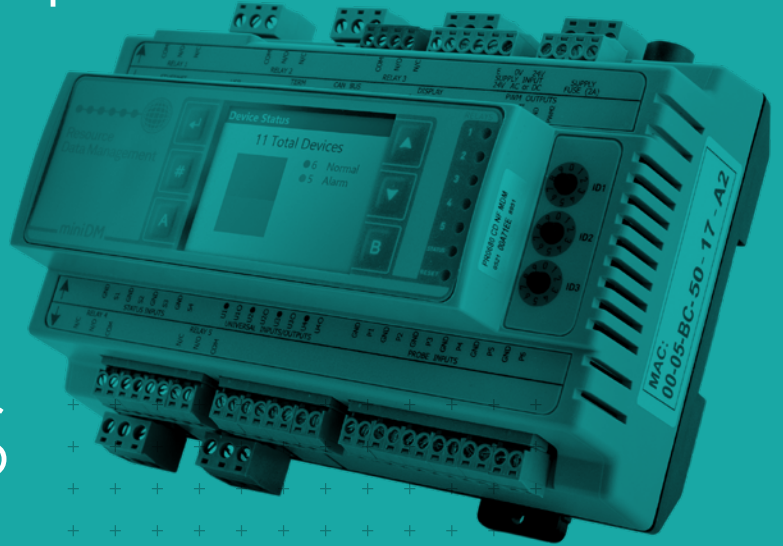
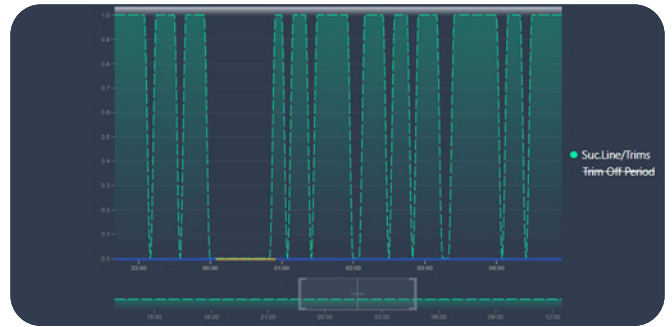


DMTouch & miniDM Energy Saving Solutions



The following energy saving features can be purchased through individual part numbers or as a group, for enablement on an RDM control and monitoring system front-end: DMTouch or miniDM.

Device	Description	Value	Status	Pack
HT01-0	Fresh Meat Piped	-0.2 ⓘ	Normal	1
HT01-1	Fresh Meat Piped	4.1 ⓘ	Alarm	1
HT01-2	Fresh Meat Piped	1.5 ⓘ	Alarm	1
HT01-3	Fresh Meat Piped	4.2 ⓘ	Df Min	1
HT01-4	Fresh Meat Piped	2.6 ⓘ	Alarm	1
HT01-5	Produce Piped	4.7 ⓘ	Alarm	1



Pack Optimisation (Suction Float)

The Pack Optimisation feature enables the target pressure of a pack controller to be adjusted in response to the average valve openings of all the evaporators using that pack. This ensures that all the evaporators are being used at optimum efficiency and the resultant energy usage of the pack compressors is reduced. Overall, the Pack Optimisation feature typically leads to a **10-30% reduction in pack power**, without any interruption or deterioration in case temperature control.

Utilising this feature reduces compressor run times and number of starts, which reduces energy use and can also extend the lifespan of compressors. Optimisation performance is logged and alarm thresholds can be set on a case by case basis.

