

Hawk-Eye 800 HVACR Multi-loop Monitor, Recorder and Controller



With its 8 configurable analogue inputs, 4 Derived inputs, 4 digital inputs, rugged IP65 enclosure, inbuilt 10.6" high resolution full colour touchscreen, and intuitive software, the HAWK-EYE 800 heralds a new age in both local and remote process monitoring, control and data recording for small to medium applications.

The Hawk-Eye 800 is supplied in three versions that can be tailored to your exact requirements:

- ✓ The Hawk-Eye 800 Bronze version for monitoring, recording, alarming and reporting only.
- ✓ The Hawk-Eye 800 Silver version which also includes 2 PID and 2 On/Off Controllers.
- ✓ The Hawk-Eye 800 Gold version which includes 4 PID controllers and 4 On/Off Controllers plus Full PLC capability.

Optional Features for Selection of Bronze, Silver and Gold Models

FEATURE	BRONZE	SILVER	GOLD
Isolated Configurable Analogue Outputs	0	2	2
Isolated Replaceable Relay Modules fitted as standard	0	4	8
Optional Extra Relay Module slots available	8	4	0
PID Controllers	0	2	4
On/Off Controllers	0	2	4
Digital input Delay Timers for alarming	Yes	Yes	Yes
Full PLC Functionality	No	No	Yes

Benefits of the Hawk-Eye 800

- ✓ Immediate notification of Alarms by email or SMS allows maximum time for corrective action.
- ✓ Corrective Actions can be recorded instantaneously.
- ✓ Automatic reporting can be provided by email to everyone who needs it.
- ✓ Hawk-Eye 800 can be tailored to your exact requirements, minimising cost.
- ✓ Comprehensive control, monitoring and alarming in one product.
- ✓ Remote login provides immediate visibility, saves time, saves money and allows work to be prioritised.
- ✓ Detailed reporting makes food safety audits easy and stress-free for the end user.
- ✓ 4GB of memory records all data for easy analysis.
- ✓ Daily reports generated and backed up automatically.

Some Applications of the Hawk-Eye 800

Here are just a few of the hundreds of possible recording, monitoring and control applications for the Hawk-Eye 800:

- ✓ Automatically monitor display and trend your freezer, cool-room, food serving and sanitising temperatures as well as cool room and freezer door statuses all in one unit.
- ✓ Store the measurement and alarm data into the large memory of the Hawk-Eye 800 and use it as a repository for your records which can be recalled, displayed and graphed at any time in the future.
- ✓ Control a thermal expansion valve using the gas superheat value derived from the actual temperature and the pressure vs saturated temperature graphs for the refrigerant gas.
- ✓ Control refrigeration equipment and perform a safety shutdown if a gas leak is detected.
- ✓ Control variable speed drives to dramatically reduce the energy consumption of the compressor and evaporator
- ✓ Control batch refrigeration processes with automatic cleaning, using the inbuilt PLC,
- ✓ Control dosing pumps using the inbuilt PID controllers and PLC logic blocks
- ✓ Monitor the levels in siloes and tanks and automatically advise replenishment.

