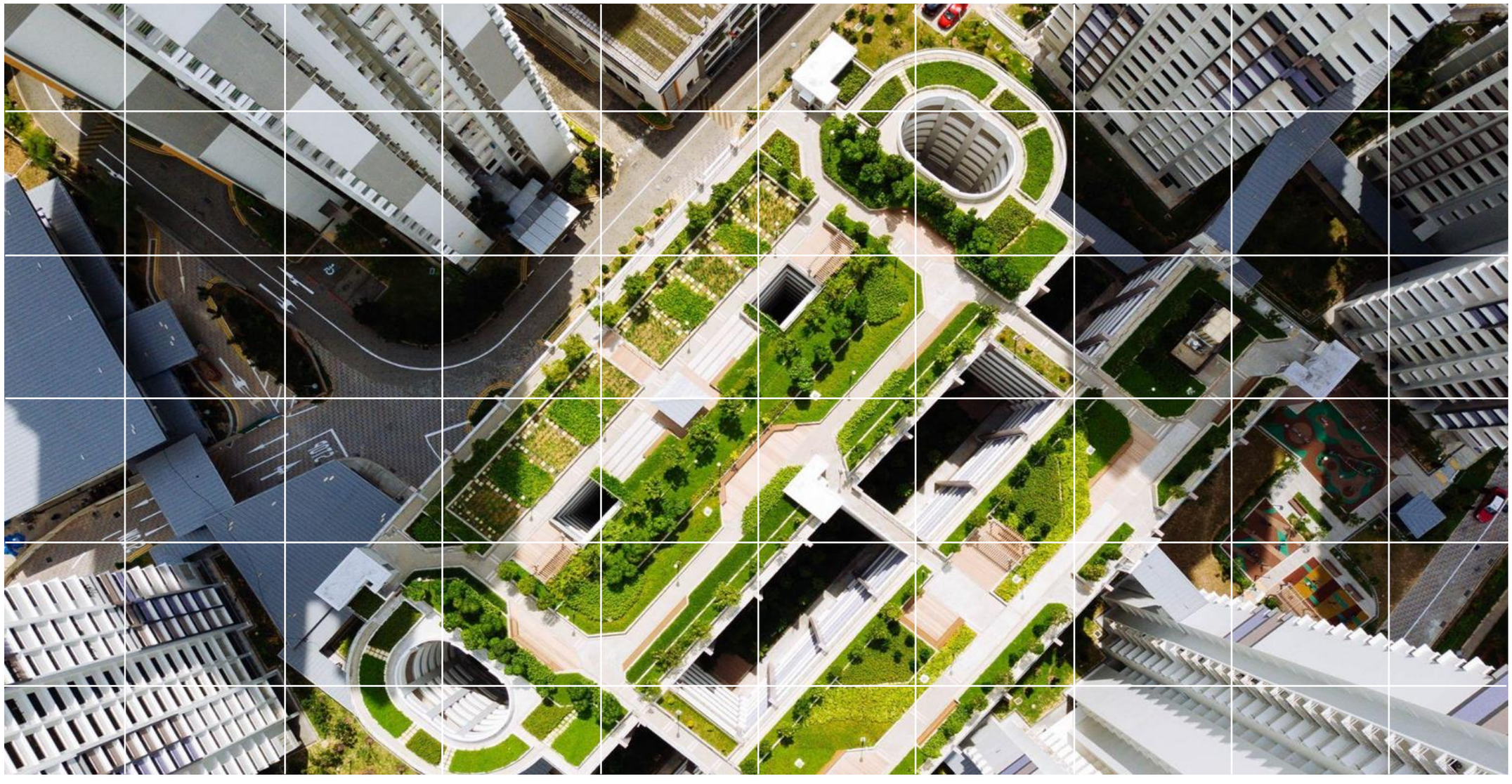
QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES



QVANTUM RSe - HYDRAULIC SCHEMATICS

Qvantum Hydraulic Schematics

QHS - RSe_2550-B

D100023

Subject to possible printing errors.

QVANTUM RSe HEAT PUMPS - HYDRAULIC SCHEMATICS

The following QVANTUM hydraulic schematics are applicable to QVANTUM heat pumps with X-Pro controller.
Detailed information can be found in the relevant product documentation.



Q32-81RSe

GROUND SOURCE HEAT PUMP SYSTEM

- The hydraulic schematics include controls for heating and DHW. Dimensioning of pumps, buffer tank volume, DHW cylinder volume, control valves etc. needs to be done by the installer.

- The hydraulic schematics include controls for DHW distribution and pool system control (optional accessories package QAP20). Dimensioning of pumps, control valves, immersion heaters, plate heat exchangers etc. needs to be done by the installer.

- The hydraulic schematics include controls for both passive and active cooling (optional accessories package QAP10). For active cooling a cooling buffer tank must be installed to ensure enough volume. Dimensioning of pumps, control valves, plate heat exchangers, buffer tank volume etc. needs to be done by the installer.

- The hydraulic schematics include controls for up to four mixed circuits (optional accessories package QAP30). Dimensioning of pumps, control valves etc. needs to be done by the installer.

- The hydraulic schematics for multiple heat pumps are shown with 2 No. of heat pumps. Prefix HP02 is used to represent all slave heat pumps. The control system handles up to 4 No. heat pump units. For higher thermal capacity requirements please contact Qvantum.

- Specific components such as, but not limited to, dosing pot, commissioning set, air admittance valve, lock shield valve, drain cock, binder test point, gauge etc. are not included in the hydraulic schematics but are installed when required. Dimensioning needs to be done by the installer.

- DHW cylinders, regardless of type (thermal store, calorifiers etc.), should be installed with reverse return connections, as shown in hydraulic schematics for multiple heat pumps, to ensure equal temperature in all cylinders.

- Red marks * in the schematics show components that are supplied by Qvantum. Blue marks * in the schematics show components that can be supplied by Qvantum. If not supplied by Qvantum the installer needs to follow Qvantums specifications.

QVANTUM RSe HEAT PUMPS - HYDRAULIC SCHEMATICS

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Single heat pump

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Subject to possible printing errors.

QVANTUM RSe HEAT PUMPS - HYDRAULIC SCHEMATICS

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QVANTUM RSe HEAT PUMPS - HYDRAULIC SCHEMATICS

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QVANTUM RSe

HYDRAULIC SCHEMATICS

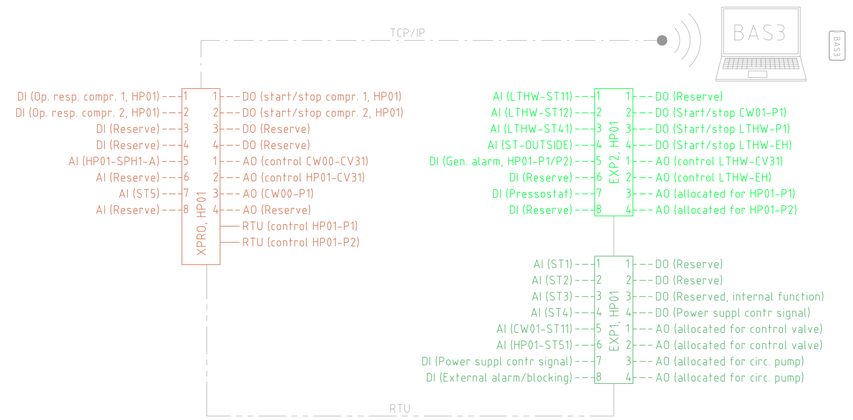
single heat pump

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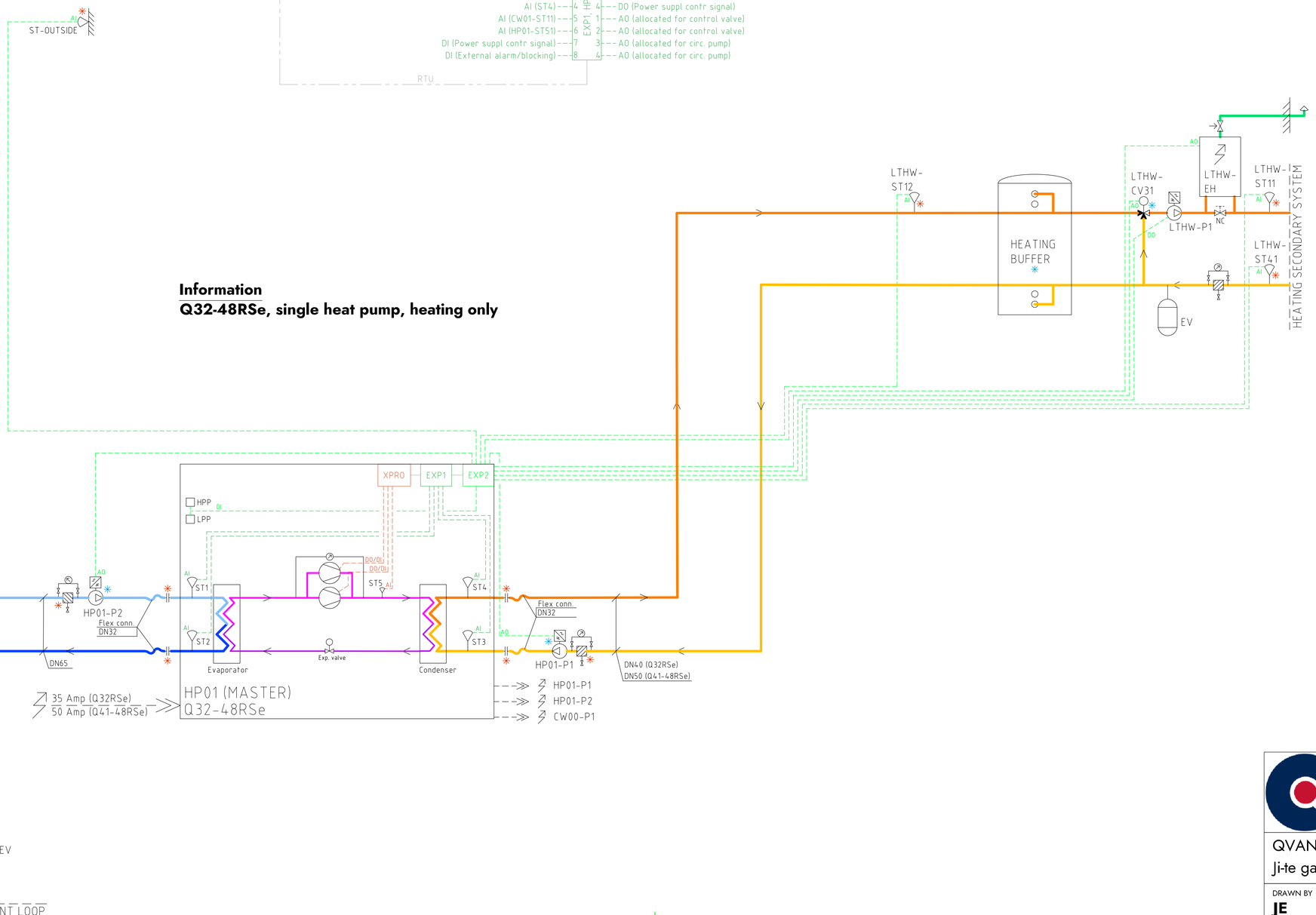
Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the RSe unit.
- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete and fittings and safety devices outside the RSe unit are not included and must be provided and installed on site.



IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.



Information

Q32-48RSe, single heat pump, heating only

DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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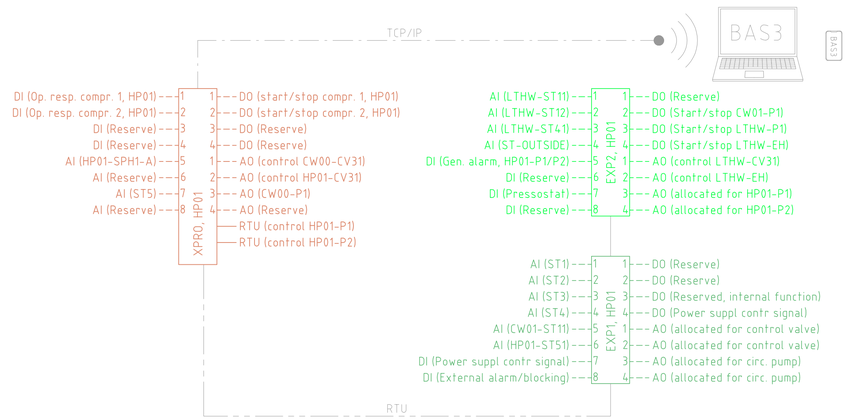
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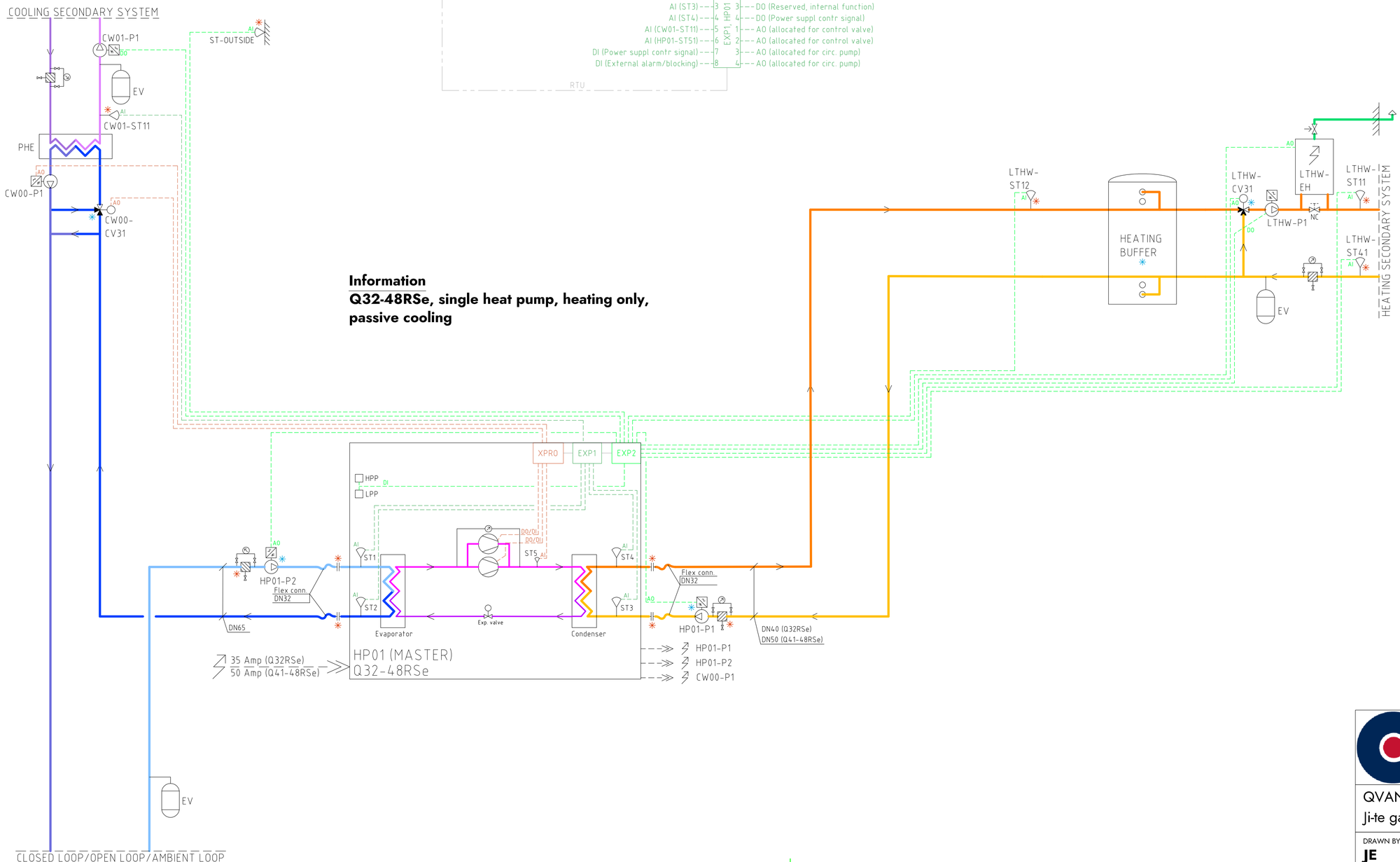
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IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.



Information

Q32-48RSe, single heat pump, heating only, passive cooling

DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

DI, DO, AI & AO signals

Modbus TCP/IP

Modbus RTU

Components supplied by Qvantum

Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

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Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

Circulation pump

Temperature sensor

3-way control valve

Isolation valve

Non return valve

Strainer

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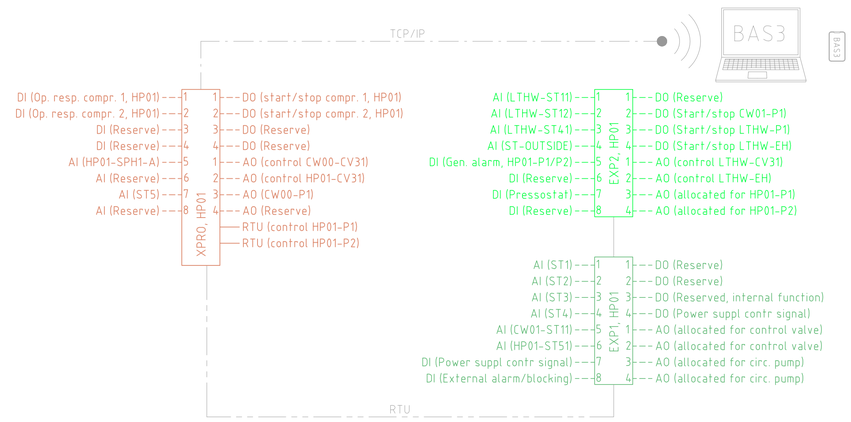
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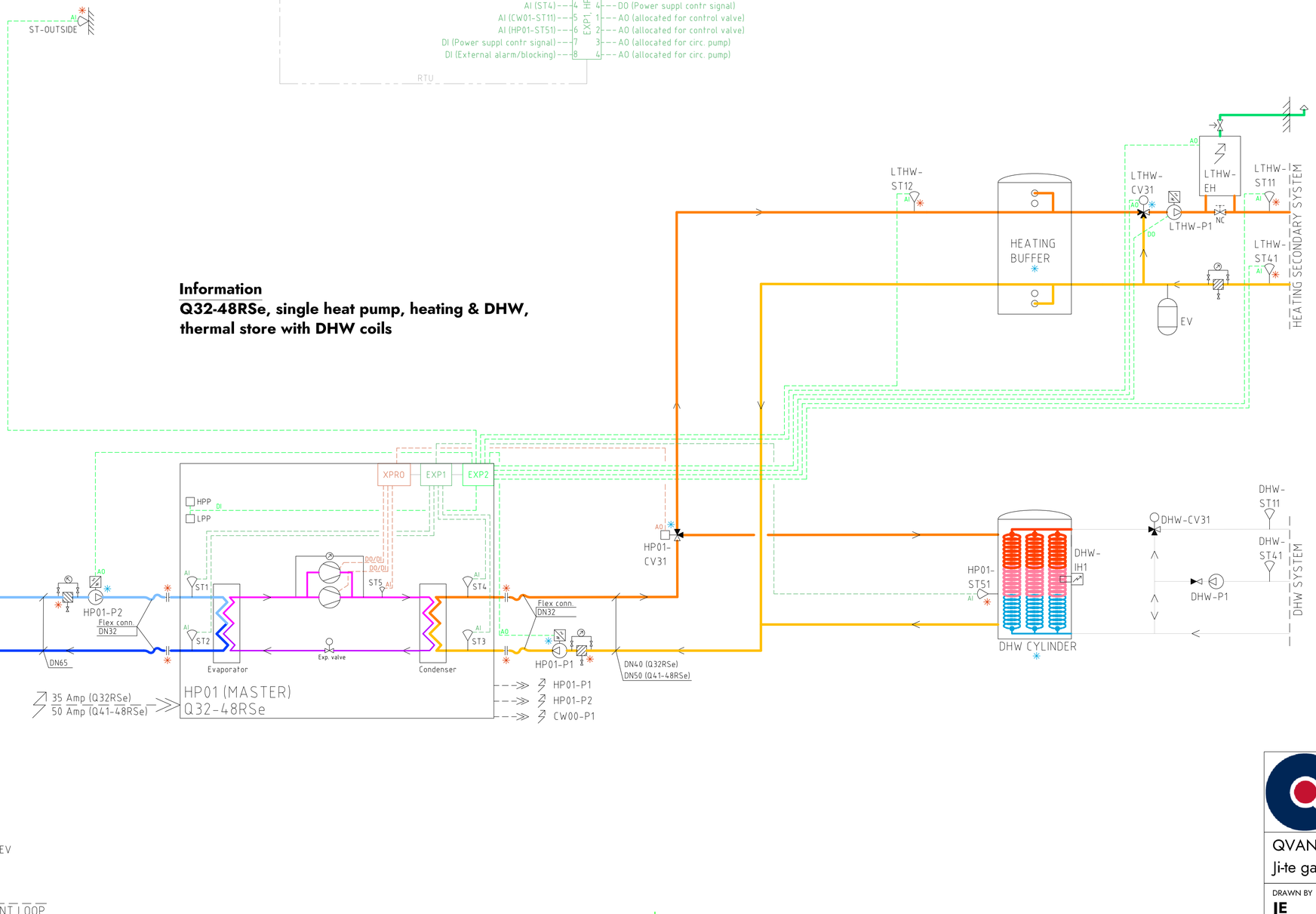
Please note

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IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.



