ESIE11-06 Draft – water cooled and flooded units (troubleshooting)

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PART 1 – Flooded units (EWWD~H)

Unit Alarm

Error code:	**Phase voltage loss / GFP fault**	***UnitPVM/GFP Fault***
Purpose:	Prevent loose of phase or phases not in sequence	
Applicable models:	ALL (this part is standard installed on the unit)	
Detection method:	Reverse phase detector	
Action taken:	Alarm	Rapid Action taken
Error condition:	Loose of phase Phases not in correct sequence	
Possible causes	***Corrective action***	
Loose of one phase	Reconnect the loosen phase	
Phases inlet of unit not in sequence	Correct the sequence of the phases	
Reset:	Automatic reset	

Error code:	Phase voltage loss / GFP fault / Supply voltage out of range	***UnitPVM/GFP Fault***
Purpose:	Prevent loose of phase or phases not in sequence or supply voltage out of range	
Applicable models:	ALL (this part is optional)	
Detection method:	Reverse phase detector	
Action taken:	Alarm	Rapid Action taken
Error condition:	Loose of phase Phases not in correct sequence To big Voltage difference between Phases	
Possible causes	***Corrective action***	
Loose of one phase	Reconnect the loosen phase Correct the sequence of the phases	
Phases inlet of unit not in sequence.	Check the value of the power supply	
Reset:	Automatic reset after rectifying the fault.	

Error code:	**Evaporator flow loss**	***Evap Water Flow Loss***
Purpose:	Prevent evaporator freezing	
Applicable models:	ALL	
Detection method:	Flow switch	
Action taken:	Alarm	Rapid Action taken
Error condition:	Loose of water flow. Too less water flow	
Possible causes	***Corrective action***	
Electrical connections	Check electrical connections of the flow switch	
Air in the water circuit	Purge the water circuit to remove possible air in the system. Check operation of the water pump	
Paddle of the flow switch is blocked.	Recheck installation of the flow switch	
Flow switch is opening and closing	The flow switch must be regulated at 70 % of the nominal water flow. The flow switch must be installed into the horizontal water pipes. If this is not possible, the flow switch can be installed into the vertical pipes toward the rising water. The flow switch should be installed at least 5-fold pipe diameter from turbulence producing components such as elbows, valves, flaps etc.	
Flow switch remains open	Check flow switch Check if the water pump is operational	
Reset:	When the unit is in ON and pump is running the fault can be automatically be reset twice a day. The third time a manual reset is required. If the compressor is in operation a manual reset is required.	

Error code:	**Freeze up protection**	***Evap Water Freeze***
Purpose:	Prevent evaporator freezing	
Applicable models:	All	
Detection method:	Temperature sensor	
Action taken:	Alarm	Rapid Action taken
Error condition:	If the temperature of the entering or leaving water is below 2.2°C. For glycol applications the set point of the leaving water is lower.	
Possible causes	***Corrective action***	
Water flow too low	• Increase the water flow and check the pressure drop across the evaporator. Remark - The pressure drop is available in the installation and operation manual. - Acceptable delta T across the evaporator at 100% capacity must be between 3 and 8K.	
Unit operates in manual mode.	Program the unit in automatic mode	
Set point is too low.	Increase the set point of the leaving water or if glycol used, decrease the set point of the freeze up protection.	
Reset:	If the water temperature is above the minimum leaving water set point a manual reset is possible.	

Error code:	**Evaporator water flow inverted in Cooling mode**	***Evap Water Inverted***
Purpose:	Prevent evaporator freezing	
Applicable models:	All	
Detection method:	Leaving and Entering water temperature sensor	
Action taken:	Alarm	Pump-down of all circuits
Error condition:	• When the compressor is running for 30 seconds • and Entering water 1°C lower then leaving water temperature.	
Possible causes	***Corrective action***	
Inlet and outlet pipe reversed.	Swap the inlet and outlet water connection.	
Inlet and outlet sensor of the evaporator swapped	Swap the inlet and outlet water sensor.	
The water sensors are electrically swapped.	Reconnect the electrical connections of the water sensors.	
Deviation of outlet water sensor	Check resistance of sensor (procedure refer to page …)	
Deviation of inlet water sensor	Check resistance of sensor (procedure refer to page …)	
Reset:	After rectification of the problem the unit can be manually reset.	

Error code:	**Leaving evaporator water sensor fault**	***Evap LWT Sens Fault***
Purpose:	Protection of the evaporator	
Applicable models:	All	
Detection method:	Check resistance of sensor	
Action taken:	Alarm	Rapid Action taken
Error condition:	• Open circuit of the leaving water sensor • Closed circuit of the leaving water sensor.	
Possible causes	***Corrective action***	
defective sensors	Replace the sensor	
Reset:	This alarm can be cleared manually but only if the sensor is back in range.	

Error code:	**Emergency stop switch**	***Emergency Stop Switch***
Purpose:	To stop the unit immediately in case of problems.	
Applicable models:	All	
Detection method:	Check if switch is open	
Action taken:	Rapid stop Action taken	
Error condition:	• When compressor is running • When compressor is not running	
Possible causes	***Corrective action***	
Emergency buttom is pressed	Reset emergency buttom	
Reset:	This alarm can be cleared manually but only if the emergency switch is closed.	

Error code:	**External Alarm**	***External Alarm***
Purpose:	Field supplied	
Applicable models:	All	
Detection method:	Field supply	
Action taken:	Rapid stop of all circuits.	
Error condition:	• External Alarm/Event input is open for at least 5 sec and external fault input is configured as an alarm	
Possible causes	***Corrective action***	
Field supply		
Reset:	Auto clear when digital input is closed.	

Error code:	**Entering evaporator sensor fault**	***Evap EWT Sens Fault***
Purpose:	detect a malfunctioning sensor	
Applicable models:	All	
Detection method:	Check resistance of sensor	
Action taken:	N/A	
Error condition:	• Open circuit of the evaporator sensor • Closed circuit of the evaporator sensor.	
Possible causes	***Corrective action***	
Incorrect sensor	Replace the sensor	
Reset:	Return water reset cannot be used. Auto reset when sensor is again in range	

Error code:	**Condenser Water Freeze Protect**	***Cond Water Freeze***
Purpose:		
Applicable models:	All	
Detection method:	Leaving or Entering water temperature sensor	
Action taken:	Rapid shut down if the unit is in operation	
Error condition:	If the water temperature is below the minimum leaving water set point + 0.6°C The set point of minimum leaving water depends on the requested set point of the chilled water.	
Possible causes	***Corrective action***	
Ambient temperature too low	Only if unit is not operational	
Set point of unit too low	Increase the set point of the unit	
Sensor is measuring incorrect	Replace sensor	
Reset:	Return water reset cannot be used. Auto reset when sensor is again in range	

Error code:	**Condenser water flow inverted in Cooling mode**	***Cond Water Inverted***
Purpose:	Prevent condenser freezing	
Applicable models:	All	
Detection method:	Leaving and Entering water temperature sensor	
Action taken:	Alarm	Pump-down of all circuits
Error condition:	• When the compressor is running for 30 seconds • and Entering water 1°C lower then leaving water temperature.	
Possible causes	***Corrective action***	
Inlet and outlet pipe reversed.	Swap the inlet and outlet water connection.	
Inlet and outlet sensor of the evaporator swapped	Swap the inlet and outlet water sensor.	
The water sensors are electrically swapped.	Reconnect the electrical connections of the water sensors.	
Deviation of outlet water sensor	Check resistance of sensor (procedure refer to page …)	
Deviation of inlet water sensor	Check resistance of sensor (procedure refer to page …)	
Reset:	After rectification of the problem the unit can be manually reset.	