Product Stand-out Features

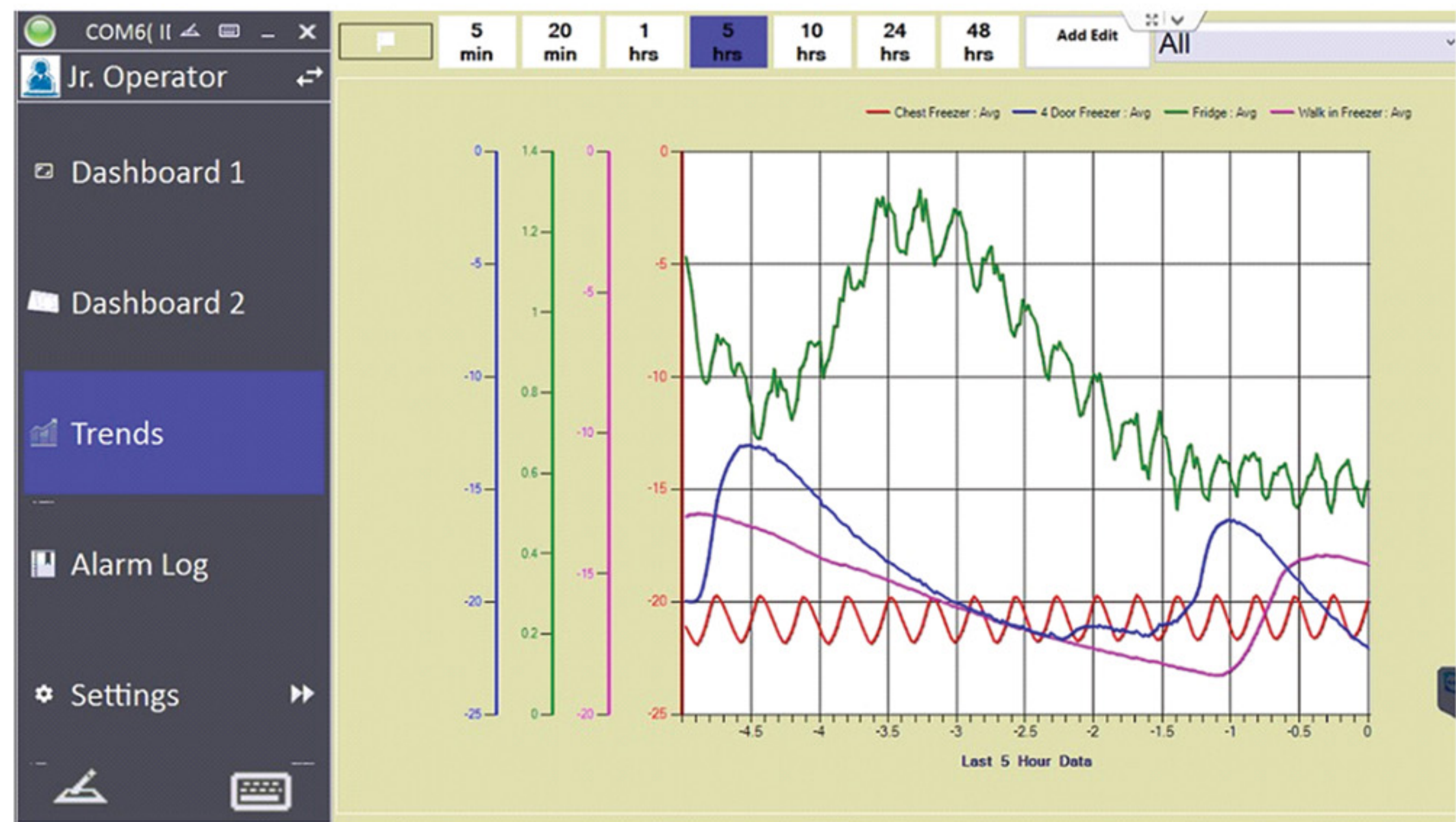
The Hawk-Eye 800 is far more capable and cost effective than typical paperless chart recorders and data loggers. Some of the unique features of the Hawk-eye 800 are:

- ✓ It can send process alarms by email and text to those who need to know as soon as something goes wrong.
- ✓ It can control multiple processes as well as monitoring, alarming, displaying and logging them.
- ✓ It can automatically send logged data by email to as many recipients as required.
- ✓ We provide free software to allow easy and detailed visual analysis of the data, isolate specific data for viewing or export as an image in multiple user friendly formats.
- ✓ It can record corrective actions taken in response to alarm notifications.
- ✓ It will record all settings changes made to maintain a complete audit trail.
- ✓ It will allow you to securely monitor its complete operation and adjust any of its settings from anywhere in the world using the internet.
- ✓ The uninterruptible power supply provided with the Hawk-Eye 800 will keep it running for 2 hours in the event of a short term mains failure.
- ✓ It's IP65 rated case makes it shower-proof and dust-proof, enabling you to mount it anywhere indoors or out.



The dashboard shows the current analogue inputs, derived inputs and alarm statuses updated each second. At the bottom of the dashboard screen you also can see eight configurable status flags.

The live trending feature graphs the most recent 5 minutes, 20 minutes, 1 hour, 5 hours, 10 hours, 24 hours and 48 hours of data. Up to 4 variables can be grouped in one trend and you can add an unlimited number of trends to the dropdown list.



Typical Live Trend showing all 4 inputs in a Freezer and Fridge Monitoring Application

The full process history is stored into the large capacity memory each second. This information can be accessed manually or the Hawk-Eye 800 can be configured to automatically compile, save and email reports on a regular basis for example every 24 hours for the next 2 years.