Information

Q32-48RSe, single heat pump, heating & DHW, thermal store with DHW coils

DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- – – – – DI, DO, AI & AO signals
- —·— Modbus TCP/IP
- —– – —– Modbus RTU
- ✳ Components supplied by Qvantum
- ✳ Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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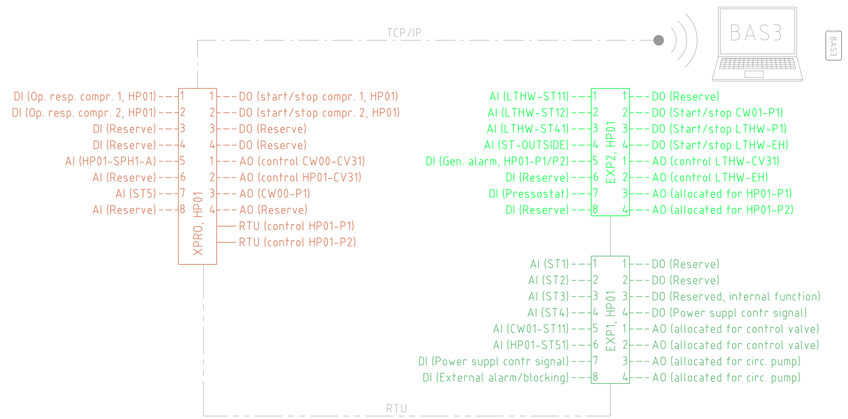
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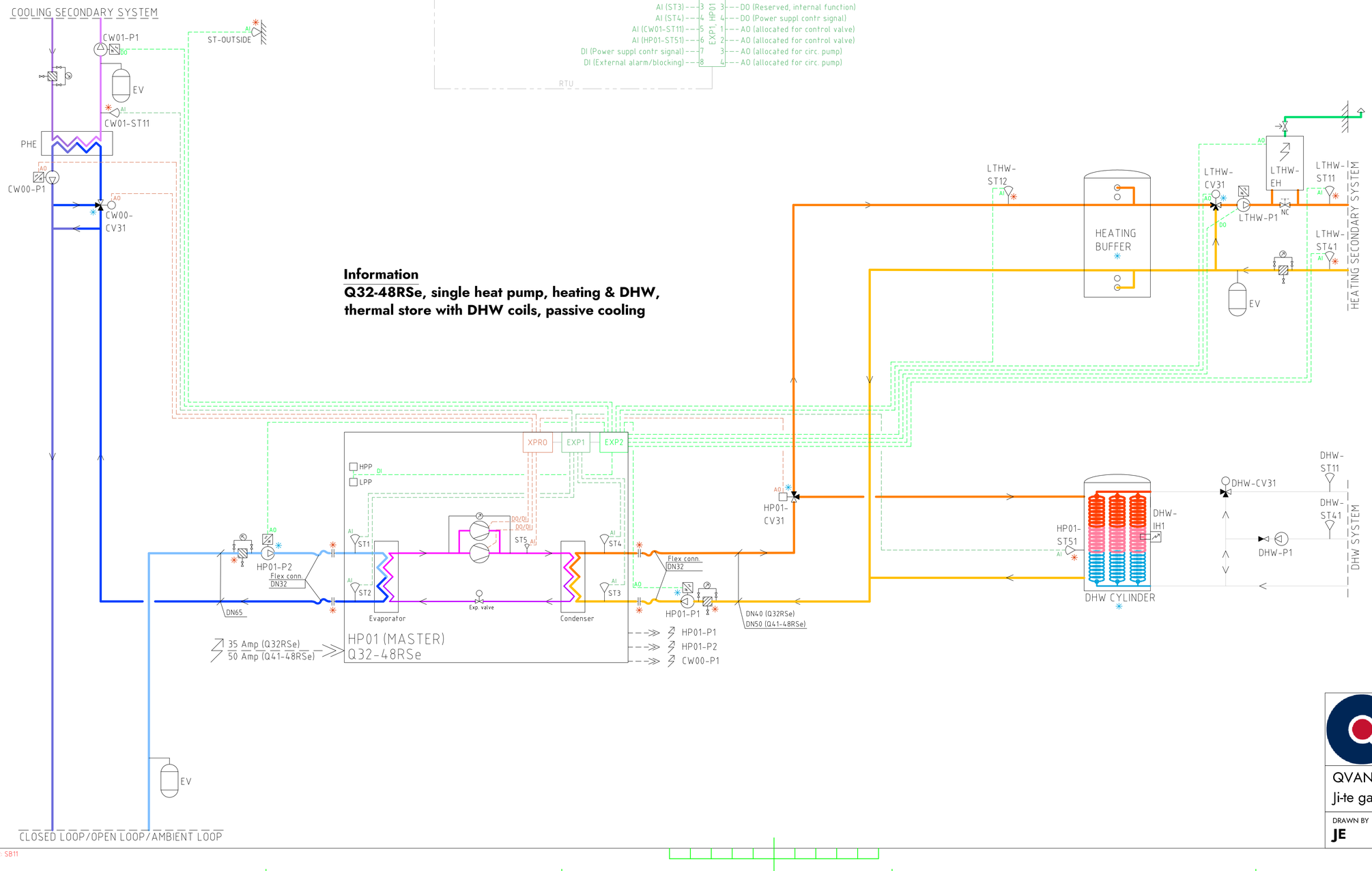
Please note

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IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.



DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- – – – – DI, DO, AI & AO signals
- —·— Modbus TCP/IP
- — – – — Modbus RTU
- ✳ Components supplied by Qvantum
- ✳ Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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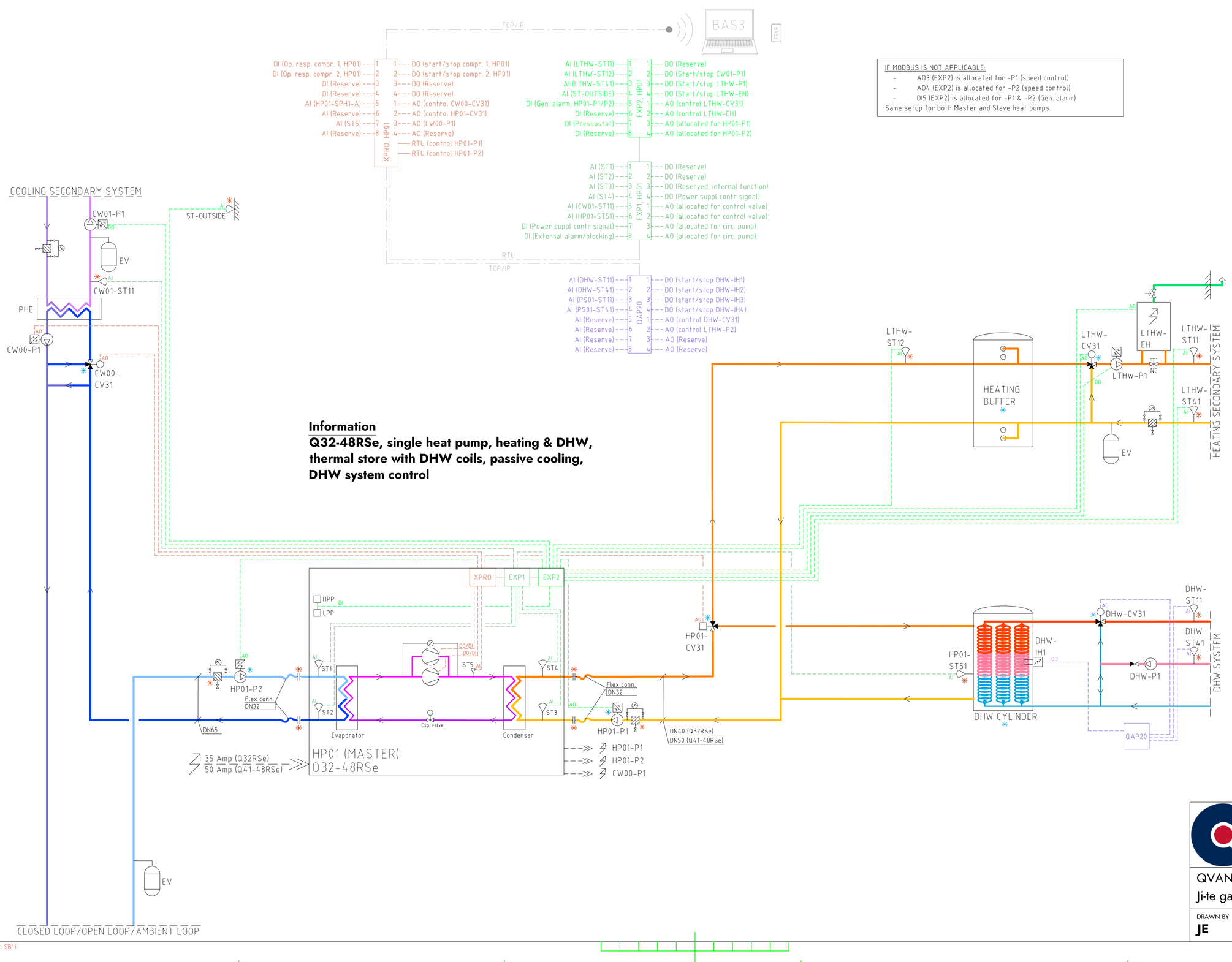
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Please note

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Information
Q32-48RSe, single heat pump, heating & DHW, thermal store with DHW coils, passive cooling, DHW system control

DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

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COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
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HEAT PUMPS FOR SUSTAINABLE CITIES

