

## ClimaSync Control System

### For Rooftop Packaged Units

Air Change Rooftop Packaged Units are available with the ClimaSync Control System, ensuring optimal performance and easy integration into any building or facility. The control logic and operational functions are tailored to meet the requirements of each project.



#### Communication

<b>HMI</b>	Touchscreen Human Machine Interfaces are available for unit operation and monitoring.
<b>HLI</b>	Modbus and BACnet protocols are available for unit operation and monitoring via High Level Interface.
<b>Online</b>	Available upon request.



#### Unit Start/Stop

<b>Remote Switch</b>	Unit run terminals are available for start/stop via external low level signal.
<b>HMI/HLI</b>	Unit start/stop can be achieved via the HMI or HLI.
<b>Time Scheduling</b>	Unit start/stop can be scheduled according to days of the week and time of the day.



#### Control Logic

<b>Cooling / Heating</b>	Compressors and reversing valve are controlled to meet the required room condition (adjustable setpoint).
<b>Proactive Thermostat</b>	Self-learning PID loop logic improves cooling/heating precision over typical reactive thermostats, along with minimising compressor off-cycling (inverter compressor option only).
<b>Supply / Exhaust Air Fans</b>	Integrated Constant Volume or Pressure Control. <ul style="list-style-type: none"> <li>Fan speed is modulated to maintain the required airflow volume or duct pressure (adjustable setpoint).</li> </ul>
<b>Operating Modes</b>	Various modes of operation can be incorporated into the unit control strategy. These may include: <ul style="list-style-type: none"> <li>Economy Cycle Mode - heat exchanger bypass for free cooling.</li> <li>CO2 Mode - modulating return air bypass with respect to CO2 levels.</li> <li>Early Morning Warm-Up - full return air bypass for expeditive warming.</li> </ul>



#### Monitoring

<b>Real-time Status</b>	Room temperature & humidity. Outside temperature & humidity. Supply temperature & humidity. Component status & speeds. Operating mode. Refrigeration pressures.
<b>Trend Lines</b>	Room temperature & humidity. Outside temperature & humidity. Supply temperature & humidity. Component speeds. Refrigeration pressures.
<b>Fault Alarms</b>	Low level alarm signals are available alongside HLI and HMI fault status.
<b>Alarm History</b>	A log of faults and when they occurred is available.



#### Sensors

<b>Temperature &amp; Humidity</b>	
<b>Outside Air</b>	Available with unit.
<b>Supply Air</b>	Available with unit.
<b>Room / Return Air</b>	Available with unit. Averaging logic is available for multiple room sensors.



#### Protection Logic

<b>Refrigeration Pressures</b>	Refrigeration pressures are modulated to stay within the acceptable envelope.
<b>Compressor Timing</b>	Compressor start/stop and speed are time managed in order to prevent damage.
<b>Compressor Lockout</b>	Compressor lockout occurs upon successive refrigeration faults in order to prevent lasting damage.
<b>Fault Impact Minimisation</b>	Where possible, remaining functionality will attempt to compensate for lost functionality upon fault.