Installation Instructions for the Multilogic control box GOLD 04-120

1. General

Multilogic is a software solution integrated within the SuperWISE system. The function of Multilogic is to control multiple GOLD units as if they were one unit.

SuperWISE is the communication unit where all information, communications, control and calculations are compiled and presented in a web interface or via an external communication protocol.

Multilogic either can be activated as a part of a Wise system or it can be installed as stand-alone in other systems.

SuperWISE is available in 4 basic variants and Multilogic can be selected during configuration on any of them.

2. Application area

Multilogic is intended for DCV systems where the air flow is controlled according to the need in the building.

Multilogic replaces the IQlogic pressure control function in the GOLD units and becomes the pressure controller. The Multilogic controls the airflow in all units in order to maintain the setpoint for pressure.

Each GOLD unit is connected to a pressure sensor and the Multilogic reads the actual pressure from the GOLD units. The pressure sensors shall be placed at the same point in the duct system and should be positioned to allow the lowest possible setpoint pressure to minimise energy consumption.

Multilogic manages the start and stop sequence according to user pre-set rules and distributes the total airflow amongst the available units.

In WISE systems, Multilogic will also manage pressure optimisation and temperature optimisation.

The SuperWISE web interface helps users to use, maintain and optimise their Multilogic.

The interface and its different functions are described in the SuperWISE User manual

The SuperWISE Calendar function is available for use with Multilogic.

The GOLD units must be of the same type and must be configured in the same way.

Units must have dampers on all duct connections so that it can be isolated.

Each Multilogic group can control four GOLD units and a SuperWISE can have up to 12 Multilogic groups.

3. Installation

When the SuperWISE is configured with Multilogic, the Multilogic software is installed in the controller before delivery. See the installation instruction for SuperWISE for details regarding the physical installation of the cabinett etc.

4. Technical data

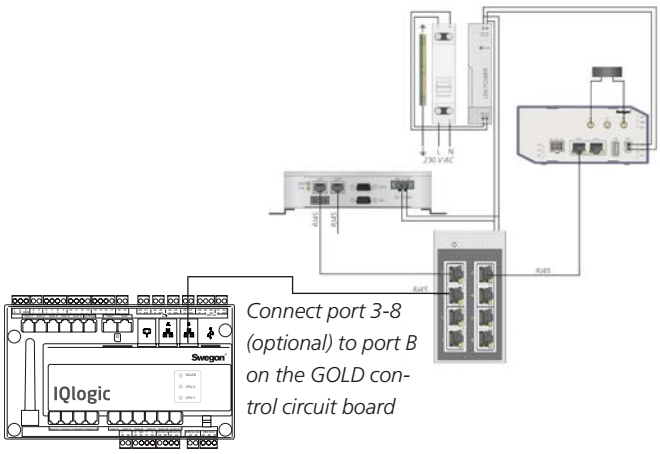
Material	Polycarbonate (PC)
Colour	RAL 7035 (Industrial grey)
Weight	6-8 kg
Dimensions	300 x 400 x 150/210 (WidthxHeightxDepth)

CE marked. See the SuperWISE documentation for full details.
A Declaration of Conformity is available on request or on our web site.

5. Electrical connections

Power supply 230V 10A

The GOLD units are connected from one of the ports 3-8 on the switch in the SuperWISE to connection port B on the IQlogic in the GOLD unit.



Connect port 3-8 (optional) to port B on the GOLD control circuit board

6. Commissioning

The GOLD units shall be commissioned in accordance with the relevant instructions.

The SuperWISE shall be commissioned in accordance with the relevant instructions.

The IQlogic controllers in the GOLD units must have unique fixed IP addresses.

Settings for Multilogic are described in section 7.