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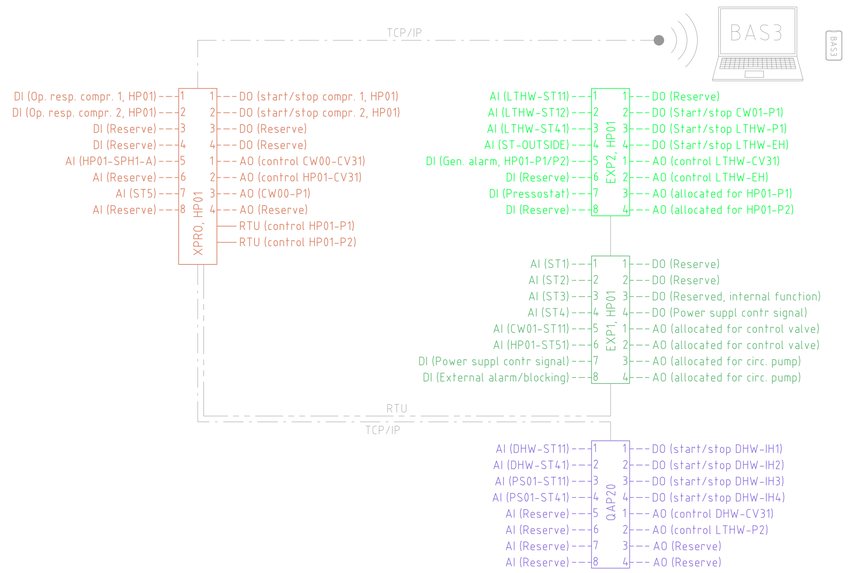
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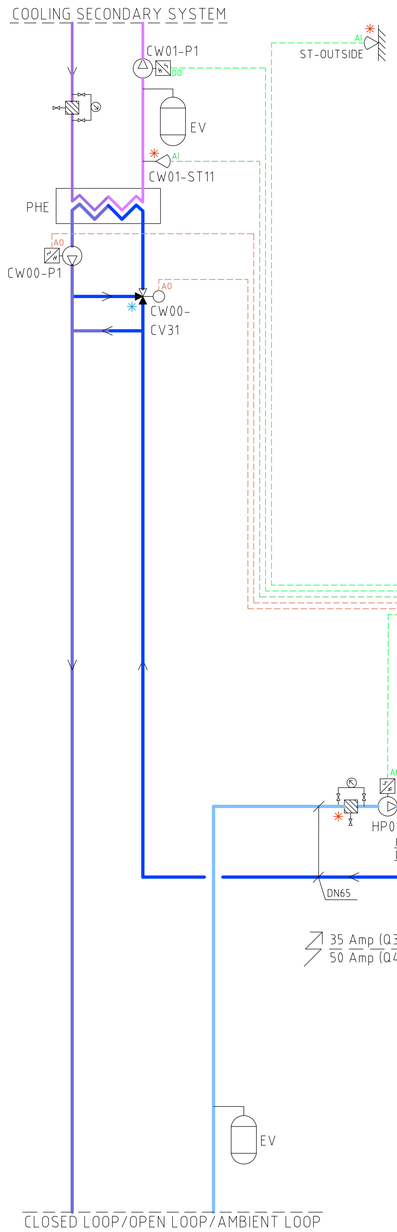
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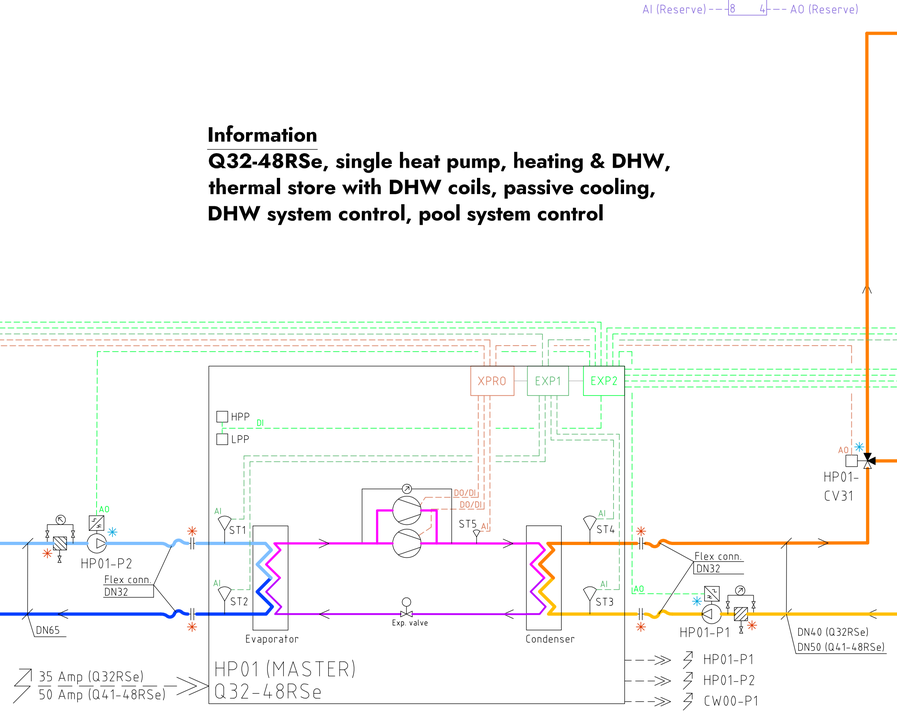
- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the RSe unit.
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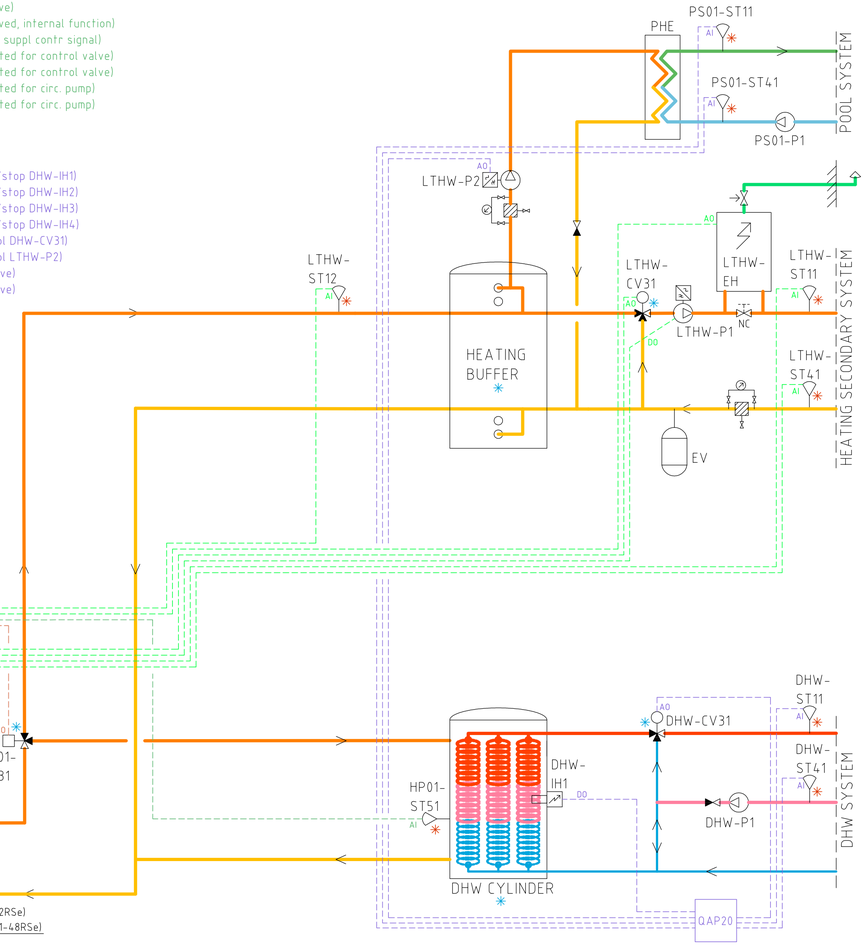


IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.







Information

Q32-48RSe, single heat pump, heating & DHW, thermal store with DHW coils, passive cooling, DHW system control, pool system control

DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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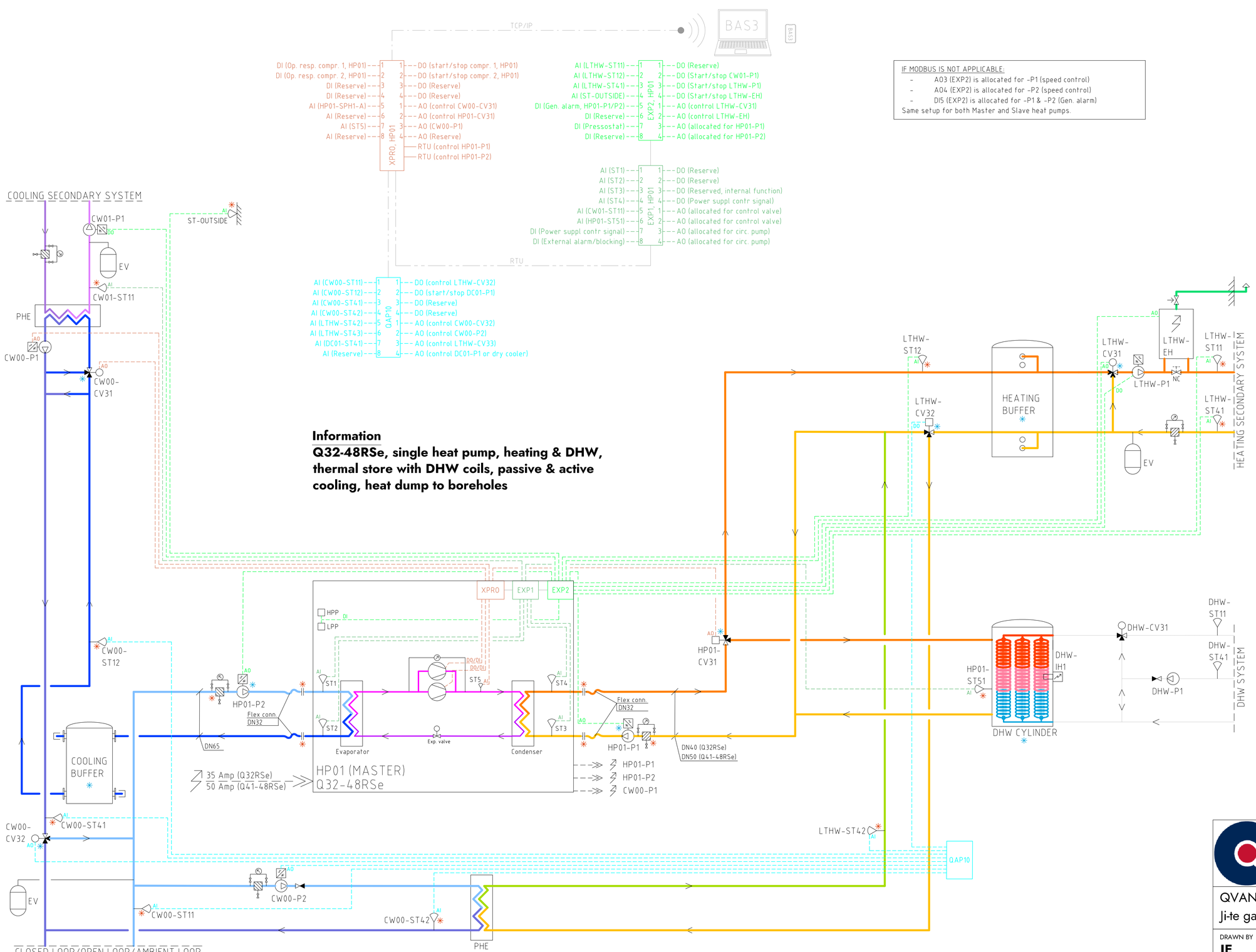
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Please note