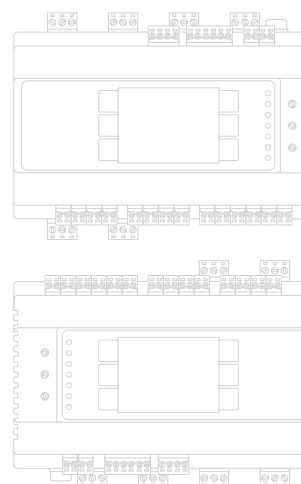
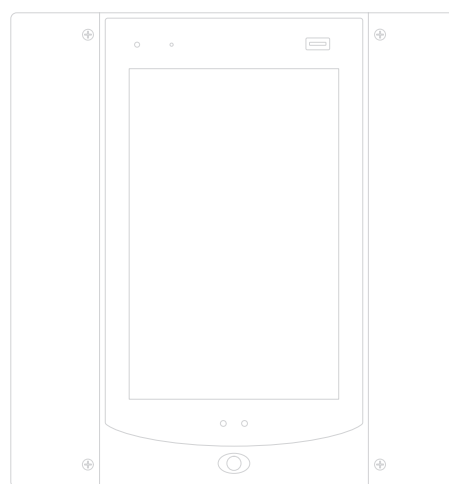
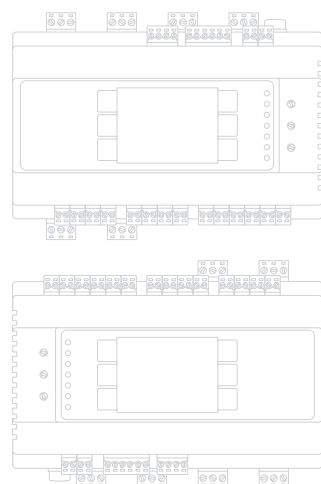
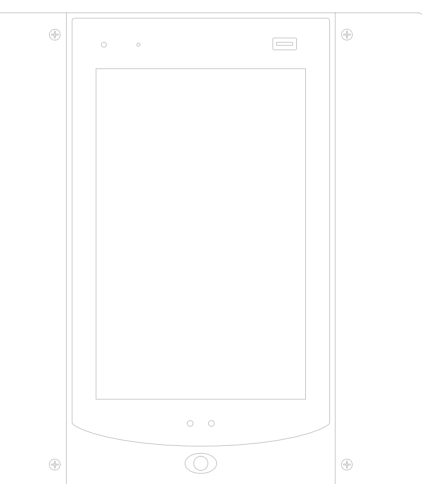
Failure to achieve some level of optimisation is a precursor to system or individual case failure. To convey this information quickly, indicators are displayed in the device list to show the operation of optimisation for a specific device. These are listed under the heading 'Pack'. The number reflects the pack to which the device is connected. The indicators are colour coded from green (good) to red (poor).

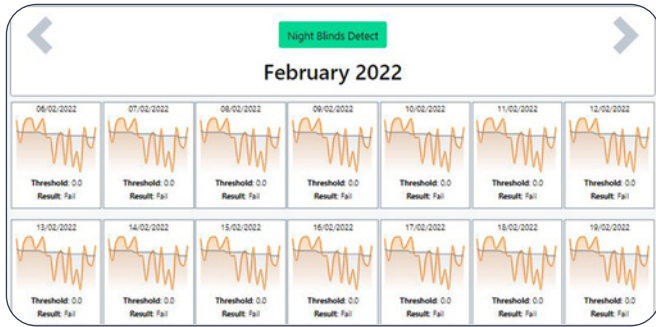
Optimisation requires an RDM pack controller to be used in conjunction with a DMTouch or miniDM and a number of networked case and coldroom (evaporator) controllers. A DMTouch can be configured for up to 50 packs, whilst a miniDM supports up to five packs.

Network Trim Control

The Network Trim feature can be used in conjunction with networked RDM case controllers with trim heater control. Using a humidity and ambient temperature sensor reading from anywhere on the network, the DMTouch or miniDM will instruct the controllers to adjust their trim heater output levels accordingly. Trims can also be controlled using the space humidity only. The output level of the trim heaters will be enough to prevent condensation forming without using unnecessary power and will constantly adjust to changing atmospheric conditions. A typical supermarket installation expends 30kW of constant trim heater load. Using the Network Trim energy feature leads to an overall **30-50% reduction in trim heater load power**.

The trim level settings can also be automatically reduced at night time to provide further energy savings when the facility is unoccupied. Even by simply reducing the maximum output of the heaters to 70% (as opposed to always on), energy consumption is instantly reduced by 30%.

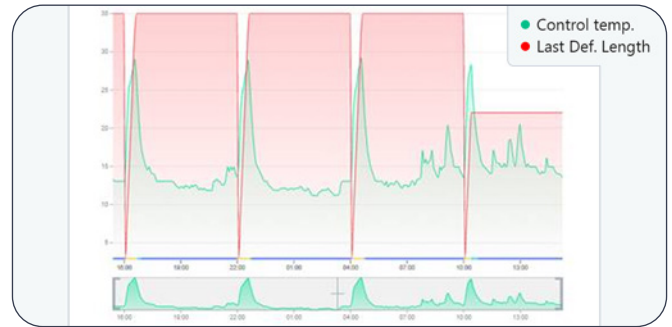




Night Blinds

Night-blinds installed on an open-air refrigerated case, when deployed after store trading, can **reduce the power requirement of the case by up to 40%**. This of course is dependent on the night-blinds actually being utilised. By comparing different temperature sensors in the refrigerated cabinet, a DMTouch or miniDM can ascertain if the night blinds have been used and generate an alarm if they have not. Both front-end systems can also produce a report detailing night-blind use for the store.

