Optimize Operation & Reduce Energy Consumption

- Increases system reliability
- Increases lifetime of units
- Minimizes product loss
- Simplifies cold room management

RefPlus® introduces the Guardian Lead Lag Controller, a state-of-the-art commercial and industrial cold room manager designed to **significantly** optimize and simplify room operation as well as improve refrigeration system efficiency and dependability.

The Guardian Lead Lag Controller monitors room temperature in real time and uses predictive smart algorithms to optimize Lead Lag operation. It can manage up to 8 systems and it can be programmed to rotate the lead system to equalize run hours. It reduces start-stop cycles, therefore minimizing equipment wear.

Guardian is an **EcoEfficient+** smartpower device engineered to lower your operating costs, with the added bonus of peace of mind.

smartpower

RefPlus®

KEY FEATURES

- Smart algorithm temperature control
- Handles from 2 to 8 systems
- Lead rotation
- Integrated defrost control (air & elec.)
- Sensor failure alarms
- Works with all RefPlus unit models
- Remote communication (optional) (free open communication protocol)
- Real time temperature monitoring
- Full time event logging

ULTRAPRECISE READINGS AND CONTROL

The Guardian Lead Lag Controller can use up to 4 sensors for more accurate, reliable and flexible temperature readings and control in your cold room or freezer. The user can choose to control the system according to average, minimum or maximum temperature calculations. In addition, the system can be managed following a specific temperature sensor reading.

The controller's proven technology and its advanced operating software ensure equal use of the systems by offering several Lead unit rotation possibilities. It runs Lag and redundant systems only when necessary, avoiding short refrigeration cycles and unnecessary compressor starts and, consequently, extending service life of both evaporators and condensing units.

INTEGRATED DEFROST CONTROL

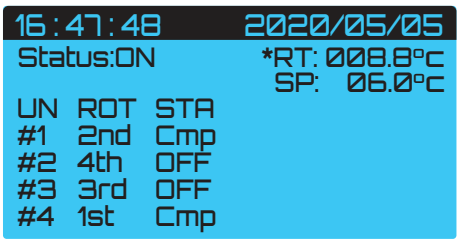
The controller has an integrated air and electric defrost control. This simplifies installation as there is no need to setup multiple external timers. The controller makes it possible to manually enter the defrost schedule for each cooling unit or it can automatically create the schedule for all units according to general guidelines provided by the user. This control can be disabled if desired.

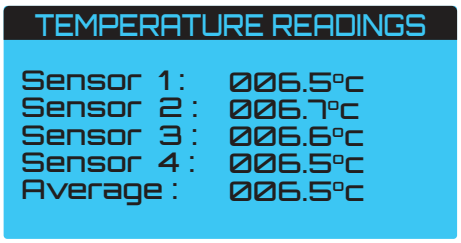
THE DISPLAY

The display shows all necessary information such as room temperature, setpoint, status and operation time for each of the systems as well as real-time sensors readings and calculations.

Also, an alarm is triggered if a sensor fails or a redundant or back-up system was required. An alarm logging is available, making troubleshooting easy and practical.

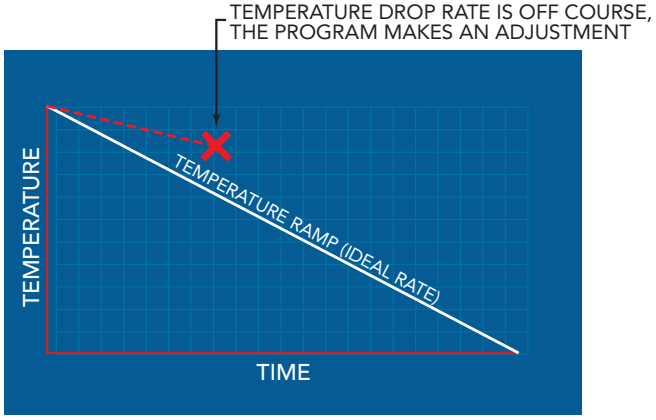
It features three password protected menus for settings and configuration, reducing user error to a minimum.