Error code:	**Leaving condenser water temperature sensor fault**	***Cond LWT Sens Fault***
Purpose:	detect a malfunctioning sensor	
Applicable models:	All	
Detection method:	Check resistance of sensor	
Action taken:	N/A	
Error condition:	• Open circuit of the condenser sensor • Closed circuit of the condenser sensor.	
Possible causes	***Corrective action***	
Incorrect sensor	Replace the sensor	
Reset:	Auto reset when sensor is again in range	

Error code:	**Entering condenser water temperature sensor fault**	***Cond EWT Sens Fault***
Purpose:	detect a malfunctioning sensor	
Applicable models:	All	
Detection method:	Check resistance of sensor	
Action taken:	N/A	
Error condition:	• Open circuit of the condenser sensor • Closed circuit of the condenser sensor.	
Possible causes	***Corrective action***	
Incorrect sensor	Replace the sensor	
Reset:	Auto reset when sensor is again in range	

Error code:	**Evaporator Pressure Sensor Fault**	**EvapPressSensFault**
Purpose:	Detect a faulty sensor	
Applicable models:	All	
Detection method:	The sensor is shorted or open	
Action taken:	Rapid stop circuit	
Error condition:	When sensor is shorted or open, the alarm should be triggered	
Possible causes	***Corrective action***	
Loose connection	Check for loose wires	
Incorrect Pressure sensor	Replace sensor (procedure how to check sensor, refer to ….)	
Reset:	This alarm can be cleared manually via the keypad, but only if the sensor is back in range.	

Error code:	**Condenser Pressure Sensor Fault**	**CondPressSensFault**
Purpose:	detect malfunctioning sensor	
Applicable models:	All	
Detection method:	The sensor is shorted or open	
Action taken:	Rapid stop circuit	
Error condition:	• When sensor is shorted or open, the alarm should be triggered	
Possible causes	***Corrective action***	
Loose connection	Check for loose wires	
Incorrect Pressure sensor	Replace sensor (procedure how to check sensor, refer to ….)	
Reset:	This alarm can be cleared manually via the keypad, but only if the sensor is back in range.	

Error code:	**Condenser flow loss**	***Cond Water Flow Loss***
Purpose:	Prevent high pressure activation	
Applicable models:	ALL	
Detection method:	Flow switch	
Action taken:	Rapid stop unit	
Error condition:	Loose of water flow. Too less water flow	
Possible causes	***Corrective action***	
Electrical connections	Check electrical connections of the flow switch	
Air in the water circuit	Purge the water circuit to remove possible air in the system. Check operation of the water pump	
Paddle of the flow switch is blocked.	Recheck installation of the flow switch	
Flow switch is opening and closing	The flow switch must be regulated at 70 % of the nominal water flow. The flow switch must be installed into the horizontal water pipes. If this is not possible, the flow switch can be installed into the vertical pipes toward the rising water. The flow switch should be installed at least 5-fold pipe diameter from turbulence producing components such as elbows, valves, flaps etc.	
Flow switch remains open	Check flow switch Check if the water pump is operational	
Reset:	When the unit is in ON and pump is running the fault can be automatically be reset twice a day. The third time a manual reset is required. If the compressor is in operation a manual reset is required.	

Error code:	**Low Evaporator Pressure**	***Evap Press Low***
Purpose:	Detect failure of malfunction of the setpoint override input	
Applicable models:	All	
Action taken:	Rapid stop circuit	
Error condition:	• [Freezestat trip AND Circuit State = Run] OR Evaporator Press < - 0.689 bar. • Freezestat logic allows the circuit to run for varying times at low pressures. The lower the pressure, the shorter the time the compressor can run. This time is calculated as follows: • Freeze error = Low Evaporator Pressure Unload – Evaporator Pressure • Freeze time = 70 – 6.25 x freeze error, limited to a range of 20-70 seconds • When the evaporator pressure goes below the Low Evaporator Pressure Unload set point, a timer starts. If this timer exceeds the freeze time, then a freezestat trip occurs. If the evaporator pressure rises to the unload set point or higher, and the freeze time has not been exceeded, the timer will reset. • The alarm cannot trigger if the evaporator pressure sensor fault is active.	
Possible causes	***Corrective action***	
To less refrigerant	Check the units for leaks and trim charge the unit	
Low pressure transducer is defect	Replace pressure transducer (procedure how to check refer to appendix…)	
Reset:	The alarm is cleared manually if the evaporator pressure is above 0.689 bar.	

Error code:	**No Pressure Change After Start**	***No PressChgAStrt***
Purpose:	to see if there is pressure build up	
Applicable models:	All	
Detection method:	Pressure sensors	
Action taken:	Rapid stop circuit	
Error condition:	• After start of compressor there isn't a 0.068 bar drop in evaporator pressure • OR There hasn't been a 0.3445 bar increase in condenser pressure • If not after 15 seconds error	
Possible causes	***Corrective action***	
Reset:	This alarm can be cleared manually via the Unit Controller keypad or via BAS command..	

Description / Error code:	**Power Loss While Running**	**C#PwrLossRun**
Purpose:		
Applicable models:	All	
Detection method:	Power loss when running the controller	
Shutdown:	N/A	
Error condition:	• Circuit controller is powered up after losing power while compressor was running	
Possible causes	Corrective action	
Reset:	N/A	

Unit Event

Error code:	**Low Evaporator Pressure – Hold**	***EvapPressLowHold***
Purpose:	Hold the pressure of the evaporator	
Applicable models:	All	
Detection method:	Low pressure transducer	
Action taken:	Inhibit loading.	
Event condition:	• This event is not enabled until the circuit start up is complete and the unit mode is Cool or Glycol mode. • while running, • The evaporator pressure <= Low Evaporator Pressure hold	
Possible causes	***Corrective action***	
Incorrect refrigerant charge	Adjust refrigerant charge	
Low pressure transducer measuring incorrect	Calibrate sensor or replace (procedure how to check refer to appendix…) If transducer is measuring incorrect, this has an influence on the Exp. Valve which result in a low pressure which can be too low	
Suction sensor measuring incorrect	If sensor is measuring incorrect, this has an influence on the Exp. Valve which result in a low pressure which can be too low	
Expansion valve stay in a fixed position	When the expansion cannot regulate, it could be that under certain conditions the low pressure hold is activated.	
Reset:	While still running, the event will be reset if evaporator pressure > (Low Evaporator Pressure Hold SP + 2psi). The event is also reset if the unit mode is switched to Ice, or the circuit is no longer in the run state.	