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Information

Q32-48RSe, single heat pump, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to boreholes

DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- – – – – DI, DO, AI & AO signals
- —·— Modbus TCP/IP
- — – — Modbus RTU
- ✳ Components supplied by Qvantum
- ✳ Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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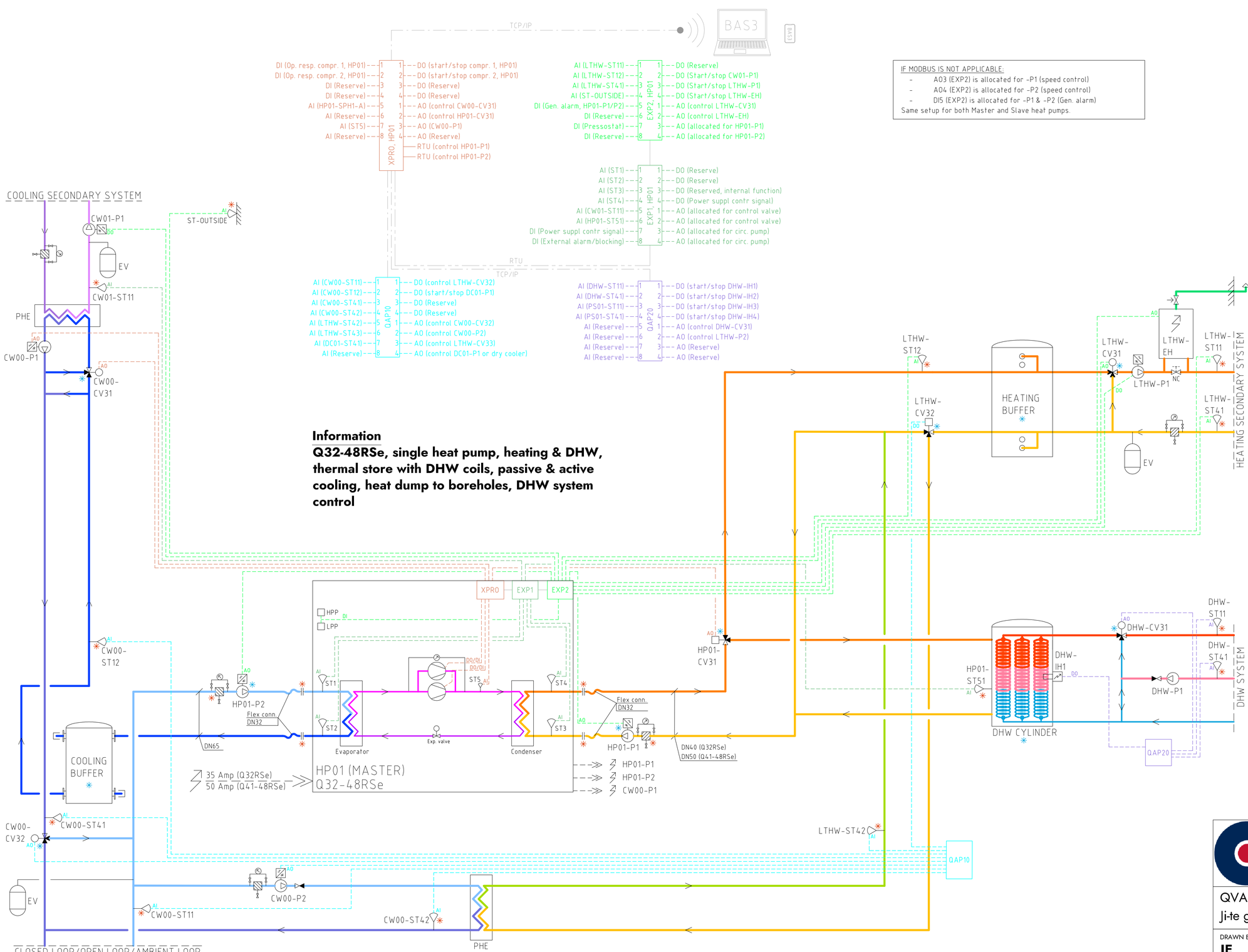
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DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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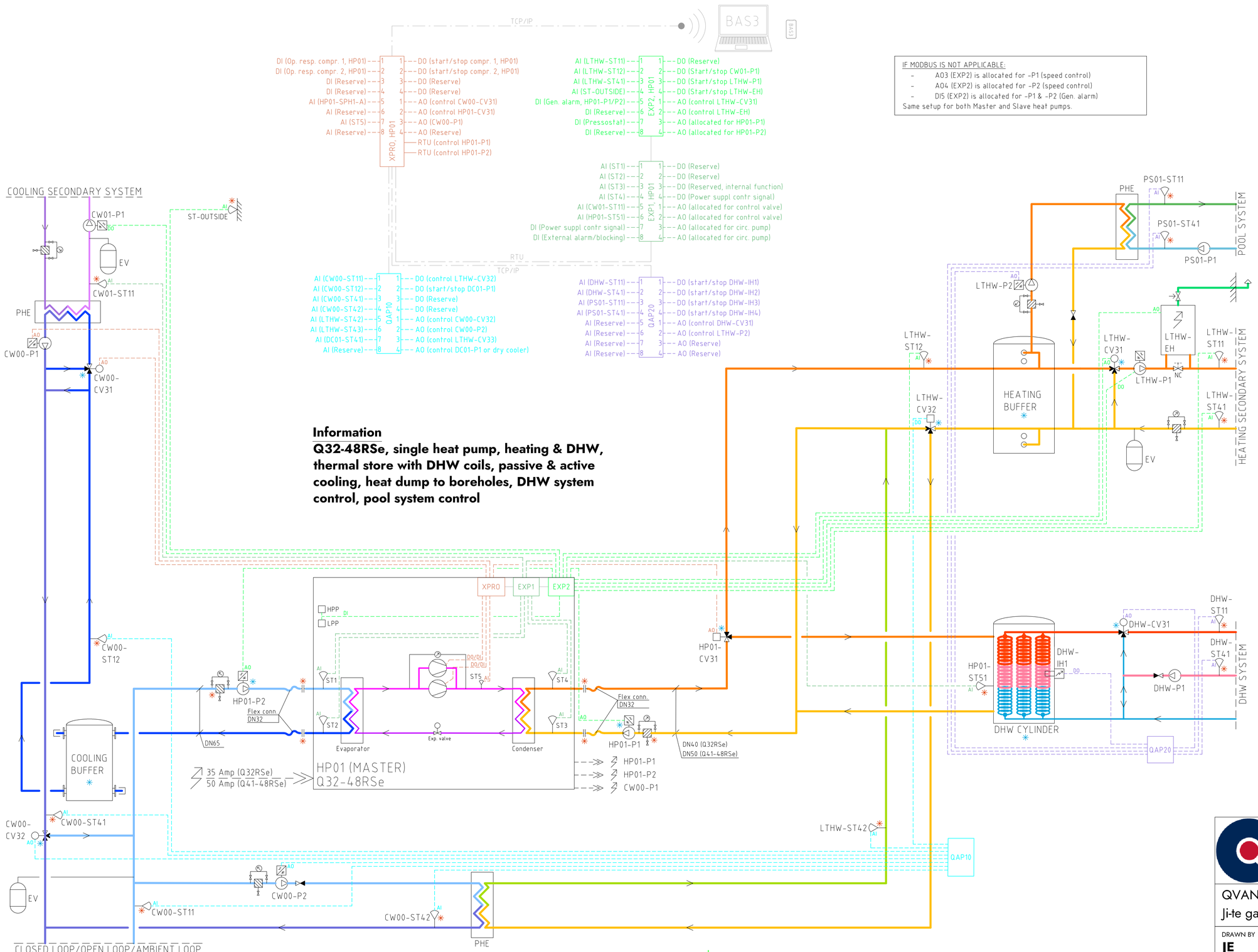
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Information

Q32-48RSe, single heat pump, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to boreholes, DHW system control, pool system control

DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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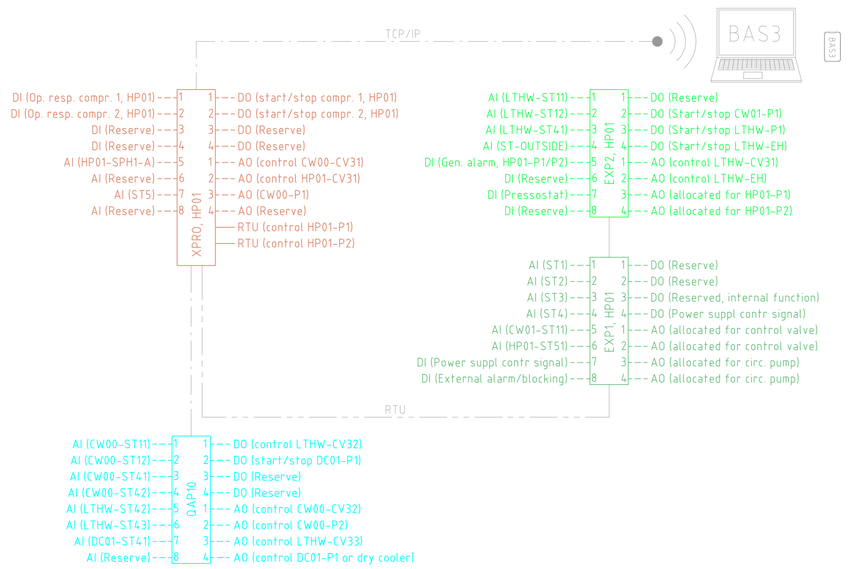
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IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information

Q32-48RSe, single heat pump, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to both boreholes & dry cooler/exhaust air

DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- – – – – DI, DO, AI & AO signals
- —·— Modbus TCP/IP
- — – – Modbus RTU
- ✳ Components supplied by Qvantum
- ✳ Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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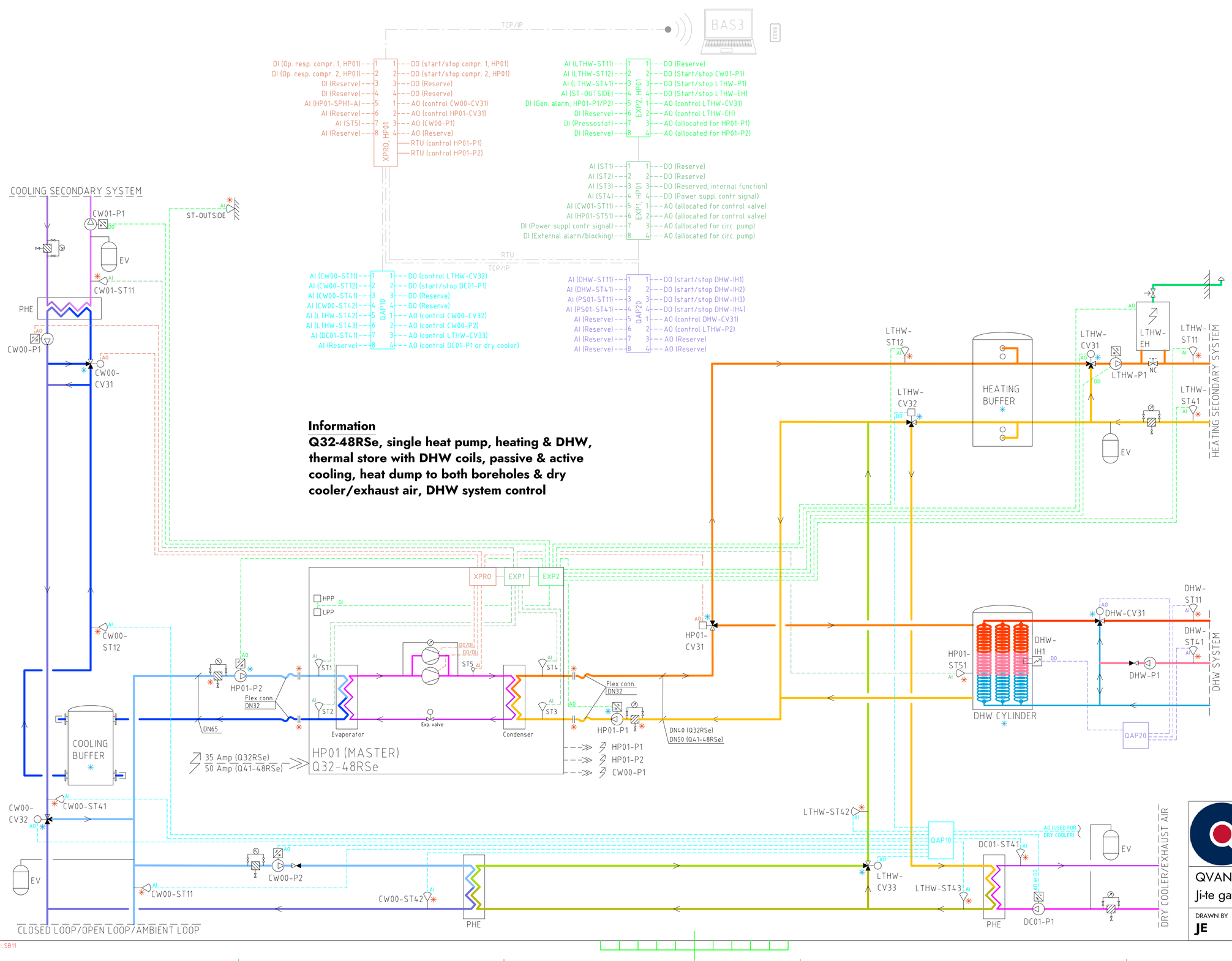
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Information

Q32-48RSe, single heat pump, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to both boreholes & dry cooler/exhaust air, DHW system control

DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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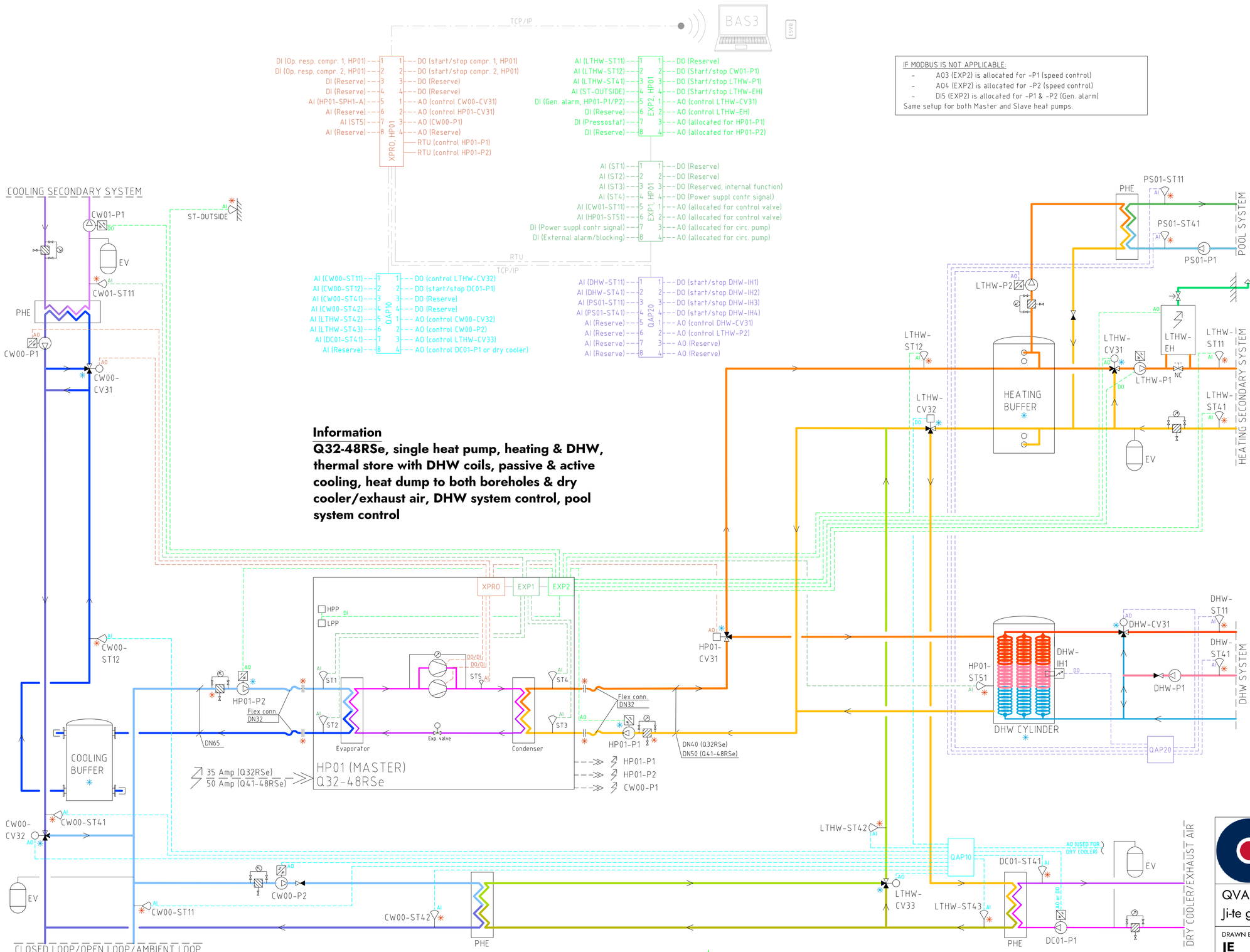
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Information

Q32-48RSe, single heat pump, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to both boreholes & dry cooler/exhaust air, DHW system control, pool system control

DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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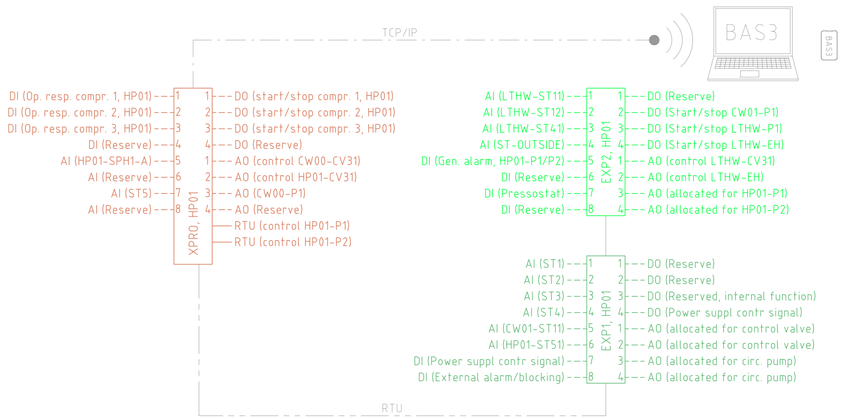
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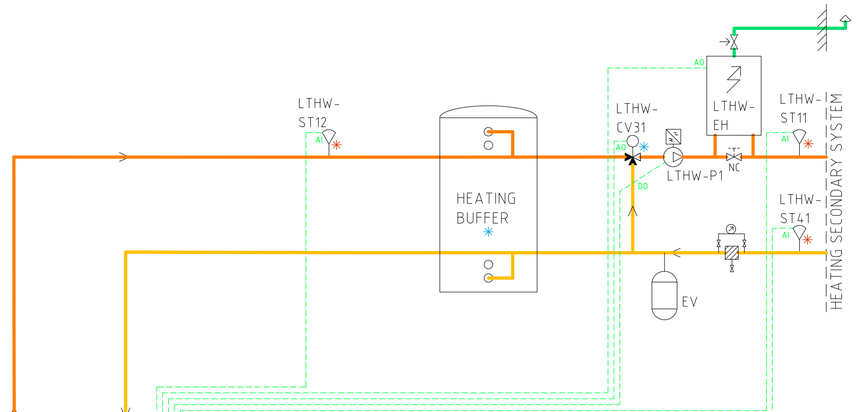
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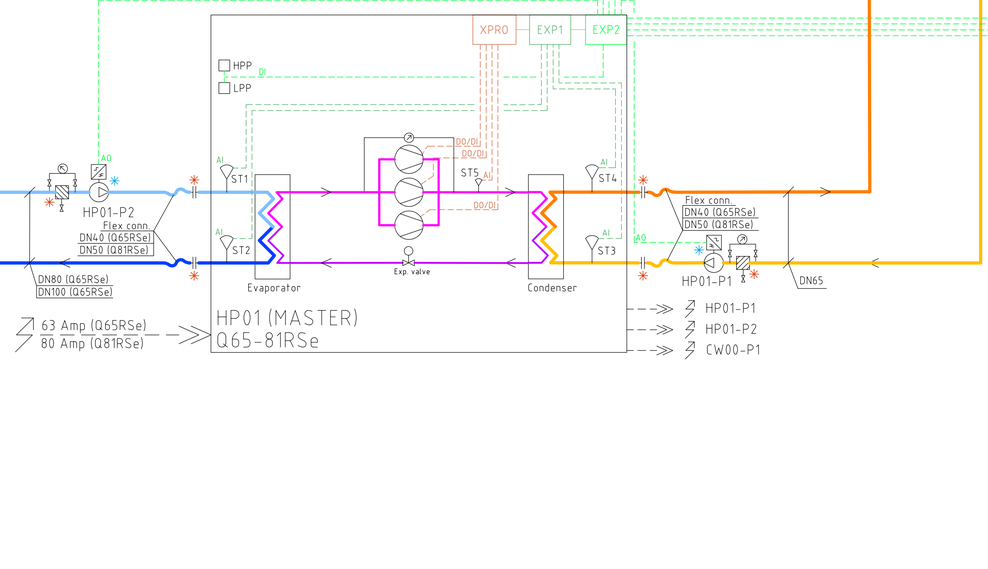
IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.



