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Monitoring & Alarms

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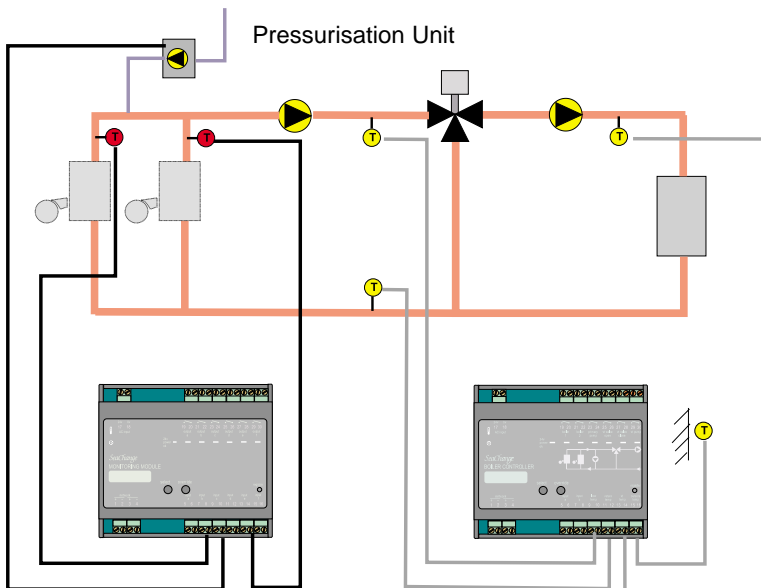
Monitoring & Alarms

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from Utility Meters	

Monitoring and Alarm Generation

Many systems require additional points to be monitored which are not otherwise used for control purposes. SeaChange Modules are optimised to contain inputs which are needed for control, and some common monitoring points. If either more extensive monitoring is required, or specific Alarm generation, a Monitoring Module is used.

Monitoring of Variables and Status Inputs



Monitoring Module monitors other inputs which are not essential for control, but are for display at a Supervisor or are used to generate Alarms

Boiler Controller monitors inputs which are essential to the control application

Two versions of Monitoring Module are available; one for Digital Inputs, to accept Volt Free Contacts or Thermistor Inputs from temperature sensors, the other is for 0-10V DC inputs from Pressure sensors, Humidity sensors etc or Volt-Free Contacts

Monitoring Modules may be used to monitor inputs - for display on a Doorway Supervisor, or to generate alarms, either locally using on-board relays, or for transmission on the network to an Alarm Module, Zone Controller or Doorway Supervisor.

Monitoring Modules can generate **System Stop Alarms**, which are sent to all modules and can be used to selectively shut down part or all of the system.

The Digital / 0-10V DC variant can also be used to collate temperatures and/or humidity values from up to 10 **Intelligent sensors or Zone Controllers** which are wired to the network, and registered to the Monitoring Module. The Module will calculate Maximum, Minimum or Average of the values, and then can either generate alarms for transmission on the network, or the values can be passed on to another Module.

An **AHU Controller** can use the values as Return Temperature and Humidity for Return Air Control; in this way, a number of sensors can be used to control a Return Air plant rather than just a single point measurement.

Types

- for monitoring temperatures using standard SeaChange **thermistor** sensors, use MON/DIN/6R/001.
- for monitoring **0-10V DC** signals, use MON/DIN/6R/002.
- for **Digital Status** monitoring from Volt-Free Contacts, use either /001 or /002 variant.
- for collation of Temperature/Humidity values from Intelligent Sensors use 0-10Volt /002 variant

Inputs

- both variants have **5 inputs** for monitoring, and one input for an alarm reset push button.