Error code:	**Low Evaporator Pressure – Unload**	***EvapPressLowUnload***
Purpose:	Decrease the pressure of the evaporator	
Applicable models:	All	
Detection method:	Low pressure transducer	
Action taken:	unloading.	
Event condition:	• This event is not enabled until the circuit start up is complete and the unit mode is Cool or Glycol mode. • Then, while running, if evaporator pressure <= Low Evaporator Pressure Unload. • Unload the compressor by decreasing the capacity by one step every 5 seconds until the evaporator pressure rises above the Low Evaporator Pressure Unload set point.	
Possible causes	***Corrective action***	
Incorrect refrigerant charge	Adjust refrigerant charge	
Low pressure transducer measuring incorrect	Calibrate sensor or replace (procedure how to check refer to appendix…) If transducer is measuring incorrect, this has an influence on the Exp. Valve which result in a low pressure which can be too low	
Suction sensor measuring incorrect	If sensor is measuring incorrect, this has an influence on the Exp. Valve which result in a low pressure which can be too low	
Expansion valve stay in a fixed position	When the expansion cannot regulate, it could be that under certain conditions the low pressure hold is activated.	
Reset:	While still running, the event will be reset if evaporator pressure > (Low Evaporator Pressure Hold SP + 2psi). The event is also reset if the unit mode is switched to Ice, or the circuit is no longer in the run state.	

Error code:	**High Condenser Pressure – Hold**	***CondPressHighHold***
Purpose:	Hold the pressure of the Condenser	
Applicable models:	All	
Detection method:	High pressure transducer	
Action taken:	Inhibit loading.	
Event condition:	• This event is not enabled until the circuit start up is complete and the unit mode is Cool or Glycol mode. • while running, • The Condenser pressure >= high condenser Pressure high.	
Possible causes	***Corrective action***	
Water flow through condenser too low	Increase water flow	
3 way valve condenser side	Check condenser set point. Check operation of 3 – way valve	
Cooling tower	Check condenser set point Check if the fan control is working correctly	
High pressure transmitter not working correctly	Calibrate sensor or replace (procedure how to check refer to appendix…)	
Reset:	While still running, the event will be reset if condenser pressure < (High Saturated Condenser Hold Value – 12K). The event is also reset if the unit mode is switched to Ice, or the circuit is no longer running.	

Error code:	**High Condenser Pressure – Unload**	***CondPressHighUnload***
Purpose:	Unload the pressure of the condenser	
Applicable models:	All	
Detection method:	High pressure transmitter	
Action taken:	unloading.	
Event condition:	• This event is not enabled until the circuit start up is complete and the unit mode is Cool or Glycol mode. • Unload the compressor by decreasing the capacity by one step every 5 seconds until the evaporator pressure rises above the High Condensing Pressure Unload set point.	
Possible causes	***Corrective action***	
Water flow through condenser too low	Increase water flow	
3 way valve condenser side	Check condenser set point. Check operation of 3 – way valve	
Cooling tower	Check condenser set point Check if the fan control is working correctly	
High pressure transmitter not working correctly	Calibrate sensor or replace (procedure how to check refer to appendix…)	
Reset:	While still running, the event will be reset if saturated condenser temperature < (High Saturated Condenser Unload Value – 12K). The event is also reset if the unit mode is switched to Ice, or the circuit is no longer in the run state.	

Error code:	**External Event**	***External Event***
Purpose:	To indicate on the control if there is an external event	
Applicable models:	All	
Detection method:		
Action taken:	N/A	
Error condition:	• External event	
Possible causes	Corrective action	
Reset:	N/A	

Compressor alarm

Error code:	**Mechanical Low Pressure Switch**	**Mech Low Pressure Sw N**
Purpose:	To protect the unit of too low pressure	
Applicable models:	All	
Detection method:	• Mechanical Low Pressure switch input is low	
Action taken:	Rapid stop compressor	
Error condition:		
Possible causes	***Corrective action***	
Incorrect refrigerant charge	Adjust refrigerant charge	
Low pressure sensor measuring incorrect	Calibrate sensor or replace (procedure how to check refer to appendix…) If transducer is measuring incorrect, this has an influence on the Exp. Valve which result in a low pressure which can be too low	
Suction sensor measuring incorrect	If sensor is measuring incorrect, this has an influence on the Exp. Valve which result in a low pressure which can be too low. (procedure how to check refer to appendix…)	
Expansion valve stay in a fixed position	When the expansion cannot regulate, it could be that under certain conditions the low pressure hold is activated.	
Mechanical low pressure switch defect	Replace low pressure switch	
Reset:	This alarm can be cleared manually via the Unit Controller keypad if the MHP switch input is high.	

Error code:	**Low Pressure Ratio**	***Low Pressure Ratio N***
Purpose:	To avoid bad oil circulation in the compressor.	
Applicable models:	All	
Detection method:	Low and High Pressure sensor	
Action taken:	Normal shutdown of the compressor	
Error condition:	• Pressure ratio < calculated limit for a time > Low Pressure Ratio Delay set point after circuit start-up has completed. The calculated limit will vary from 1.4 to 1.8 as the compressor's capacity varies from 25% to 100%.	
Possible causes	***Corrective action***	
Deviation of pressure transducer(s) Too low condensing pressure	Replace the pressure transducer which has the deviation Check if the condensing set point is not too low. Check if the water flow through the condenser is not too high.	
Unit is operating out of the operating limits	Operate the unit in the operation limits	
Reset:	alarm can be cleared manually via the Unit Controller keypad or via BAS command	

Error code:	**Mechanical High Pressure Switch**	***Mech High Pressure SW N***
Purpose:	To protect the unit of too high pressure	
Applicable models:	All	
Detection method:	• Mechanical High Pressure switch input is low • AND Emergency Stop Alarm is not active. (opening emergency stop switch kills power to MHP switches)	
Action taken:	Rapid stop compressor	
Error condition:		
Possible causes	***Corrective action***	
Water flow through water condenser too low	Increase water flow through condenser	
Dirty water condenser	Clean the heat exchanger	
High pressure transmitter is measuring incorrect	Calibrate sensor or replace (procedure how to check refer to appendix…)	
Mechanical high pressure switch damaged	Replace high pressure switch	
Reset:	This alarm can be cleared manually via the Unit Controller keypad if the MHP switch input is high.	

Error code:	**High Discharge Temperature**	***Disc Temp High N***
Purpose:	To protect the unit of too high Discharge temperature	
Applicable models:	All	
Detection method:	Discharge Temperature > High Discharge Temperature set point	
Action taken:	Rapid stop compressor	
Error condition:	• Discharge Temperature > High Discharge Temperature set point • AND compressor is running. • Alarm cannot trigger if temperature sensor fault is active.	
Possible causes	***Corrective action***	
Refrigerant leak	Repair the leak.	
No liquid injection	Check electrical coil of the liquid injection. Check if the output of the controller gives the signal for the injection. Check body of the liquid injection valve.	
Discharge sensor measuring incorrect	Calibrate sensor or replace (procedure how to check refer to appendix…)	
Compressor operates for a long time in low capacity out of the operating limits	Check and adjust the operating conditions of the unit.	
Reset:	This alarm can be cleared manually via the Unit Controller keypad or via BAS command .	