Information

Q65-81RSe, single heat pump, heating only



DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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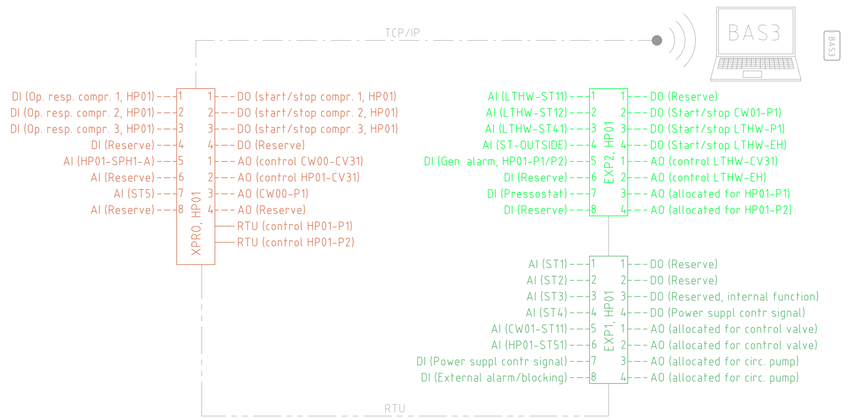
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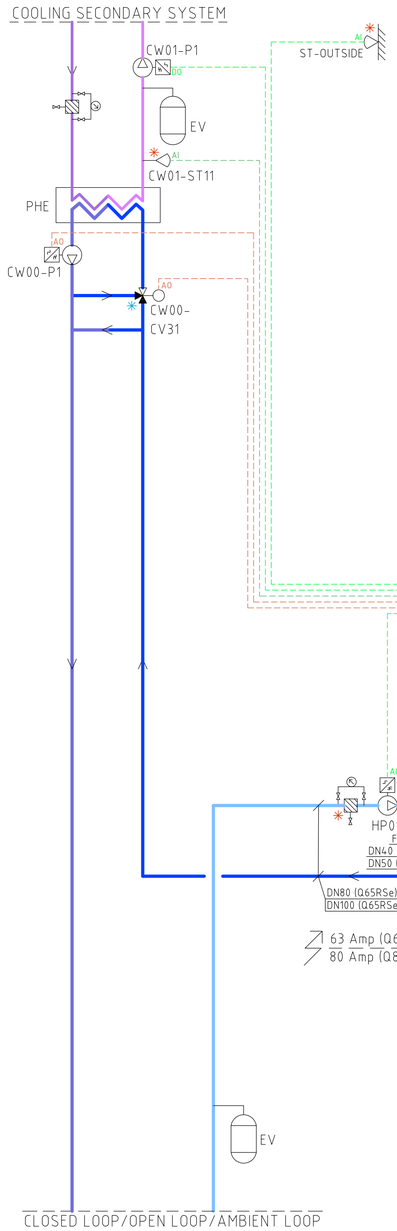
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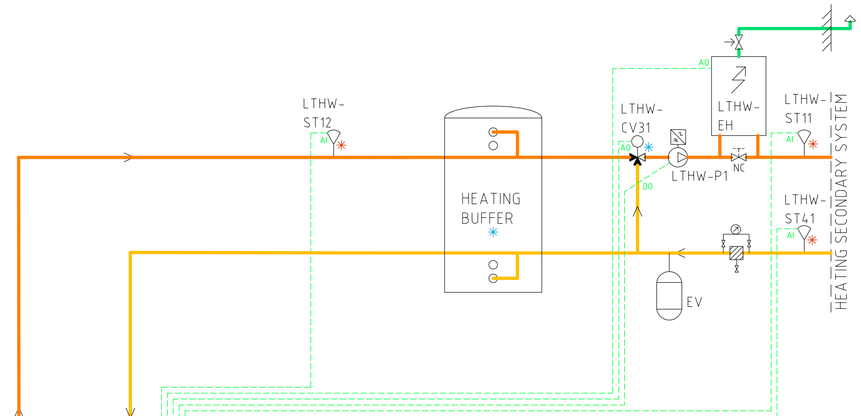


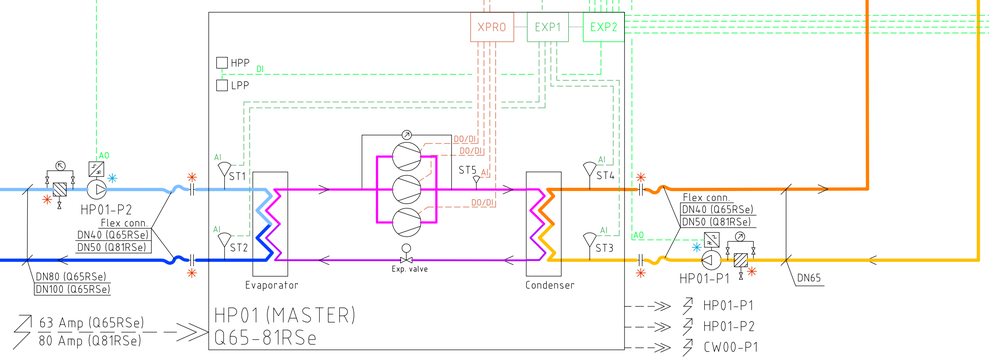
Information

Q65-81RSe, single heat pump, heating only, passive cooling

IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.





DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum
- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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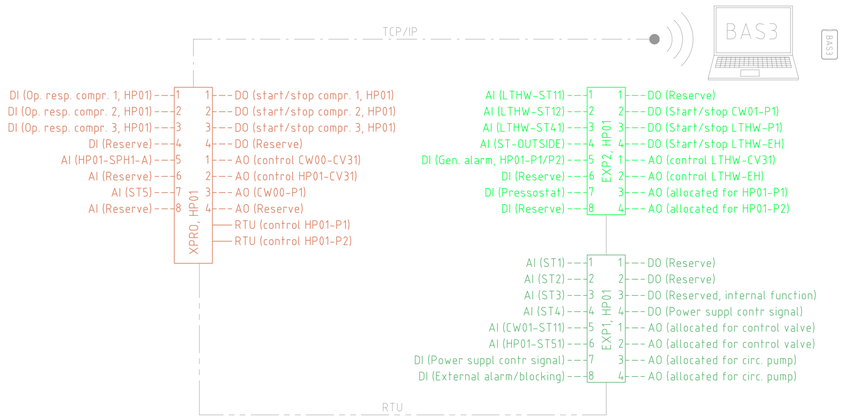
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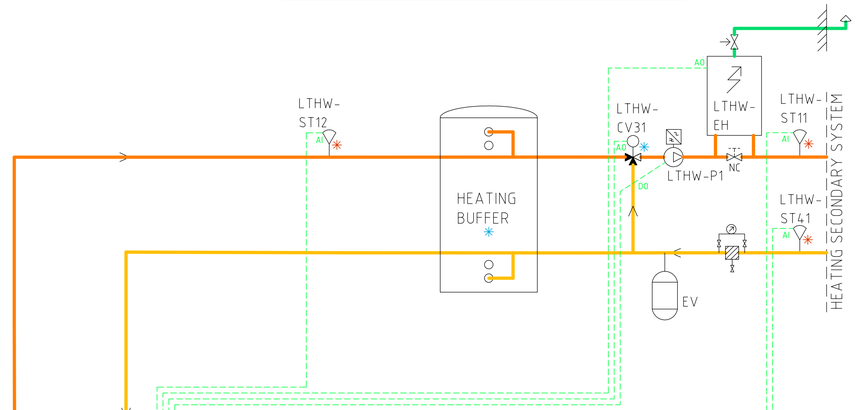


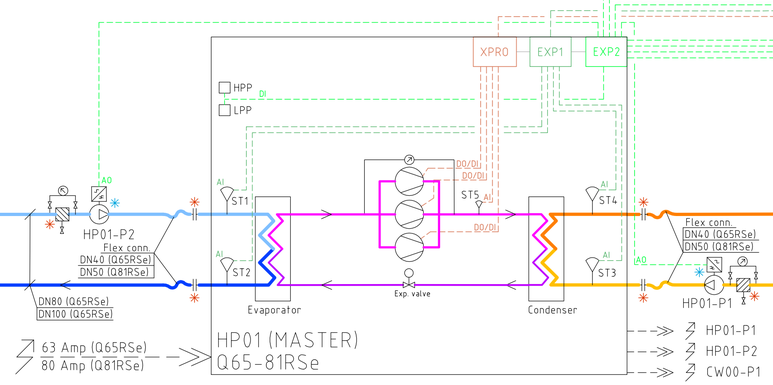
IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

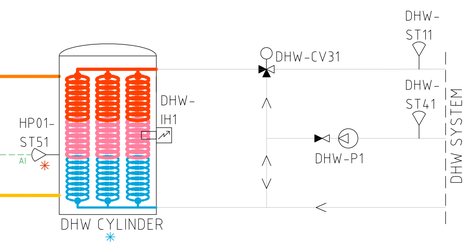
Same setup for both Master and Slave heat pumps.