Hawk-Eye 800 Product Details:

Analogue Inputs: The HAWK-EYE 800 has 8 analogue inputs each catering for:-

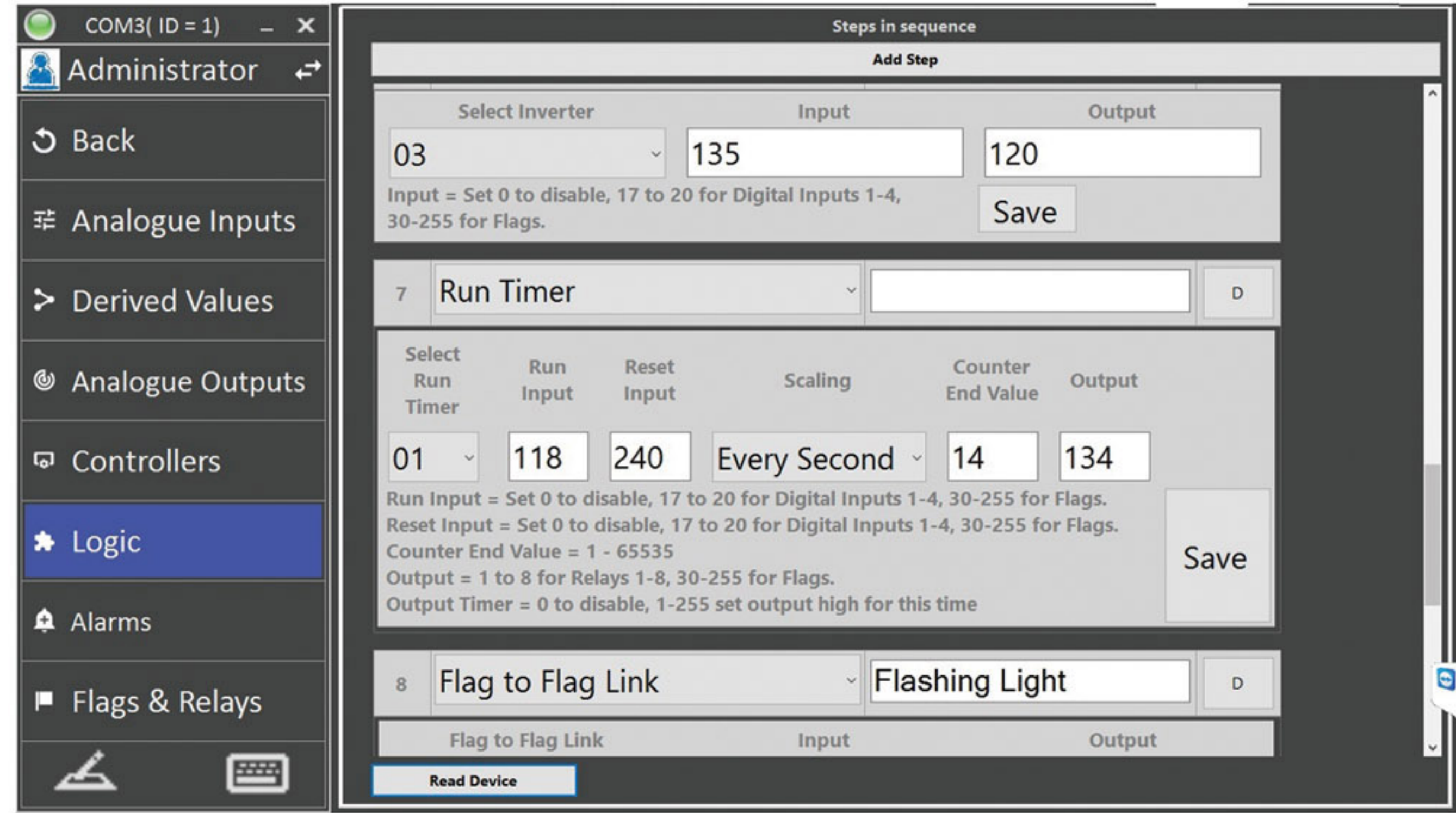
- ✓ **Current:** 0-20mA, 4-20mA, 0-10mA
- ✓ **Voltage:** 0-10V, 0-5V, 1-5V, 0-1V
- ✓ **Thermistor:** 10K NTC thermistors over the range of -40oC to +70oC
- ✓ **Contact closure:** Monitor the state of any contact including time-out
- ✓ **Other Sensors:** The inputs can also accept plug on conditioning cards for: AC Current, AC Power, RTD Thermocouple, pH, ORP, Conductivity, Dissolved Oxygen, Weight and Position.
- ✓ **Sensor Power:** Each input has a 24Vdc current limited supply terminal to power sensors and transmitters directly