Error code:	**High Oil Pressure Difference**	***Oil Pres Diff High N***
Purpose:	To avoid compressor breakdown due to bad oil lubrication	
Applicable models:	All	
Detection method:	Oil pressure transmitter	
Action taken:	Rapid stop compressor	
Error condition:	• Oil Pressure Differential > High Oil Pressure Differential set point(2.5 bar) for a time greater than Oil Pressure Differential Delay	
Possible causes	***Corrective action***	
Oil filter is partly blocked	Replace oil filter	
Reset:	This alarm can be cleared manually via the Unit Controller keypad or via BAS command .	

Error code:	**High Motor Temperature**	Motor Temp High
Purpose:	To protect the motor of too high temperatures	
Applicable models:	All	
Detection method:	Sensor inside the motor windings	
Action taken:	Rapid stop compressor	
Error condition:	• Input value for the motor temperature is 4500 ohms or higher.	
Possible causes	***Corrective action***	
Refrigerant leak	Repair the leak.	
No liquid injection	Check electrical coil of the liquid injection. Check if the output of the controller gives the signal for the injection. Check body of the liquid injection valve.	
Discharge sensor measuring incorrect	Calibrate sensor or replace (procedure how to check refer to appendix…)	
Compressor operates for a long time in low capacity out of the operating limits	Check and adjust the operating conditions of the unit.	
Reset:	This alarm can be cleared manually via the Unit Controller keypad after input value for motor temperature has been 200 ohms or less for at least 5 minutes.	

Error code:	**CC Comm Failure N Circuit Fault**	**CC Comm Fail N**
Purpose:	Indicate communication loss	
Applicable models:	All	
Detection method:	No communication response from the CC module	
Action taken:	Rapid stop of affected compressor	
Error condition:	• Communication with the compressor or EXV I/O extension module has failed.	
Possible causes	***Corrective action***	
Loose wire	Check the bus system for loose wires Loose connection Distortion on the bus system	
Incorrect addressing of the modules	Refer to section … for the correct addressing of the different modules	
Reset:	This alarm can be cleared manually via the keypad or via BAS command when communication between main controller and the extension module is working for 5 seconds.	

Error code:	**EEXV Comm Failure**	**EEXV Comm Fail N**
Purpose:	Indicate communication loss	
Applicable models:	All	
Detection method:	No communication response from the CC module	
Action taken:	Rapid stop of affected compressor	
Error condition:	• Communication with the compressor or EXV I/O extension module has failed.	
Possible causes	***Corrective action***	
Loose wire	Check the bus system for loose wires Loose connection Distortion on the bus system	
Incorrect addressing of the modules	Refer to section … for the correct addressing of the different modules	
Reset:	This alarm can be cleared manually via the keypad or via BAS command when communication between main controller and the extension module is working for 5 seconds.	

Error code:	**Oil Pressure Sensor Fault**	**OilPressSensFault N**
Purpose:	Detect malfunctioning sensor	
Applicable models:	All	
Detection method:	Oil pressure transmitter	
Action taken:	Rapid stop compressor	
Error condition:	When sensor is shorted or open, the alarm should be triggered	
Possible causes	***Corrective action***	
Loose connection	Check for loose wires	
Faulty transmitter	Replace transmitter	
Reset:	This alarm can be cleared manually via the keypad, but only if the sensor is back in range.	

Error code:	**Suction Temperature Sensor Fault**	**SuctTempSensFault N**
Purpose:	Detecting malfunctioning sensor	
Applicable models:	All	
Detection method:	Suction sensor	
Action taken:	Normal shutdown of compressor	
Error condition:	• When sensor is shorted or open, the alarm should be triggered	
Possible causes	***Corrective action***	
Loose connection	Check for loose wires	
Broken suction sensor	Replace sensor	
Reset:	This alarm can be cleared manually via the keypad, but only if the sensor is back in range.	

Error code:	**Discharge Temperature Sensor Fault**	**DiscTempSensFault N**
Purpose:	Detecting malfunctioning sensor	
Applicable models:	All	
Detection method:	Discharge sensor	
Action taken:	Normal shutdown of compressor	
Error condition:	• When sensor is shorted or open, the alarm should be triggered	
Possible causes	***Corrective action***	
Loose connection	Check for loose wires	
Broken discharge sensor	Replace sensor	
Reset:	This alarm can be cleared manually via the keypad, but only if the sensor is back in range.	

Error code:	**Motor temperature sensor fault**	**MotorTempSensFault N**
Purpose:	Detecting malfunctioning sensor	
Applicable models:	All	
Detection method:	Sensor inside winding of compressor	
Action taken:	Rapid shutdown of compressor	
Error condition:	• When sensor is shorted or open, the alarm should be triggered	
Possible causes	***Corrective action***	
Loose connection	Check for loose wires	
Reset:	This alarm can be cleared manually via the keypad, but only if the sensor is back in range.	

Error code:	**Compressor Starter Fault**	***C#Cmp1 OffStarterFlt***
Purpose:		
Applicable models:	All	
Detection method:		
Action taken:	Rapid stop circuit	
Error condition:	• If PVM set point = None(SSS): any time starter fault input is open • If PVM set point = Single Point or Multi Point: compressor has been running for at least 14 seconds and starter fault input is open	
Possible causes	***Corrective action***	
Reset:	This alarm can be cleared manually via the Unit Controller keypad or via BAS command .	

Error code:	**No Pressure At Startup**	
Purpose:		
Applicable models:		
Detection method:	To low pressures	
Action taken:	Rapid stop circuit	
Error condition:	• Evap Pressure < 35 KPA • OR Cond Pressure < 35 KPA • And Compressor starts	
Possible causes	***Corrective action***	
Leak		
Reset:	This alarm can be cleared manually via the Unit Controller keypad or via BAS command	

Circuit events

Error code:	**Power loss while running**	***Run Power Loss Cir N***
Purpose:	Compressor is powered up after losing power while compressor is running	
Applicable models:	All	
Detection method:		
Action taken:	N/A	
Error condition:	N/A	
Possible causes	***Corrective action***	
Reset:	N/A	

PART 2 – Water cooled units (EWWD~G / EWLD~G / EWWD~I / EWLD~I / EWWD~J / EWLD~J / EWWQ~B)

Unit Alarm

Description / Error code:	Phase voltage loss / GFP fault	*UnitOffPhaseVoltage*
Purpose:	Prevent loose of phase or phases not in sequence	
Applicable models:	ALL (this part is standard installed on the unit)	
Detection method:	Reverse phase detector	
Shutdown:	Alarm	Rapid shutdown
Error condition:	Loose of phase Phases not in correct sequence	
Possible causes	***Corrective action***	
Loose of one phase	Reconnect the loosen phase	
Phases inlet of unit not in sequence	Correct the sequence of the phases	
Reset:	Automatic reset	

Description / Error code:	Phase voltage loss / GFP fault / Supply voltage out of range	*UnitOffPhaseVoltage*
Purpose:	Prevent loose of phase or phases not in sequence or supply voltage out of range	
Applicable models:	ALL (this part is optional)	
Detection method:	Reverse phase detector	
Shutdown:	Alarm	Rapid shutdown
Error condition:	Loose of phase Phases not in correct sequence To big Voltage difference between Phases	
Possible causes	***Corrective action***	
Loose of one phase	Reconnect the loosen phase Correct the sequence of the phases	
Phases inlet of unit not in sequence.	Check the value of the power supply	
Reset:	Automatic reset after rectifying the fault.	