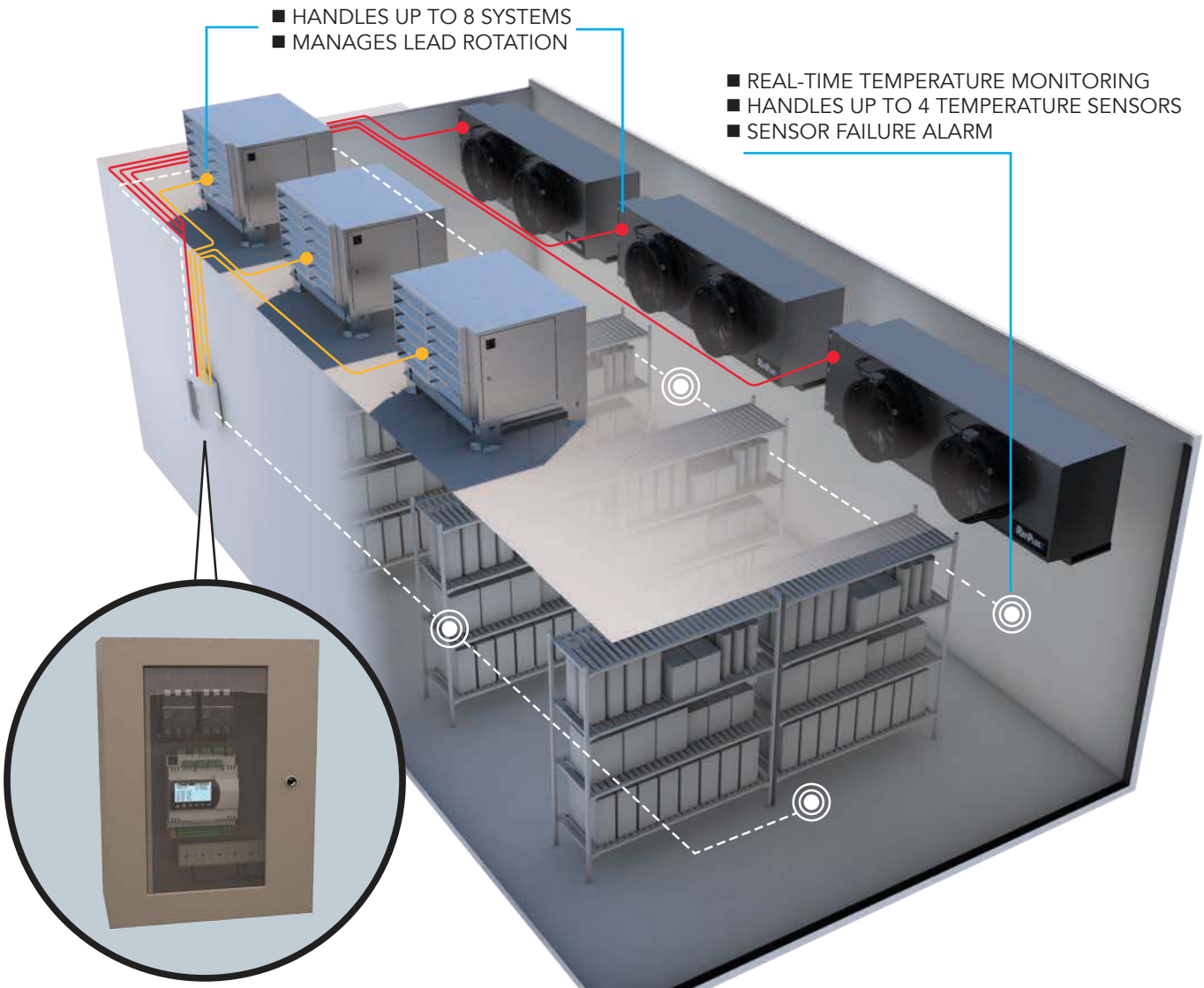




TEMPERATURE RAMP, HOW DOES IT WORK?

Guardian Lead Lag Controller continuously monitors the room temperature trend using sensor data and advanced algorithms. If the temperature does not drop following a predetermined rate (**temperature ramp**), the controller makes adjustment by increasing the number of systems in operation until the ideal capacity is achieved.
Lead, lag and redundant systems are predetermined by the user.





TECHNICAL DESCRIPTION

Sensors	2 temperature sensors are standard. Up to 4 sensors are allowed. Additional sensors can be ordered as a separate line item.
Voltage	120V or 208-240V
Power Input	18.2 VA – 34.6 VA (depending on the number of units)
Contacts	240V/10A
Battery Life	10 year (program/data protection)
Operating conditions	14°F to 140°F (-10°C to 60°C), < 90% RH non-condensing
Casing	Type 4 Mild Steel Wallmount Enclosure w/ Window. Complies with UL 508A Type 3R, 4 and 12, CSA Type 3R, 4 and 12, NEMA 3R, 4 and 12 and IEC 60529, IP66
Overall Dimensions	16”H X 12”W X 6” (406mm X 305mm X 152 mm)
Weight	28 LBS approx. (12.7 Kg)
Communication (optional)	Modbus RTU, BACNET MSTP, MODBUS TCP/IP, BACNET IP, SNMP, LonWorks.

Guardian+

PRECISION CONTROLLERS FOR A TROUBLE-FREE COLD ROOM OR FREEZER

RefPlus as a solution for making your cold room or freezer management easier, more precise and more efficient:

The **Guardian+ Controller Family**.

Guardian+ LEAD LAG & DEFROST CONTROL RC-L

Cold Room Lead-Lag Control System

The Guardian+ Lead Lag Controller monitors room temperature in real time and uses predictive smart algorithms to optimize Lead Lag operation. It can manage up to 8 systems and can be programmed to rotate the lead system to equalize run hours.

Guardian+ SMART EVAPORATOR CONTROL RC-S

Smart Evaporator Control System

Guardian+ Smart Evaporator Controller controls both temperature and defrost, providing precision temperature measurements and assuring setpoints are followed . It illiminates unnecessary defrosts typically associated with time-based alternatives thus reducing energy consumption & preserving product integrity.

Guardian+ FLUID COOLER & PUMP PACKAGE CONTROL RC-F

Fluid Cooler & Pump Package Control System

The Fluid Cooler and Pump Package Controller manages the fan cycling and fan speed (when variable speed fans are installed) to control the outlet fluid temperature. Also, it offers the possibility to manage the operation of up to two pumps.

RefPlus®

The leader in Custom Refrigeration Equipment

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