Derived Inputs: The Hawk-Eye 800 has 4 software generated analogue inputs, called derived inputs, which are mathematical combinations of the 8 measured analogue inputs. Six common formulae are included to enable useful derivations of the analogue measurements. In formulae 2 to 5 not all inputs have to be included. The unused inputs are ignored in the calculations. Note 1: Formulas 7 and 8 are due for release shortly. See website for details - www.waveindustries.com.au

#	Formula Description
1	Subtract two inputs K(A-B)
2	Lowest of (A,B,C,D,E,F,G,H)
3	Highest of (A,B,C,D,E,F,G,H)
4	: Sum or Average of K(A+B+C+D+E+F+G+H)
5	Multiply/Divide: K(A x B x C x D)/(E x F x G x H)
6	Heat Flow: KA(B-C)
7	Totalise any input converting flow rate to flow and kW to kWh Note 1
8	Totalise any input with cost at that time of day Note 1

Digital Inputs: The Hawk-Eye 800 has 4 isolated digital inputs suitable for detecting contact closures. These inputs have contact de-bouncing built in.

PLC Capability: Built into the Hawk-Eye 800 Gold is a complete PLC which is used for sequence control. There are 8 soft buttons on the touch screen dashboards which can be used to initiate, reset or terminate actions. The programming of the logic is exceptionally easy.



Relay Outputs: The Hawk-Eye 800 has up to 8 replaceable relay modules suitable for control and monitoring functions. These relays can be linked to the alarms and PLC control function blocks by a simple touch screen display.

Analogue Outputs: In the Hawk-Eye 800 Silver and Gold versions there are two isolated analogue outputs used to generate 4-20mA or 0-10V or 1-5V signals for control or retransmission of any of the inputs. When used with the PID controllers, these analogue outputs can each control a variable speed drive, saving a large portion of the energy bill of running a compressor or evaporator.

Alarms: Alarm states are also recorded. A complete log-file is maintained for all alarms including corrective actions. All records are date time stamped and all alarms trips and resets have user-defined scripts attached to them. The scripts automatically add full details of each alarm to the sent message. All monitored alarm conditions can be linked to any of the fitted relays which will activate if the linked alarm conditions exist. Each channel has two alarm points that can be set Low or High providing full configuration flexibility. Each alarm set-point can be set within the range of calibration and has fully adjustable dead-band and time delay (alarm must be continuously present for this time to trip alarm).

Alarms can also activate a siren relay and flashing light relay. In this case the siren is silenced by pressing a soft button on the touch screen which will de-energise the siren relay. The flashing light relay remains active until the alarm condition resets. Alarms can be automatically reset once the measured variable has moved away from the set-point in the safe direction by the amount of dead-band set. Alarms can also require manual reset when the alarm condition needs to be manually confirmed to be clear before a reset is allowed. The alarm reset is restricted to a supervisor or administrator level.

Alarm Emails and Reports. The Hawk-Eye 800 application software includes an SMTP server which will email alarms and reports. Any number of email recipients can be selected from the email recipient list for each alarm. Reports can be scheduled so that they will arrive by email on a regular basis without having to search for the information.

Remote Access: The Hawk-Eye 800 is supplied with Teamviewer. You can download Teamviewer free and access the unit from anywhere using your tablet or PC. All screens can be viewed as though the user is at the Hawk-Eye 800 itself and any adjustments made by people authorised to the required authority level

Uninterruptible Power: The HAWK-EYE 800 has a 24Vdc power input allowing it to be used in applications where 24Vdc power sources are present. It is supplied with a wall-mounted uninterruptible power supply rated at 24V dc 1.3A capable of running the complete system including transmitters for around 2 hours depending upon load. The input voltage is 190 – 260Vac.

*Wave Industries continues to improve and develop all products, therefore specifications may change without notice.

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