Description / Error code:	**Evaporator flow loss**	***UnitOff EvapWaterFlow***
Purpose:	Prevent evaporator freezing	
Applicable models:	ALL	
Detection method:	Flow switch	
Shutdown:	Alarm	Rapid shutdown
Error condition:	Loose of water flow. Too less water flow	
Possible causes	***Corrective action***	
Electrical connections	Check electrical connections of the flow switch	
Air in the water circuit	Purge the water circuit to remove possible air in the system. Check operation of the water pump	
Paddle of the flow switch is blocked.	Recheck installation of the flow switch	
Flow switch is opening and closing	The flow switch must be regulated at 70 % of the nominal water flow. The flow switch must be installed into the horizontal water pipes. If this is not possible, the flow switch can be installed into the vertical pipes toward the rising water. The flow switch should be installed at least 5-fold pipe diameter from turbulence producing components such as elbows, valves, flaps etc.	
Flow switch remains open	Check flow switch Check if the water pump is operational	
Reset:	When the unit is in ON and pump is running the fault can be automatically be reset twice a day. The third time a manual reset is required. If the compressor is in operation a manual reset is required.	

Description / Error code:	**Freeze up protection**	***UnitOffEvapWaterTmplo***
Purpose:	Prevent evaporator freezing	
Applicable models:	all	
Detection method:	Temperature sensor	
Shutdown:	Alarm	Rapid shutdown
Error condition:	If the temperature of the entering or leaving water is below 2.2°C. For glycol applications the set point of the leaving water is lower.	
Possible causes	***Corrective action***	
Water flow too low	• Increase the water flow and check the pressure drop across the evaporator. Remark - The pressure drop is available in the installation and operation manual. - Acceptable delta T across the evaporator at 100% capacity must be between 3 and 8K.	
Unit operates in manual mode.	Program the unit in automatic mode	
Set point is too low.	Increase the set point of the leaving water or if glycol used, decrease the set point of the freeze up protection.	
Reset:	If the water temperature is above the minimum leaving water set point a manual reset is possible.	

Description / Error code:	**Evaporator water flow inverted in Cooling mode**	***UnitOffEvpWTempInvrtd***
Purpose:	Prevent evaporator freezing	
Applicable models:	All	
Detection method:	Leaving and Entering water temperature sensor	
Shutdown:	Alarm	Pump-down of all circuits
Error condition:	• When the compressor is running for 30 seconds • and Entering water 1°C lower then leaving water temperature.	
Possible causes	***Corrective action***	
Inlet and outlet pipe reversed.	Swap the inlet and outlet water connection.	
Inlet and outlet sensor of the evaporator swapped	Swap the inlet and outlet water sensor.	
The water sensors are electrically swapped.	Reconnect the electrical connections of the water sensors.	
Deviation of outlet water sensor	Check resistance of sensor (procedure refer to page …)	
Deviation of inlet water sensor	Check resistance of sensor (procedure refer to page …)	
Reset:	After rectification of the problem the unit can be manually reset.	

Description / Error code:	**Leaving evaporator water sensor fault**	***UnitOffEvpLvgWTemp***
Purpose:	Protection of the evaporator	
Applicable models:	All	
Detection method:	Check resistance of sensor	
Shutdown:	Alarm	Rapid shutdown
Error condition:	• Open circuit of the leaving water sensor • Closed circuit of the leaving water sensor.	
Possible causes	***Corrective action***	
defective sensors	Replace the sensor	
Reset:	This alarm can be cleared manually but only if the sensor is back in range.	

Error code:	**Condenser Water Freeze Protect**	***Cond Water Freeze***
Purpose:		
Applicable models:	All	
Detection method:	Leaving or Entering water temperature sensor	
Action taken:	Rapid shut down if the unit is in operation No action only alarm indication.	
Error condition:	If the water temperature is below the minimum leaving water set point + 0.6°C The set point of minimum leaving water depends on the requested set point of the chilled water.	
Possible causes	***Corrective action***	
Ambient temperature too low	Only if unit is not operational	
Set point of unit too low	Increase the set point of the unit	
Sensor is measuring incorrect	Replace sensor	
Reset:	Return water reset cannot be used. Auto reset when sensor is again in range	

Error code:	**Condenser water flow inverted in Cooling mode**	***Cond Water Inverted***
Purpose:	Prevent condenser freezing	
Applicable models:	All	
Detection method:	Leaving and Entering water temperature sensor	
Action taken:	Alarm	Pump-down of all circuits
Error condition:	• When the compressor is running for 30 seconds • and Entering water 1°C lower then leaving water temperature.	
Possible causes	***Corrective action***	
Inlet and outlet pipe reversed.	Swap the inlet and outlet water connection.	
Inlet and outlet sensor of the evaporator swapped	Swap the inlet and outlet water sensor.	
The water sensors are electrically swapped.	Reconnect the electrical connections of the water sensors.	
Deviation of outlet water sensor	Check resistance of sensor (procedure refer to page …)	
Deviation of inlet water sensor	Check resistance of sensor (procedure refer to page …)	
Reset:	After rectification of the problem the unit can be manually reset.	

Error code:	**Leaving condenser water temperature sensor fault**	***Cond LWT Sens Fault***
Purpose:	detect a malfunctioning sensor	
Applicable models:	All	
Detection method:	Check resistance of sensor	
Action taken:	N/A	
Error condition:	• Open circuit of the condenser sensor • Closed circuit of the condenser sensor.	
Possible causes	***Corrective action***	
Incorrect sensor	Replace the sensor	
Reset:	Auto reset when sensor is again in range	

Error code:	**Entering condenser water temperature sensor fault**	***Cond EWT Sens Fault***
Purpose:	detect a malfunctioning sensor	
Applicable models:	All	
Detection method:	Check resistance of sensor	
Action taken:	N/A	
Error condition:	• Open circuit of the condenser sensor • Closed circuit of the condenser sensor.	
Possible causes	***Corrective action***	
Incorrect sensor	Replace the sensor	
Reset:	Auto reset when sensor is again in range	

Error code:	**Condenser flow loss**	***Cond Water Flow Loss***
Purpose:	Prevent high pressure activation	
Applicable models:	ALL	
Detection method:	Flow switch	
Action taken:	Rapid stop unit	
Error condition:	Loose of water flow. Too less water flow	
Possible causes	***Corrective action***	
Electrical connections	Check electrical connections of the flow switch	
Air in the water circuit	Purge the water circuit to remove possible air in the system. Check operation of the water pump	
Paddle of the flow switch is blocked.	Recheck installation of the flow switch	
Flow switch is opening and closing	The flow switch must be regulated at 70 % of the nominal water flow. The flow switch must be installed into the horizontal water pipes. If this is not possible, the flow switch can be installed into the vertical pipes toward the rising water. The flow switch should be installed at least 5-fold pipe diameter from turbulence producing components such as elbows, valves, flaps etc.	
Flow switch remains open	Check flow switch Check if the water pump is operational	
Reset:	When the unit is in ON and pump is running the fault can be automatically be reset twice a day. The third time a manual reset is required. If the compressor is in operation a manual reset is required.	

