



PR3-2G    2G 



The PR3-2G connected controller is part of the new elstat PR generation of advanced parametric refrigeration controllers that provide a range of features enabling asset tracking, remote data access alongside optimum energy management of coolers. The PR3-2G controller is suitable for glass door coolers, sub-zero coolers, freezers, and open front coolers.

Device	PR3-2G
Input Voltage	85 – 305V SMPS 50/60Hz
Connectivity Technology	GSM/GPRS/GNSS/WIFI/BLUETOOTH
Interface	
Digital inputs	1 Door Switch Input, 1 Motion Sensor Input
Analog Inputs	3 (-35°C to +125°C, NTC)
Relay Outputs	Compressor 9 (9) A 240 VAC
EN60730-1, 240VAC	Lights 2(2) A
	Fan Motor 2(2) A
	Heater 2(2) A
GNSS Antenna	Internal High Gain
Cellular Antenna	Internal High Gain
Programming Port	4 pin UART connection
Remote Display Port	4 pin UART connection
SIM	Micro SIM
Memory	128Mb Flash Memory
GNSS Asset Location	
GNSS	GPS, GLONASS, GALILEO, BEIDOU, SBAS, QZSS, DGPS,
Receiver	33 channel
Tracking Sensitivity	-165 dBm
Accuracy	< 2.5m CEP
Cellular	
Technology	GSM
2G bands	Quad-band 850 / 900 / 1800 / 1900 MHz
Data transfer	GPRS Multi-Slot Class 12 (up to 240 kbps), GPRS Mobile Station Class B
Data support	SMS (text/data)
Power	
Input Voltage	85-305V with Overvoltage Protection
Overload Protection	Hiccup Mode, recovers after fault is removed
Over Voltage	Shut off output voltage,
Back Up Battery	1800 mAh Li-Ion battery
Bluetooth	
Specification	V4.2 & LE Available for connection with Mobile phone applications for configuration and test
WIFI	
Specification	802.11/b.g.n Utilized for WIFI Geolocation and FOTA
Operating Environment	
Operating temperature (without battery)	-30 °C + 70 °C
Storage temperature (without battery)	-40 °C to +85 °C
Operating humidity	5% to 95% non-condensing
Ingress Protection Rating	IP54
Battery charge temperature	0 °C to +45 °C
Battery discharge temperature	-20 °C to +60 °C
Battery storage temperature	-20 °C to +45 °C for 1 month -20 °C to +35 °C for 6 months
FEATURES	
Asset Movement sensor	Accelerometer
Configuration and firmware update	Elstat PC Configurator, mobile application (Configuration), WIFI FOTA
SMS	Configuration, Event, Debug
GPRS commands	Configuration, Debug
Time Synchronization	GPS, NTP

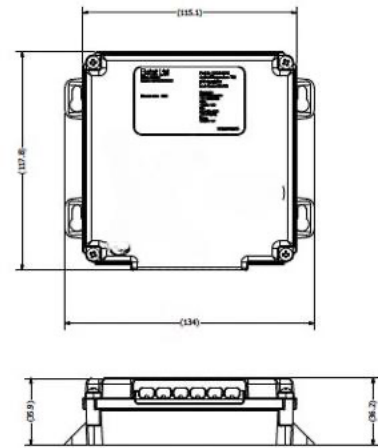
Subtle design has no display or indicators relating to the operation of the device, making it ideal for commercial implementation. Bluetooth connectivity and elstat Apps provide easy access to device status, temperatures, parameters, and fault-finding test mode when in front of the cooler.

Extremely accurate GNSS paired with WIFI geolocation provide best in class Asset Location to ensure all devices are tracked.

GSM connectivity allows for remote manipulation of device parameters when and if required.

Advanced refrigeration control algorithms ensure optimum performance and minimum power consumption. A comprehensive set of parameters provides complete configuration flexibility.

Dimensions:



POWER CONNECTIONS	
BROWN	Live
BLUE	Neutral
YELLOW	Evaporator Fan
RED	Compressor
ORANGE	Defrost Heater
WHITE	Lights
INPUTS	
APP	Cabinet temperature sensor
EVAP	Evaporator temperature sensor
HT	Condenser Temperature sensor Fan
DOOR	Door Switch input
Micro USB	Programming
	Lights

	CONFORMITÉ EUROPÉENNE / EUROPEAN CONFORMITY (CE) EN60730-1 EN60730-2-9
	UK CONFORMITY (UKCA) EN60730-1, EN60730-2
	INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC) IEC60730-1 IEC60730-2-9 Glow wire: IEC60335-1
EMC	ELECTROMAGNETIC COMPATIBILITY (EMC) EN55014-1, EN55014-2, EN61000-6-1, EN61000-6-3, EN61000-3-2, EN61000-3-3