Outputs

- **5 relay outputs** are available for local Alarm Annunciation; a 6th output provides a common alarm output, which works in conjunction with the mute push button to annunciate and latch in new alarms on any of the inputs. The unit can latch the alarm so that it can be recognised and investigated even if it has subsequently cleared

Alarms

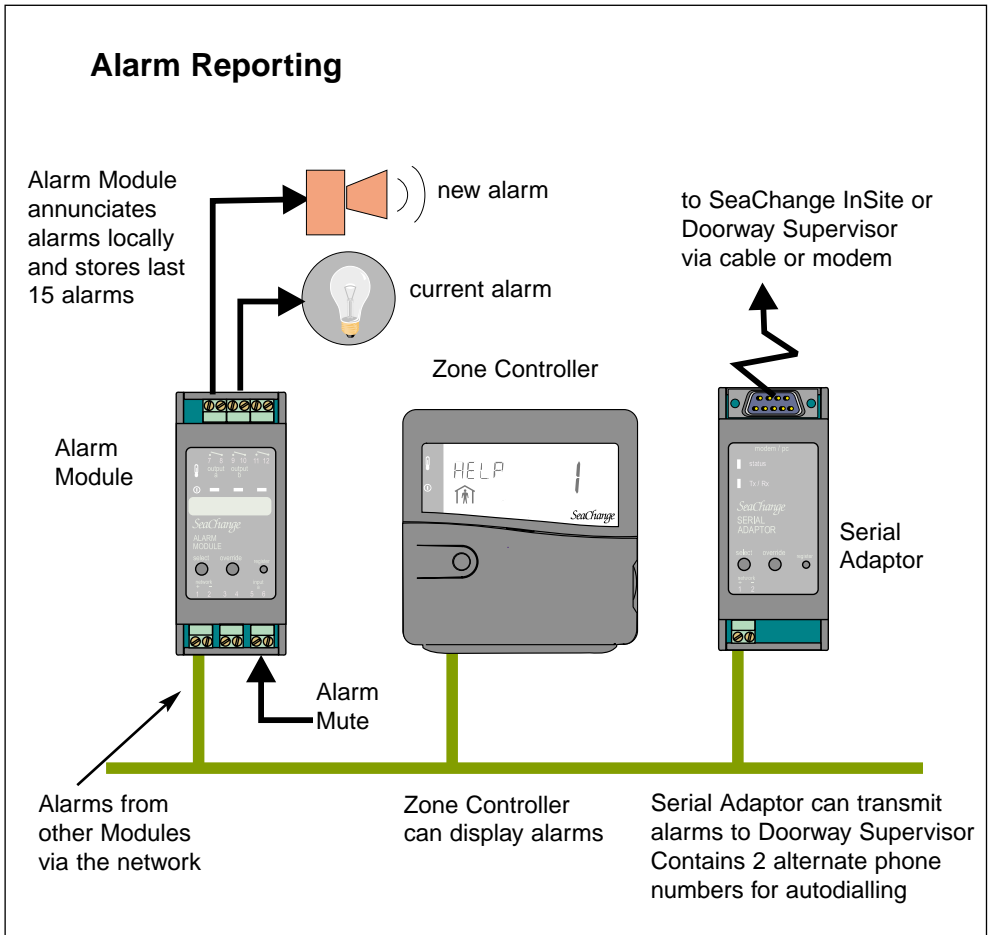
- any of the 5 input channels may be set to **generate alarms** for transmission on the network; Analogue channels can be set to report High, Low or faulty sensor alarms, whilst Digital channels report alarms on contact opening or closing, the sense can be determined by setting parameters. Set Grace Time on VFC inputs and Hysteresis on Temperature Inputs using CLDY and CHDY Parameters
- both variants can generate **System Stop alarms**, if an alarm condition occurs, either on just the first channel, or alternatively if an alarm occurs on any of the channels. System Stop alarms are used to shut down other modules e.g. shutting down pumps on receipt of a low pressure alarm. You can decide which modules shut down by setting their ALRM parameter accordingly.