Description / Error code:	**Emergency stop switch**	***UnitOffEmergencyStop***
Purpose:	To stop the unit immediately in case of problems.	
Applicable models:	All	
Detection method:	Check if switch is open	
Shutdown:	Rapid stop shutdown	
Error condition:	• When compressor is running • When compressor is not running	
Possible causes	***Corrective action***	
Unforeseen problem	Resolve the problem	
Reset:	This alarm can be cleared manually but only if the emergency switch is closed.	

Description / Error code:	**External Alarm**	***UnitOffExternalAlarm***
Purpose:	Field supplied	
Applicable models:	All	
Detection method:	Field supply	
Shutdown:	Rapid stop of all circuits.	
Error condition:	• External Alarm/Event input is open for at least 5 sec and external fault input is configured as an alarm	
Possible causes	***Corrective action***	
Field supply		
Reset:	Auto clear when digital input is closed.	

Unit events

Description / Error code:	**Entering evaporator sensor fault**	***UnitOffEvpEntWTemp***
Purpose:	detect a malfunctioning sensor	
Applicable models:	All	
Detection method:	Check resistance of sensor	
Shutdown:	N/A	
Error condition:	• Open circuit of the evaporator sensor • Closed circuit of the evaporator sensor.	
Possible causes	***Corrective action***	
Incorrect sensor	Replace the sensor	
Reset:	Return water reset cannot be used. Auto reset when sensor is again in range	

Description / Error code:	**Unit Power Restore**	***UnitPowerRestore***
Purpose:		
Applicable models:	All	
Detection method:	The unit controller is powered up.	
Shutdown:	none	
Error condition:	• Unit controller is powered up.	
Possible causes	***Corrective action***	
Power loss		
Reset:	.None.	

Description / Error code:	**External Event**	***UnitExternalEvent***
Purpose:	Registration of field supplied event	
Applicable models:	All	
Detection method:	External Alarm/Event input is open for at least 5 seconds and external fault is configured as an event.	
Shutdown:	None	
Error condition:	• Field supply	
Possible causes	***Corrective action***	
Field supply		
Reset:	Auto clear when digital input is closed.	

Circuit alarm

Description / Error code:	Low Evaporator Pressure	***Co#.LowEvPr***
Purpose:	Detect failure of malfunction of the setpoint override input	
Applicable models:	All	
Shutdown:	Rapid stop circuit	
Error condition:	• [Freezestat trip AND Circuit State = Run] OR Evaporator Press < - 0.689 bar. • Freezestat logic allows the circuit to run for varying times at low pressures. The lower the pressure, the shorter the time the compressor can run. This time is calculated as follows: • Freeze error = Low Evaporator Pressure Unload – Evaporator Pressure • Freeze time = 70 – 6.25 x freeze error, limited to a range of 20-70 seconds • When the evaporator pressure goes below the Low Evaporator Pressure Unload set point, a timer starts. If this timer exceeds the freeze time, then a freezestat trip occurs. If the evaporator pressure rises to the unload set point or higher, and the freeze time has not been exceeded, the timer will reset. • The alarm cannot trigger if the evaporator pressure sensor fault is active.	
Possible causes	***Corrective action***	
To less refrigerant	Check the units for leaks and trim charge the unit	
Reset:	The alarm is cleared manually if the evaporator pressure is above 0.689 bar.	

Description / Error code:	**Low Pressure Start Fail**	***C#OffStrtFailEvpPr***
Purpose:	Indicate that circuit can't build up pressure	
Applicable models:	All	
Detection method:	Low pressure sensor	
Shutdown:	Rapid stop circuit	
Error condition:	• Circuit state = start for time greater than Start-up Time set point. (circuit can't build up pressure)	
Possible causes	***Corrective action***	
leak		
Reset:	This alarm can be cleared manually via the Unit Controller keypad or via BAS command.	

Description / Error code:	**Mechanical Low Pressure Switch**	***C#Cmp1OffMechPressLo***
Purpose:	To protect the compressor	
Applicable models:	All	
Detection method:	Mechanical low pressure switch	
Shutdown:	Rapid stop circuit	
Error condition:	• Low pressure is < then the set point of the mechanical low pressure switch.	
Possible causes	***Corrective action***	
Refrigerant leak	Repair the leak	
Broken low pressure switch	Replace low pressure switch	
Blocked filter drier	Replace filter	
Closed Expansion valve	Check expansion valve	
Reset:	This alarm can be cleared manually via the Unit Controller keypad	

Description / Error code:	**High Condenser Pressure**	***Co#HighCondPr***
Purpose:	To protect the compressor	
Applicable models:	All	
Detection method:	High pressure sensor	
Shutdown:	Rapid stop circuit	
Error condition:	• Condenser Saturated Temperature > Max Saturated Condenser Value for time > High Cond Delay set point.	
Possible causes	***Corrective action***	
Dirty condenser heat exchanger.	Clean Water cooled condenser	
Water flow through condenser too low	Increase water flow through condenser	
Air in the refrigerant system	Remove the air from the system	
Reset:	This alarm can be cleared manually via the Unit Controller keypad	

Description / Error code:	**Low Pressure Ratio**	***C#Cmp1 OffPrRatioLo***
Purpose:	To avoid bad oil circulation in the compressor.	
Applicable models:	All	
Detection method:	Low and High Pressure sensor	
Shutdown:	Normal shutdown of circuit	
Error condition:	• Pressure ratio < calculated limit for a time > Low Pressure Ratio Delay set point after circuit startup has completed. The calculated limit will vary from 1.4 to 1.8 as the compressor's capacity varies from 25% to 100%.	
Possible causes	***Corrective action***	
Deviation of pressure tranducer(s)	Replace the pressure transducer which has the deviation	
Too low condensing pressure	Check if the condensing set point is not too low. Check if the water flow through the condenser is not too high.	
Reset:	alarm can be cleared manually via the Unit Controller keypad or via BAS command	

Description / Error code:	**Mechanical High Pressure Switch**	***C#Comp1 OffMechPressHi***
Purpose:	To protect the unit of too high pressure	
Applicable models:	All	
Detection method:	• Mechanical High Pressure switch input is low • AND Emergency Stop Alarm is not active. (opening emergency stop switch kills power to MHP switches)	
Shutdown:	Rapid stop circuit	
Error condition:		
Possible causes	***Corrective action***	
Water flow through	Increase water flow through condenser	
water condenser too low Dirty water condenser	Clean the heat exchanger	
Reset:	This alarm can be cleared manually via the Unit Controller keypad if the MHP switch input is high.	

Description / Error code:	**High Discharge Temperature**	***C#Disc Temp High***
Purpose:	To protect the unit of too high Discharge temperature	
Applicable models:	All	
Detection method:	Discharge Temperature > High Discharge Temperature set point	
Shutdown:	Rapid stop circuit	
Error condition:	• Discharge Temperature > High Discharge Temperature set point • AND compressor is running. • Alarm cannot trigger if temperature sensor fault is active.	
Possible causes	***Corrective action***	
Refrigerant leak No liquid injection	Repair the leak. Check electrical coil of the liquid injection. Check if the output of the controller gives the signal for the injection. Check body of the liquid injection valve.	
Reset:	This alarm can be cleared manually via the Unit Controller keypad or via BAS command .	