Parameter List

ID	Description	Default	Min	Max	Precision	Unit	Definition
SP	Set Point	3	-35	35	0.1	Temperature	Temperature at which the compressor is switched OFF
DF	Differential	4	0	10	0.1	Temperature	Temperature increase above SP at which compressor is switched ON
SS	Savings Set Point	8	-35	35	0.1	Temperature	Temperature at which the compressor is switched OFF during Energy Saving Mode
SD	Savings Differential	4	0	10	0.1	Temperature	Temperature increase above SS at which compressor is switched ON during Energy Savings Mode
CI	APP temp Calibration	0	-10	10	0.1	Temperature	Appliance temperature calibration factor added to app temperature measurement
CZ	EVAP temp Calibration	0	-10	10	0.1	Temperature	Evaporator temperature calibration factor added to evap temperature measurement
UP	Uninterrupted Pull-down	20	0	55	1	Temperature	App temperature that, if exceeded, initiates an uninterrupted pull-down. UP 0 = is disabled (no uninterrupted pull-down) NOTE: The parameter should not be set less than SP + DF or DT whichever is the greater
SC	Season Offset	0	0	5	1	Integer	Offset value for the different Seasons ONLY if Season Flag = 1 (enabled, winter)
CF	Temperature Scale	0	0	1	n/a	Integer	Configures the controller to display temperature in either Celsius or Fahrenheit.
SF	Season Flag	0	0	1	1	Integer	This enables the season offset parameter (SC) SF 0 = Disabled (Summer) SF 1 = Enabled (Winter)
DE	Defrost Interval	4	1	199	1	Time (Hours)	Length of time between defrost cycles
DD	Defrost duration	15	1	199	1	Time (Minutes)	Length of the defrost period
DT	Defrost termination Temperature	10	0	30	1	Temperature	Temperature threshold that, if reached during a defrost period, causes the defrost period to be terminated
DR	Defrost method	0	0	2	n/a	Integer	DR 0 = Time based defrost (APP temp or time based termination) DR 1 = Temperature based defrost (EVAP sensor activation / termination) DR 2 = Time based (EVAP sensor termination) Note when DF = 0, EVAP sensor input is disabled
DA	Defrost activation temperature	-6	-30	5	1	Temperature	Sets the temperature at which defrost on demand is activated. The defrost activation temperature minimizes the risk of evaporator icing up.
DH	Heating element defrost	0	0	6	n/a	Integer	Controls the behaviour of heating element supplemented defrost DH 0 = Disabled DH 1 = Heater and fan shall be ON during active defrost cycle DH 2 = Heater shall be switched ON during the active defrost cycle, fan shall be switched OFF DH 3 = Heater shall be switched ON during the active defrost cycle, fan shall remain OFF. The evaporator fan then remains OFF for ONE minute after the end of the defrost cycle DH 4 = Heater shall be switched ON during the active defrost cycle, fan shall remain OFF. The evaporator fan then remains OFF for TWO minutes after the end of the defrost cycle DH 5 = Heater shall be switched ON during the active defrost cycle, fan shall remain OFF. The evaporator fan then remains OFF for THREE minutes after the end of the defrost cycle DH 6 = Hot gas defrost. The relay switches a solenoid valve
FP	Fan set point	15	1	60	1	Temperature	Temperature above which the evaporator fan will run continuously regardless if door is open or closed
FN	Fan cycle ON	30	1	30	1	Time (Minutes)	The duration of fan on time when the compressor is OFF
FF	Fan cycle OFF	1	0	30	1	Time (Minutes)	The duration of fan OFF time when the compressor is OFF. NOTE: FF = 0 disables fan cycling and should be used in OFC applications
RT	Rest time	3	1	30	1	Time (Minutes)	Minimum time before compressor can be switched ON after being switched OFF
HT	Condenser high temperature	0	50	100	1	Temperature	Condenser HT alarm threshold. If exceed HT alarm is activated. NOTE: HT = <50 the HT sensor is disabled
AD	Alarm Delay	0	2	30	1	Time (Minutes)	Delay before door alarms are triggered. NOTE: AD = 0 door alarms are disabled
CT	Refrigeration failure time	72	4	100	1	Time (Hours)	Length of time in hours that must elapse before refrigeration system failure alarm is activated
FU	Freeze up protection temp	-5	-35	0	1	Temperature	Temperature at which freeze up protection is activated
T1	Timeout 1	6	0	12	1	Time (Hours)	Length of Time Fridge stays ON from the Last Door Opening. NOTE AD>0 and ES=1 to activate
T2	Timeout 2	6	0	12	1	Time (Hours)	Length of Time the Fridge Enters Standby after T1 has elapsed. NOTE AD>0 and ES=1 to activate
AR	Marketing Mode	0	0	2	n/a	Integer	Marketing mode is when the lights are left on even when the store is closed such that the cooler is in Energy Savings Mode. This is normally used when the cooler is in a prominent position as an advertising aid Ar 0 = lights OFF in 'energy save mode' Ar 1 = lights ON in 'energy save mode' Ar 2 = Door Switch enabled ECO Mode (Use for OFC, Ensure AD = 0 to use this)
ES	Energy Saving Mode	0	0	2	n/a	Integer	0-disabled, 1-reserved, 2-SSP using T1/T2
SN	Motion Sensor input select	1	0	1	n/a	Integer	Activates or deactivates motion sensor