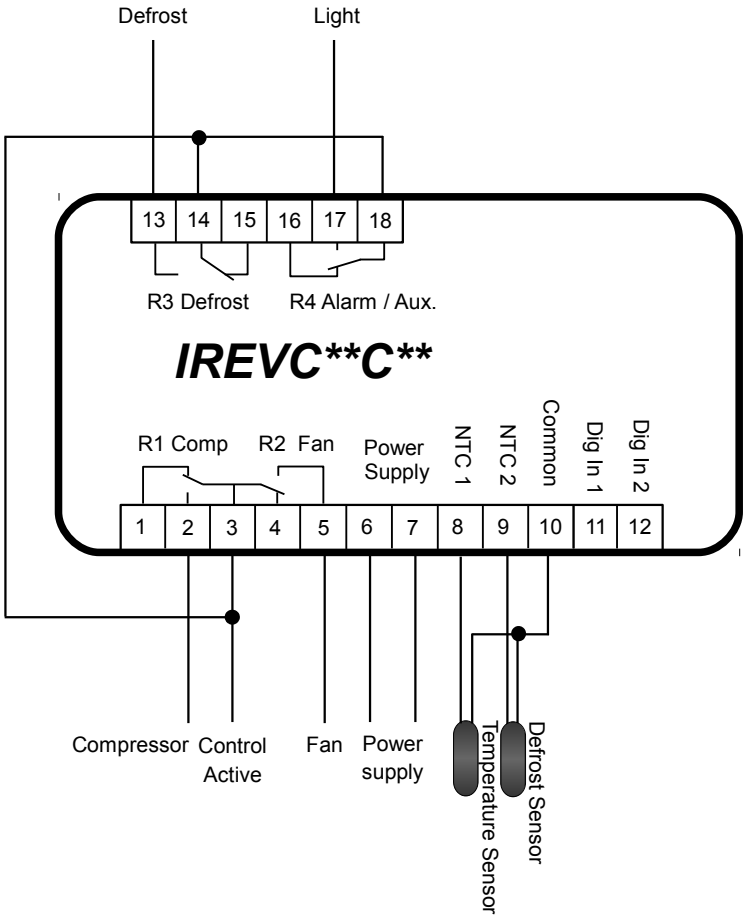
CAREL

ir33+ Refrigeration Series

APPLICATION GUIDE

Low temperature with set point shift using Real Time Clock





PARAMETERS
St = Set point
rd = Differential
r4 = Setpoint varation
H1 = 3 Aux config (Light)
H8 = Light off in setpoint shift (0 = yes, 1 = no)
H9 = 1 Enable setpoint shift by time
ton = Regular set point start time
d__ = day of the week (1/7 = Mon/Fri, 8= Mon-Fri, 10= Sat-Sun, 11= everyday)
h__ = hour of schedule
n__ = minute of schedule
toff = Apply set point shift start time
d__ = day of the week (1/7 = Mon/Fri, 8= Mon-Fri, 10= Sat-Sun, 11= everyday)
h__ = hour of schedule
n__ = minute of schedule
tc = Current time and date
y__ = current year
N__ = current month
d__ = day of the month
u__ = day of the week (1 = Mon)
h__ = current hour
n__ = current minute

CAREL

Phone 02-8762 9200
Email cst.au@carel.com

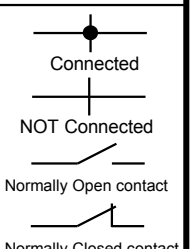
Part number	Description
IREVC**C**	Panel mount controller, 4 relays, RTC
NTC015HP03	NTC 1.5m sensor
+0500028IE	Technical leaflet
+0300028EN	User manual