Description / Error code:	**High Oil Pressure Difference**	***C#Cmp1 OffOilPrDiffHi***
Purpose:	To avoid compressor breakdown due to bad oil lubrification	
Applicable models:	All	
Detection method:	Oil pressure difference is to high	
Shutdown:	Rapid stop circuit	
Error condition:	• Oil Pressure Differential > High Oil Pressure Differential set point for a time greater than Oil Pressure Differential Delay	
Possible causes	***Corrective action***	
Oil filter is partly blocked	Replace oil filter	
Reset:	This alarm can be cleared manually via the Unit Controller keypad or via BAS command .	

Description / Error code:	**Compressor Starter Fault**	***C#Cmp1 OffStarterFlt***
Purpose:		
Applicable models:	All	
Detection method:		
Shutdown:	Rapid stop circuit	
Error condition:	• If PVM set point = None(SSS): any time starter fault input is open • If PVM set point = Single Point or Multi Point: compressor has been running for at least 14 seconds and starter fault input is open	
Possible causes	***Corrective action***	
Reset:	This alarm can be cleared manually via the Unit Controller keypad or via BAS command .	

Description / Error code:	**High Motor Temperature**	**C#Cmp1OffMotorTempHi**
Purpose:	To protect the motor of too high temperatures	
Applicable models:	All	
Detection method:	The resistance measured is too high	
Shutdown:	Rapid stop circuit	
Error condition:	• Input value for the motor temperature is 4500 ohms or higher, or input is open.	
Possible causes	***Corrective action***	
Liquid injection isn't working properly	Check the liquid injection	
Reset:	This alarm can be cleared manually via the Unit Controller keypad after input value for motor temperature has been 200 ohms or less for at least 5 minutes.	

Description / Error code:	**No Pressure Change After Start**	**OffNoPressChgStart**
Purpose:	to see if there is pressure build up	
Applicable models:	All	
Detection method:	Pressure sensors	
Shutdown:	Rapid stop circuit	
Error condition:	• After start of compressor there isn't a 0.068 bar drop in evaporator pressure • OR There hasn't been a 0.3445 bar increase in condenser pressure • If not after 15 seconds error	
Possible causes	***Corrective action***	
Reset:	This alarm can be cleared manually via the Unit Controller keypad or via BAS command..	

Description / Error code:	**No Pressure At Startup**	**C#OffNoPressAtStart**
Purpose:		
Applicable models:		
Detection method:	To low pressures	
Shutdown:	Rapid stop circuit	
Error condition:	• Evap Pressure < 35 KPA • OR Cond Pressure < 35 KPA • And Compressor starts	
Possible causes	***Corrective action***	
Reset:	This alarm can be cleared manually via the Unit Controller keypad or via BAS command	

Description / Error code:	**CC Comm Failure N**	**C#OffCmpCtlrlrComFail**
Purpose:	Indicate communication loss	
Applicable models:	All	
Detection method:	No communication response from the CC module	
Shutdown:	Rapid stop of affected circuit	
Error condition:	• Communication with the compressor or EXV I/O extension module has failed.	
Possible causes	***Corrective action***	
Loose wire **Bad connection**	Check the bus system for loose wires Loose connection Distortion on the bus system	
Reset:	This alarm can be cleared manually via the keypad or via BAS command when communication between main controller and the extension module is working for 5 seconds.	

Description / Error code:	**FC Comm Failure Circuit 2**	**C#OffCmpCtlrlrComFail**
Purpose:	Indicate communication loss	
Applicable models:	All	
Detection method:		
Shutdown:	Rapid stop of fan circuit 2	
Error condition:	Condensation control value set point is set to pressure option, circuit 2 is enabled and communication with the I/O extension module has failed.	
Possible causes	***Corrective action***	
Fan module defect	Replace module	
Wrong address of module	Address the module correctly (refer to appendix ….)	
Reset:	This alarm can be cleared manually via the keypad or via BAS command when communication between main controller and the extension module is working for 5 seconds.	

Description / Error code:	**FC Comm Failure Circuit 3**	**C#OffCmpCtlrlrComFail**
Purpose:	Indicate communication loss	
Applicable models:	All	
Detection method:		
Shutdown:	Rapid stop of fan circuit 3	
Error condition:	Condensation control value set point is set to pressure option, circuit 3 is enabled and communication with the I/O extension module has failed.	
Possible causes	***Corrective action***	
Fan module defect	Replace module	
Wrong address of module	Address the module correctly (refer to appendix ….)	
Reset:	This alarm can be cleared manually via the keypad or via BAS command when communication between main controller and the extension module is working for 5 seconds.	

Description / Error code:	**EEXV Comm Failure #**	**C#OffEXVCtrlrComFail**
Purpose:	Indicate communication loss	
Applicable models:	All	
Detection method:		
Shutdown:	Rapid stop of affected circuit	
Error condition:	Communication with the I/O extension module has failed	
Possible causes	***Corrective action***	
EEXV module defect	Replace module	
Wrong address of module	Address the module correctly (refer to appendix ….)	
Reset:	This alarm can be cleared manually via the keypad or via BAS command when communication between main controller and the extension module is working for 5 seconds.	

Description / Error code:	**Heat pump comm failure**	**HeatPCtrlrCommFail**
Purpose:	Indicate failure of heat pump module	
Applicable models:	All	
Detection method:		
Shutdown:	Pump down of all circuits	
Error condition:	Communication with the I/O extension module has failed	
Possible causes	***Corrective action***	
Heat Pump module defect		
Wrong address of module	Address the module correctly (refer to appendix ….)	
Reset:	This alarm can be cleared manually via the keypad or via BAS command when communication between main controller and the extension module is working for 5 seconds.	

Description / Error code:	**Evaporator Pressure Sensor Fault**	**C#Cmp1OffEvpPress**
Purpose:	Controlling function of suction pressure sensor	
Applicable models:	All	
Detection method:	The sensor is shorted or open	
Shutdown:	Rapid stop circuit	
Error condition:	When sensor is shorted or open, the alarm should be triggered one exception. If the evaporator LWT is 30°C or higher, the fault should not be triggered due to the input signal reading too high unless the circuit has been running for longer than 90 seconds.	
Possible causes	***Corrective action***	
Loose connection	Check for loose wires	
Incorrect Pressure sensor	Replace sensor (procedure how to check sensor, refer to ….)	
Reset:	This alarm can be cleared manually via the keypad, but only if the sensor is back in range.	

Description / Error code:	**Condenser Pressure Sensor Fault**	**C#Cmp1OffCndPress**
Purpose:	Controlling function of condensing pressure sensor	
Applicable models:	All	
Detection method:	The sensor is shorted or open	
Shutdown:	Rapid stop circuit	
Error condition:	• When sensor is shorted or open, the alarm should be triggered	
Possible causes	***Corrective action***	
Loose connection	Check for loose wires	
Incorrect Pressure sensor	Replace sensor (procedure how to check sensor, refer to ….)	
Reset:	This alarm can be cleared manually via the keypad, but only if the sensor is back in range.	