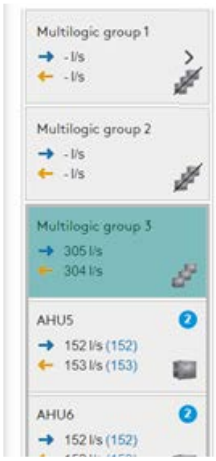
7. Description of functions

7.1 User interface

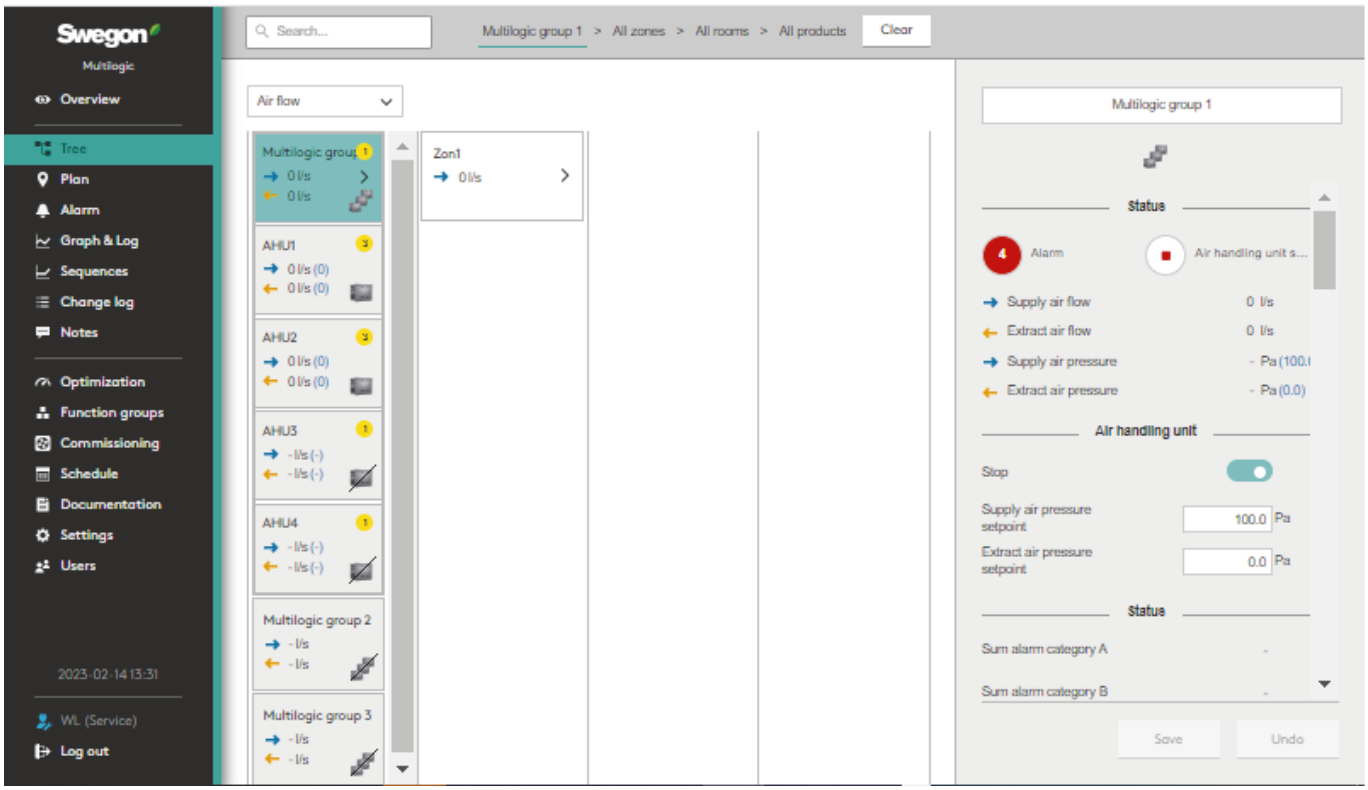
The user interface in "Tree" view shows the Multilogic groups and associated GOLD units.

Airflow and pressure is given for each of the units and the Multilogic group; which is the sum of the flows.

For information on the various SuperWISE functions, refer to SuperWISE documentation.

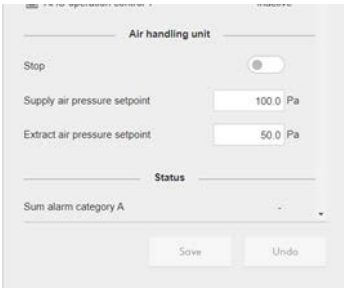


By clicking on a Mutilogic group the tree is opened up to see the units connected.
Operating status is indicated.



7.2 Stop button

Stop buttons are found on both the Multilogic and on individual units. When activated, the unit or units are put in stop mode.



7.3 Pressure set points

Here the set points for pressure are set and edited. Depending on the control mode selected, Multilogic will adjust the GOLD units to maintain the supply air pressure, extract air pressure or both.