Drawn by: BF Date: 03/04/2014

Checked by: EB Date: 03/04/2014

Drawing: IREV_low_temp_RTC_setpoint_shift

Rev: 1.2

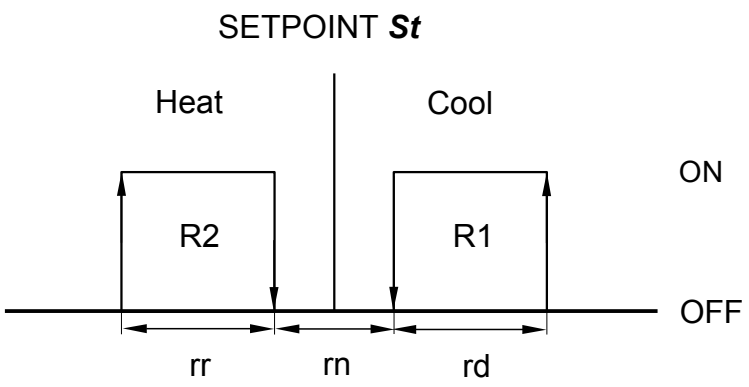


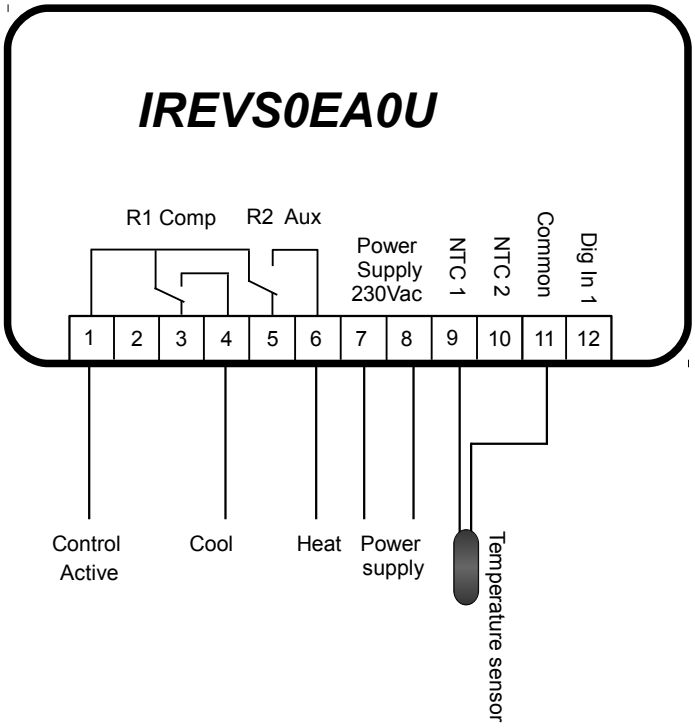
CAREL

ir33+ Refrigeration Series

APPLICATION GUIDE

Heat & cool, 230Vac





PARAMETERS
St = Set point
rd = Cooling differential
rn = Neutral zone
rr = Heating differential
r3 = Control type (0 = Cool + def, 1 = No def)
H1 = 11 Aux config (Heat output)

CAREL

Phone 02-8762 9200
Email cst.au@carel.com

Part number	Description
IREVS0EA0U	Panel mount controller, 2 relay
NTC015HP03	NTC 1.5m sensor
+0500028IE	Technical leaflet
+0300028EN	User manual

Drawn by: BF Date: 03/04/2014

Checked by: EB Date: 03/04/2014

Drawing: IREVS0EA0U_heat_cool

Rev: 1.1

Connected

NOT Connected

Normally Open contact

Normally Closed contact

High
Efficiency
Solutions.

ir33+ Part numbers

Control	Part #	Description	Replaces #
ir33+ Thermometer	IREVM0LN0U	12/24Vac - 12/30Vdc, Thermometer	IR33M00N00
	IREVM0EN0U	230Vac, Thermometer	IR33M0ER00
ir33+ Medium Temp Control	IREVS0LN0U	12/24Vac - 12/30Vdc, 1 relay: comp 12(2)A	IR33S0LR00
	IREVS0EA0U	230Vac, 2 relays: comp 8(4)A, aux 8(4)A	IR33S0ER00
ir33+ Low Temp Control	IREVC0LN0U	12/24Vac - 12/30Vdc, 4 relays: comp 12(2)A, fan 8(4)A, defrost 8(4)A, aux/light 8(4)A	IR33C0LR00
	IREVC0LC0U	12/24Vac - 12/30Vdc, 4 relays: comp 12(2)A, fan 8(4)A, defrost 8(4)A, aux/light 8(4)A, RTC	IR33C0LB00
	IREVC0HN0U	230Vac, 4 relays: comp 12(2)A, fan 8(4)A, defrost 8(4)A, aux/light 8(4)A	IR33C0HR00
	IREVC0HC0U	230Vac, 4 relays: comp 12(2)A, fan 8(4)A, defrost 8(4)A, aux/light 8(4)A, RTC	IR33C0HB00

***Available exclusively through authorised distributors.**

QuickFinder

Carel App for refrigeration professionals

This has been developed for distributors and installers to:
- Quick view of parameters
- Reference installation manuals
- Offer a tool for selecting the most suitable solution
- Offer a Carel alternative to other products on the market

Available on the App Store

ANDROID APP ON Google play

CAREL Australia Pty.Ltd

ACN. 067 528 269

Head Office - Sydney

P.O. Box 6809, Silverwater Business Centre NSW 1811
PH. (02) 8762 9200 FAX (02) 9764 6933

Melbourne Office

P.O. Box 558, Mt. Waverley VIC 3149
PH. (03) 9550 0898 FAX (03) 9550 0878

Brisbane Office

Suite 28, Bldg 6, 2404 Logan Road, Eight Mile Plains QLD 4113
PH. (07) 3340 5107 FAX (07) 3341 4390

Technical Support

Ph: (02) 8762 9200
Email: cst.au@carel.com

Sales

Ph: (02) 8762 9200
Email: sales.au@carel.com

+AU00IREVA rev1.4 24/05/2018