Description / Error code:	**Oil Pressure Sensor Fault**	**C#Cmp1OffOilFeedP**
Purpose:	Controlling function of oil pressure sensor	
Applicable models:	All	
Detection method:	The sensor is shorted or open	
Shutdown:	Rapid stop circuit	
Error condition:	When sensor is shorted or open, the alarm should be triggered	
Possible causes	***Corrective action***	
Loose connection	Check for loose wires	
Incorrect Pressure sensor	Replace sensor (procedure how to check sensor, refer to ….)	
Reset:	This alarm can be cleared manually via the keypad, but only if the sensor is back in range.	

Description / Error code:	**Suction Temperature Sensor Fault**	**C#Cmp1OffSucTemp.**
Purpose:	Detecting malfunctioning sensor	
Applicable models:	All	
Detection method:	The sensor is shorted or open	
Shutdown:	Normal shutdown of circuit	
Error condition:	• When sensor is shorted or open, the alarm should be triggered	
Possible causes	***Corrective action***	
Loose connection	Check for loose wires	
Incorrect sensor	Replace sensor	
Reset:	This alarm can be cleared manually via the keypad, but only if the sensor is back in range.	

Description / Error code:	**Discharge temperature Sensor Fault**	**C#Cmp1OffDischTemp.**
Purpose:	Detecting malfunctioning sensor	
Applicable models:	All	
Detection method:	The sensor is shorted or open	
Shutdown:	Normal shutdown of circuit	
Error condition:	• When sensor is shorted or open, the alarm should be triggered	
Possible causes	***Corrective action***	
Loose connection	Check for loose wires	
Incorrect sensor	Replace sensor	
Reset:	This alarm can be cleared manually via the keypad, but only if the sensor is back in range.	

Description / Error code:	**Motor Temperature Sensor Fault**	**C#Cmp1OffMtrTempSen**
Purpose:	Protect the motor in the case the sensor is broken	
Applicable models:	All	
Detection method:	The sensor is shorted or open	
Shutdown:	Rapid stop circuit	
Error condition:	• When sensor is shorted or open, the alarm should be triggered	
Possible causes	***Corrective action***	
Loose connection	Check for loose wires	
Reset:	This alarm can be cleared manually via the keypad, but only if the sensor is back in range.	

Description / Error code:	**Low Evaporator Pressure – Hold**	**EvapPressLowHold**
Purpose:	Hold the pressure of the evaporator	
Applicable models:	All	
Detection method:	Pressure is too low on evaporator side	
Shutdown:	Inhibit loading.	
Error condition:	• This event is not enabled until the circuit start up is complete and the unit mode is Cool. • while running, • The evaporator pressure <= Low Evaporator Pressure hold	
Possible causes	***Corrective action***	
Incorrect refrigerant charge	Adjust refrigerant charge	
Low pressure transducer measuring incorrect	Calibrate sensor or replace (procedure how to check refer to appendix…) If transducer is measuring incorrect, this has an influence on the Exp. Valve which result in a low pressure which can be too low	
Suction sensor measuring incorrect	If sensor is measuring incorrect, this has an influence on the Exp. Valve which result in a low pressure which can be too low	
Expansion valve stay in a fixed position	When the expansion cannot regulate, it could be that under certain conditions the low pressure hold is activated.	
Reset:	While still running, the event will be reset if evaporator pressure > (Low Evaporator Pressure Hold SP + 2psi). The event is also reset if the unit mode is switched to Ice, or the circuit is no longer in the run state.	

Description / Error code:	**Low Evaporator Pressure – Unload**	**C#UnloadEvapPress**
Purpose:	Unload the pressure of the evaporator	
Applicable models:	All	
Detection method:	Pressure is too low on evaporator side	
Shutdown:	unloading.	
Error condition:	• This event is not enabled until the circuit start up is complete and the unit mode is Cool. • Then, while running, if evaporator pressure <= Low Evaporator Pressure Unload. • Unload the compressor by decreasing the capacity by one step every 5 seconds until the evaporator pressure rises above the Low Evaporator Pressure Unload set point.	
Possible causes	***Corrective action***	
Incorrect refrigerant charge	Adjust refrigerant charge	
Low pressure transducer measuring incorrect	Calibrate sensor or replace (procedure how to check refer to appendix…) If transducer is measuring incorrect, this has an influence on the Exp. Valve which result in a low pressure which can be too low	
Suction sensor measuring incorrect	If sensor is measuring incorrect, this has an influence on the Exp. Valve which result in a low pressure which can be too low	
Expansion valve stay in a fixed position	When the expansion cannot regulate, it could be that under certain conditions the low pressure hold is activated.	
Reset:	While still running, the event will be reset if evaporator pressure > (Low Evaporator Pressure Hold SP + 2psi). The event is also reset if the unit mode is switched to Ice, or the circuit is no longer in the run state.	

Description / Error code:	**High Condenser Pressure – Hold**
Purpose:	Hold the pressure of the Condenser
Applicable models:	All
Detection method:	Pressure is too high on the condenser side
Shutdown:	Inhibit loading.
Error condition:	• This event is not enabled until the circuit start up is complete and the unit mode is Cool. • while running, • The Condenser pressure >= high condenser Pressure high.
Possible causes	***Corrective action***
Water flow through condenser too low	Increase water flow
3 way valve condenser side	Check condenser set point. Check operation of 3 – way valve
Cooling tower	Check condenser set point Check if the fan control is working correctly
High pressure transmitter not working correctly	Calibrate sensor or replace (procedure how to check refer to appendix…)

Description / Error code:	**High Condenser Pressure – Unload**
Purpose:	Unload the pressure of the condenser
Applicable models:	All
Detection method:	Pressure is too High on condenser side
Shutdown:	unloading.
Error condition:	• This event is not enabled until the circuit start up is complete and the unit mode is Cool. • Unload the compressor by decreasing the capacity by one step every 5 seconds until the evaporator pressure rises above the High Condensing Pressure Unload set point.
Possible causes	***Corrective action***
Water flow through condenser too low	Increase water flow
3 way valve condenser side	Check condenser set point. Check operation of 3 – way valve
Cooling tower	Check condenser set point Check if the fan control is working correctly
High pressure transmitter not working correctly	Calibrate sensor or replace (procedure how to check refer to appendix…)

Description / Error code:	**Failed Pumpdown**	**C#FailedPumpdown**
Purpose:		
Applicable models:	All	
Detection method:	Pumpdown takes longer than the pompdown timer	
Shutdown:	Shutdown circuit	
Error condition:	• Circuit state = pumpdown for time > Pumpdown Time set point	
Possible causes	***Corrective action***	
EEV doesn't close completely	Look if there is dirt inside the EEV	
EEV Driver	Replace driver	
Reset:	N/A	

Description / Error code:	**Power Loss While Running**	**C#PwrLossRun**
Purpose:		
Applicable models:	All	
Detection method:	Power loss when running the controller	
Shutdown:	N/A	
Error condition:	• Circuit controller is powered up after losing power while compressor was running	
Possible causes	Corrective action	
Reset:	N/A	