Multilogic will use these setpoints unless pressure optimisation from the WISE system is activated.

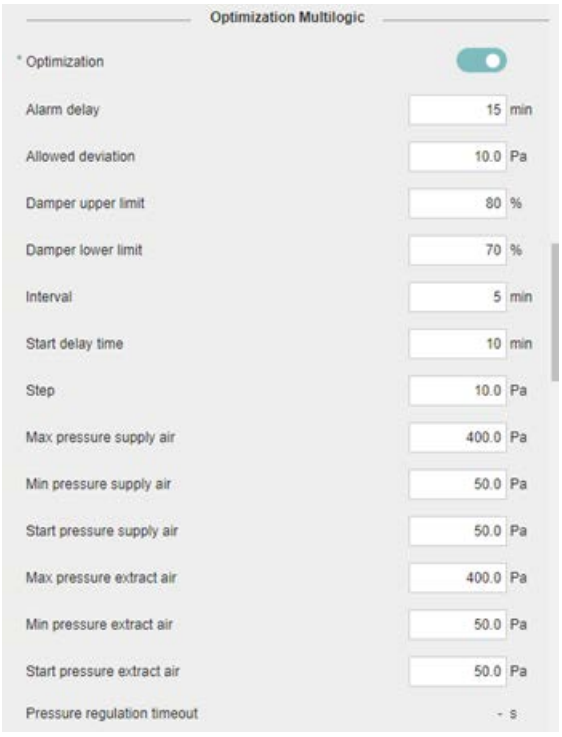
7.4 Temperature sensors

By activating Out temperature distribution, the outdoor temperature measured by a single sensor will be transmitted to all units.

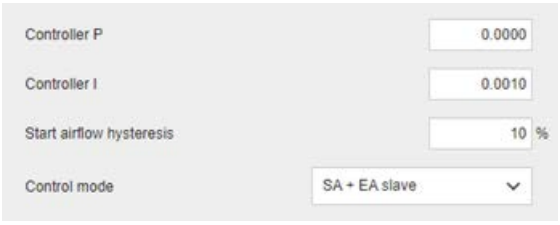
It is possible to control the supply air temperature based on the WISE room temperature sensors. For this to work the Room temperature for communication button must be activated.

7.5 Optimization

For applicable settings, see menu to the right.



7.6 Multilogic settings



Controller P (proportional) and Controller I (Integral) are preset and should normally not be changed. The values affect the response time and the stability of the pressure controller.

Start airflow hysteresis is a factor that determines the difference in airflow at which units are started and at which they are stopped.

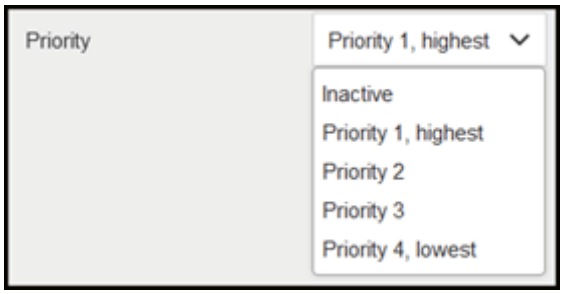
Multilogic is designed to minimise energy consumption and it does that by ensuring fans are running at the lowest possible speed to achieve the set point pressure.

Multilogic will stop units when the required airflow falls below the aggregated minimum airflow of the active units. The hysteresis prevents unwanted starting and stopping of units.

7.7 Control mode

The control mode of the fans can be set here. Multilogic supports supply air pressure control with extract slaved to the supply airflow or extract air pressure control with supply slaved to the supply airflow or both fans pressure controlled independently.

7.8 Unit operation priority



Here it is possible to decide in which order units shall be started. The unit with the highest priority will be started first. When Multilogic needs to start another unit it will select the one with the highest priority. Multilogic will ignore units with Inactive as priority.

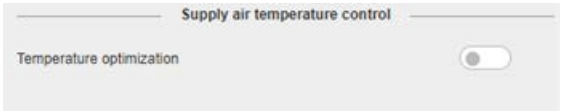
If several units have the same priority then Multilogic will start the unit that first connects.

If several units have the same priority then Multilogic will start the unit that has the lowest number of running hours if that option is chosen (not available in version 1.)