Intelligent Sensors

- the /002 variant can **generate alarms** from the average, minimum or maximum of up to 10 **Intelligent Sensors**.
- **Intelligent Sensors** can be temperature or temperature and humidity
- the processed value - maximum, minimum or average, may be used by an **AHU Controller** as its Return Air Temperature or a Zone Controller as its remote PV

Alarm Reporting

Alarms can be generated by most SeaChange Modules, the function can be turned on and off by the Module's ALRM parameter. Alarms are sent onto the network, and can be received by other Modules. The receiving Module can either be used to display or annunciate the alarm to the building user or maintenance staff, or may be used to take some control action e.g. Shutting down fans.



3 different types of Module may be used to display or annunciate alarms:

The **Zone Controller** may be set to display alarms; by adjusting the AMON parameter, the Zone Controller may be set to display just its own alarms, or all alarms generated on the system. When an alarm occurs, the display will flash "HELP", alternating with the normal display, and will also indicate the number of alarms current in the system. When the alarms clear, a screwdriver symbol is left flashing on the display to indicate an alarm has occurred. This simple display is not intended for diagnostic purposes; it simply informs a non-technical user that they have an alarm in their system that needs investigation by a specialist.

The **Alarm Module** is DIN-rail mounting, and again can monitor network alarms, but it also does 2 other jobs; firstly, triac outputs can be used to drive external sounders or lamps to indicate both current and new alarms. A mute button can be wired to the module to acknowledge new alarms. The Alarm Module stores the last 15 alarm events, which can be viewed using a Zone Controller or Doorway Supervisor. The Alarm Module can provide **Alarm Filtering** so that it will only respond to alarms from certain types of module for example from AHU Controllers only

The **Serial Adaptor** monitors network alarms and reports them to a SeaChange Doorway Supervisor via its RS232 connection. The Serial Adaptor may be directly connected to the Supervisor, or may be connected to a modem. If remotely connected, the Serial Adaptor will automatically dial up the Supervisor to report the alarm; 2 alternative phone numbers can be entered into the Serial Adaptor. Once received at the Doorway Supervisor, the alarms are displayed, and may be printed, archived, or retransmitted to another Supervisor, radio pager, mobile phone, e-mail etc - see Doorway Data Sheet for full details.

Types

- for **simple user display**, use ZON/PTR/LCD/... and set AMON parameter to enable alarm monitoring.
- for **simple annunciation** and limited recording of alarms for diagnosis, use ALM/DIN/3T/001
- for **comprehensive alarm reporting and archiving**, use SLT/DIN/STD/001 connected to a Doorway Supervisor DRW/WIN.

Outputs

- **Alarm Module** has 2 Triac outputs; one indicates a new alarm, the second indicates an alarm is current in the system. The Mute push button will disable the new alarm output, a subsequent alarm will energise the output again. When all alarms are cleared, the current alarm output will turn off.

Inputs

- **Alarm Module** has an input for a Mute Push button, which must be a momentary-action Volt-Free contact.

Alarm Filtering

- the **Alarm Module** may be set to receive all network alarms, or just alarms from a certain type of Module e.g. only alarms from AHU Controllers. The filter may be set by adjusting the ALMF parameter.

Alarm Viewing

- the last 15 alarm events captured by the Alarm Module may be viewed on parameters in the Module, either using a Zone Controller or Doorway Supervisor - see Commissioning section 8 for details of how to view Configuration Parameters.
- The last 2 events could be displayed for an end user on a Zone Controller using User Display feature -see Commissioning section 8.

System Stop Alarms

- **System Stop Alarms** may be used to stop part, or all plant in a system. They can be generated by Boiler Controllers or Monitoring Modules, and are triggered using a Volt-Free Contact into one of these modules. Select which Modules will respond to the Stop Alarm, and which ones will ignore them, by setting the ALRM parameter in each Module accordingly.

Pulse Counting from Utility Meters

It is useful to read Utility Meters for Electricity, Gas, Water etc. in a control system because of its ability to collect data from remote locations, display the data, and make the data available for software-based energy analysis packages, billing systems etc.