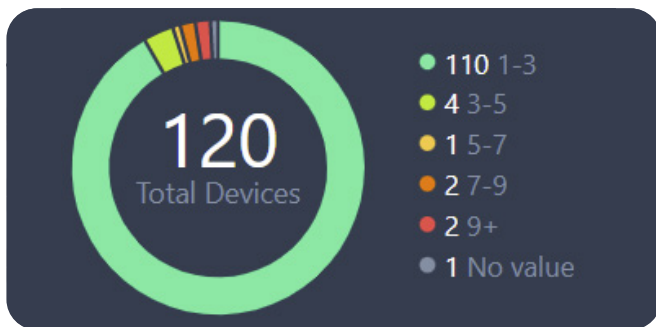
To help identify problem cases the DMTouch and miniDM keep a 'history' for each device which can be viewed. They calculate an expected 'pattern' and highlight when a device deviates from this (blinds not used).



Defrost Warning

The Defrost Warning feature provides a warning when a consecutive number of defrost cycles on a particular evaporator terminate on time setpoint as opposed to the temperature limit. The number of consecutive defrosts before a warning is issued is user configurable on either control system front-end. If a defrost cycle terminates on time then it may indicate that the evaporator has not cleared all the ice which will affect efficiency and use more power.

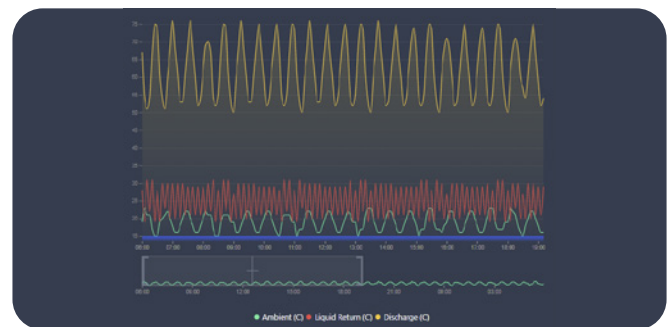
There is also a defrost limit setting which produces an alarm if an evaporator has more than a pre-set amount of defrost cycles per day. Having unnecessary defrosts increases the amount of energy wasted.



Case Performance (TPI)

This performance feature monitors the performance of a refrigeration case or coldroom, allocating a score for easy monitoring. The Temperature Performance Indicator (TPI) informs the user of poor performing equipment providing a predictive monitoring solution to easily identify faults before they become a costly issue.

The TPI score is based on a number of variables such as the setpoint, differential, over-temperature alarms and under-temperature alarms. A score of one equates to a good performance, a score of 10 equates to a poor performance. The performance indicator is also displayed in the Device List for individual devices and as a summary of all configured devices.



Condenser TD (Temperature Differential)

The Condenser TD feature provides monitoring of the efficiency of up to 50 condenser units for the DMTouch and up to 5 condensers for the miniDM. Three probes are fitted to the condenser to measure liquid return, discharge and ambient air temperature. The DMTouch and miniDM will report three levels of alarm: pre-warning, warning and alarm, thus giving early notification if a condenser is not operating efficiently (due to the condenser being blocked with debris for example). Two measurement methods are available: Discharge to Liquid Return and Liquid Return to Ambient Air On.

Use of the Condenser TD feature can eliminate the need for pre-scheduled maintenance on this equipment, leading to additional cost savings. It can be used in conjunction with the pack controller's Fan Reversal feature to clean debris and buildup while monitoring for inefficiency.

Ordering Information

DMTouch

FEATURE	PART NUMBER
Pack Optimisation	PR0474
Network Trim	PR0475
Night Blinds	PR0476
Condenser TD	PR0477
Case Performance (TPI)	PR0478
Defrost Warning	PR0479
All Energy Features (PR0474 to 479)	PR0484

miniDM

FEATURE	PART NUMBER
Pack Optimisation	PR0474-MD
Network Trim	PR0475-MD
Night Blinds	PR0476-MD
Condenser TD	PR0477-MD
Case Performance (TPI)	PR0478-MD
Defrost Warning	PR0479-MD
All Energy Features (PR0474-MD to 479-MD)	PR0484-MD