7.9 Flow Stabilization

During start up from complete stop, Multilogic has a stabilization period during which time WISE will not control any dampers. When Multilogic has seen stable conditions for 30 seconds, it sends a start signal to WISE.

7.10 Temperature regulation



The supply air temperature can either be controlled by the settings in the IQlogic controller via the IQnavigator or, if the Temperature optimisation option is activated then the supply air temperature will be controlled by the WISE system.

7.11 IQlogic Stop button

The IQlogic stop button on the IQnavigator has priority over the Multilogic so if the stop button is activated then that unit is no longer available for use by Multilogic. The same applies to the manual test function in the Navigator.

Multilogic will also disregard any units that are disconnected from the network or the power supply or any unit with a critical alarm.

7.12 Defrosting of heat recovery systems

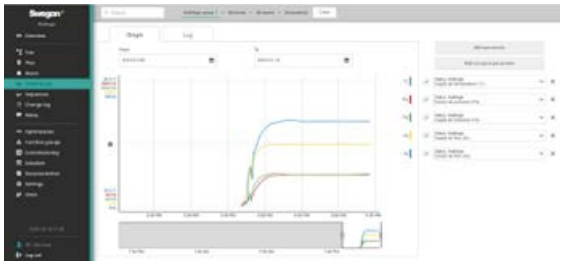
Where applicable, defrosting is controlled by the individual GOLD units

7.13 Fire mode

All units must have their fire mode configured in the same way and all units must be hard wired to any external fire alarm system. This means that all units will behave in the same way in the event of a fire. In the event of an internal fire alarm, Multilogic will put that unit in its preset fire mode and stop all other units.

7.14 Graph and log function

The SuperWISE user interface offers a graphical view of log data and it is also possible to download log data in csv format.



7.15 Multilogic specific Alarms

Alarms are transmitted from GOLD units to SuperWISE and can be seen in the Overview. Apart from the alarms from the GOLD and WISE systems, there are also some alarms related to the Multilogic system itself. These are listed in section 7.17.

7.16 Limitations in Version 1

Units must be of the same size. In future versions it is planned that different size units could be connected.

Duty share is not activated. Multilogic does log the run times of the fans but the functionality to select the unit with lowest running hours is not implemented.

7.17 Multilogic alarm list

Multilogic alarm list	Category	Time Delay	Description
AHU Disconnected Abruptly	A	Instant	The AHU gets disconnected from Multilogic randomly for reasons like network error etc. (This alarm is triggered if AHU is Active or started and loses connection abruptly)
IP address not entered	B	Instant	IP Address is not enter for the AHU that is part of the configuration.
Entered Manual Mode	I	Instant	Manual mode is turned on.
Critical GOLD Alarm	A	Instant	This is a GOLD alarm but controls MultiLogic. If a hard/ critical alarm is triggered in GOLD, it will remove the AHU from MultiLogic. (Eg. Fire Alarm)
SA Pressure Setpoint not reached. Control Dampers	A	30 mins	The pressure setpoint is not reached with all units working at max capacity. This could mean the dampers need a new position or setpoint should be reduced.
EA Pressure Setpoint not reached. Control Dampers	A	30 mins	The pressure setpoint is not reached with all units working at max capacity. This could mean the dampers need a new position or setpoint should be reduced.
SA Pressure Setpoint not reached. Activate more units	A	20 mins	The pressure setpoint is not reached with connected unit's full capacity but there are more units available to be used. Some units could be in Manual mode or inactive mode. This informs the user to activate the units to reach the required setpoint.
EA Pressure Setpoint not reached. Activate more units	A	20 mins	The pressure setpoint is not reached with connected unit's full capacity but there are more units available to be used. Some units could be in Manual mode or inactive mode. This informs the user to activate the units to reach the required setpoint.
SA Pressure Setpoint too low (Could be because another AHU is running in Manual mode/Alarm Stop mode or pressure setpoint is negative)	B	10 mins	The pressure is negative, or there is windmilling or a hurricane or any unexpected scenario
EA Pressure Setpoint too low (Could be because another AHU is running in Manual mode/Alarm Stop mode or pressure setpoint is negative)	B	10 mins	The pressure is negative, or there is windmilling or a hurricane or any unexpected scenario
SA Duct Module Error	A	Instant	The Duct Pressure Sensor is disconnected or has an error
EA Duct Module Error	A	Instant	The Duct Pressure Sensor is disconnected or has an error