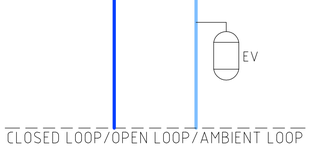
Information

Q65-81RSe, single heat pump, heating & DHW, thermal store with DHW coils









DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- – – – – DI, DO, AI & AO signals
- —·— Modbus TCP/IP
- — – – — Modbus RTU
- ✳ Components supplied by Qvantum
- ✳ Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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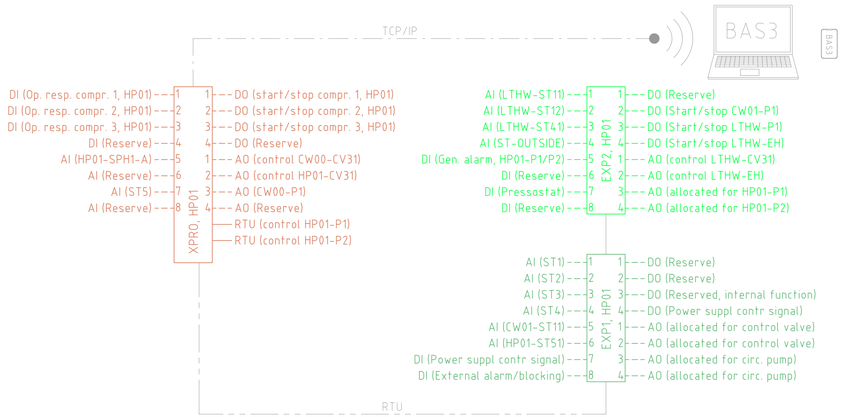
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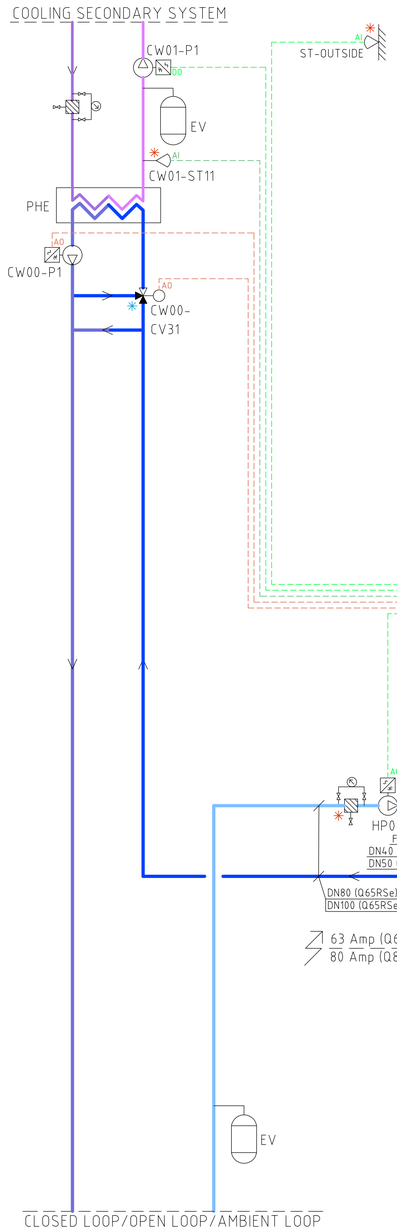
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Subject to possible printing errors.

Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the RSe unit.
- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete and fittings and safety devices outside the RSe unit are not included and must be provided and installed on site.



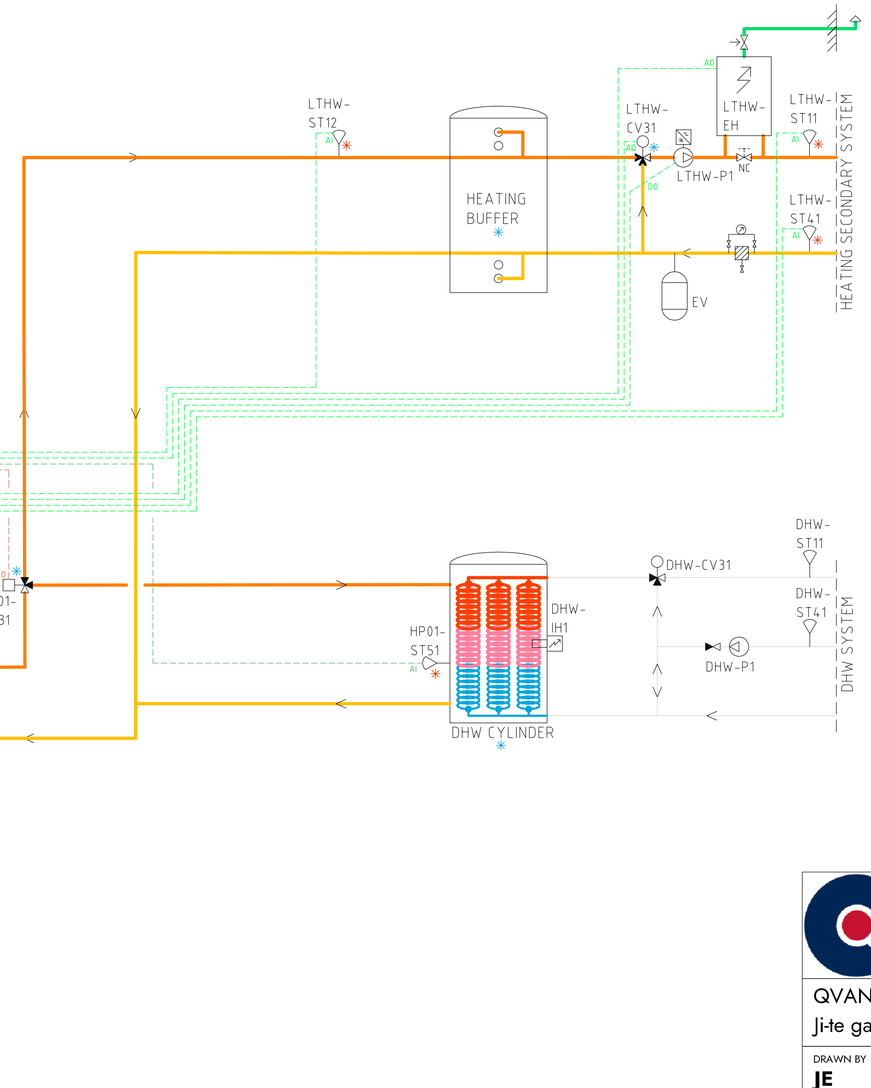


Information

Q65-81RSe, single heat pump, heating & DHW, thermal store with DHW coils, passive cooling

IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.



DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- – – – – DI, DO, AI & AO signals
- —·— Modbus TCP/IP
- — – – Modbus RTU
- ✳ Components supplied by Qvantum
- ✳ Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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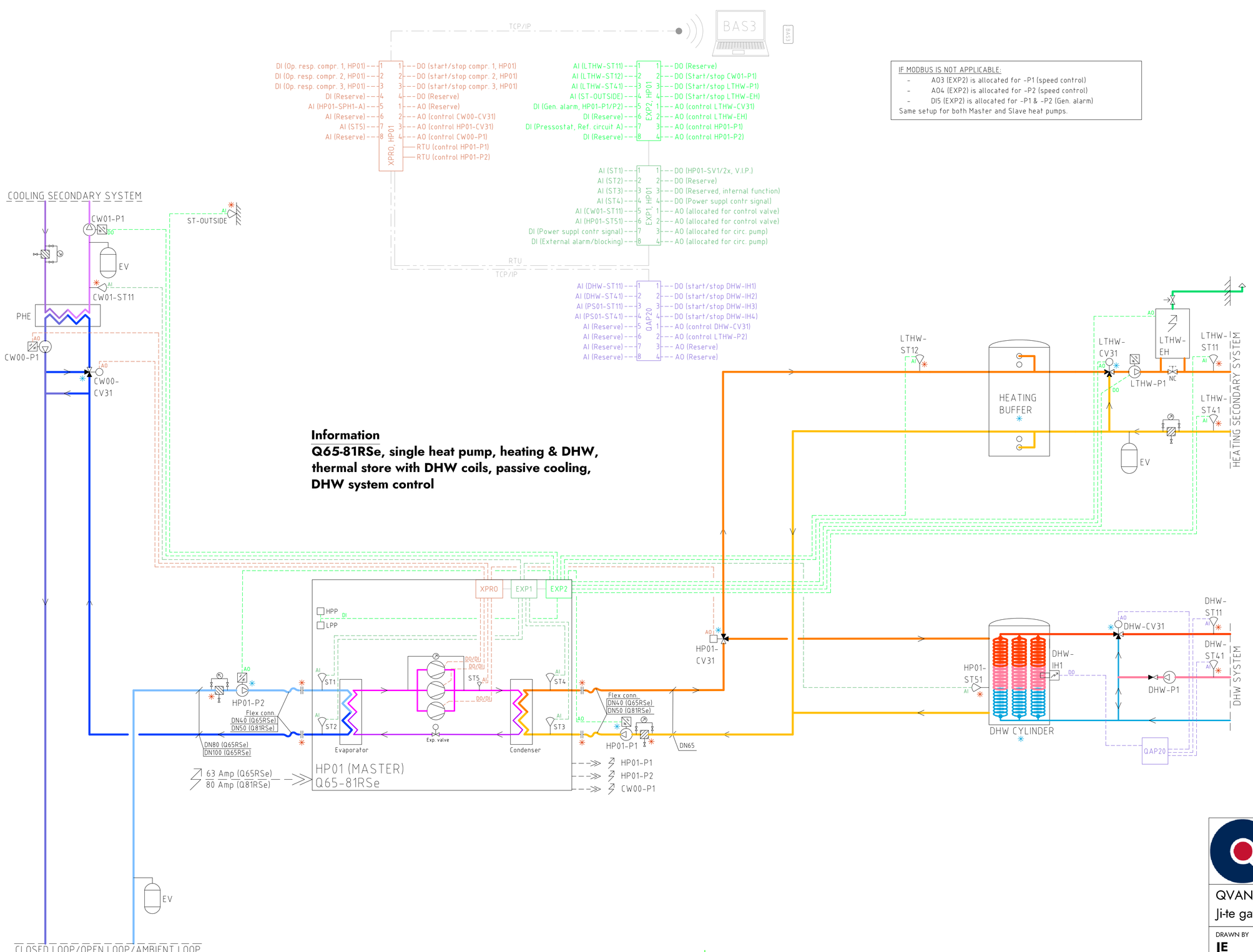
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Subject to possible printing errors.

Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the RSe unit.
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DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- – – – – DI, DO, AI & AO signals
- —·— Modbus TCP/IP
- — – – Modbus RTU
- ✳ Components supplied by Qvantum
- ✳ Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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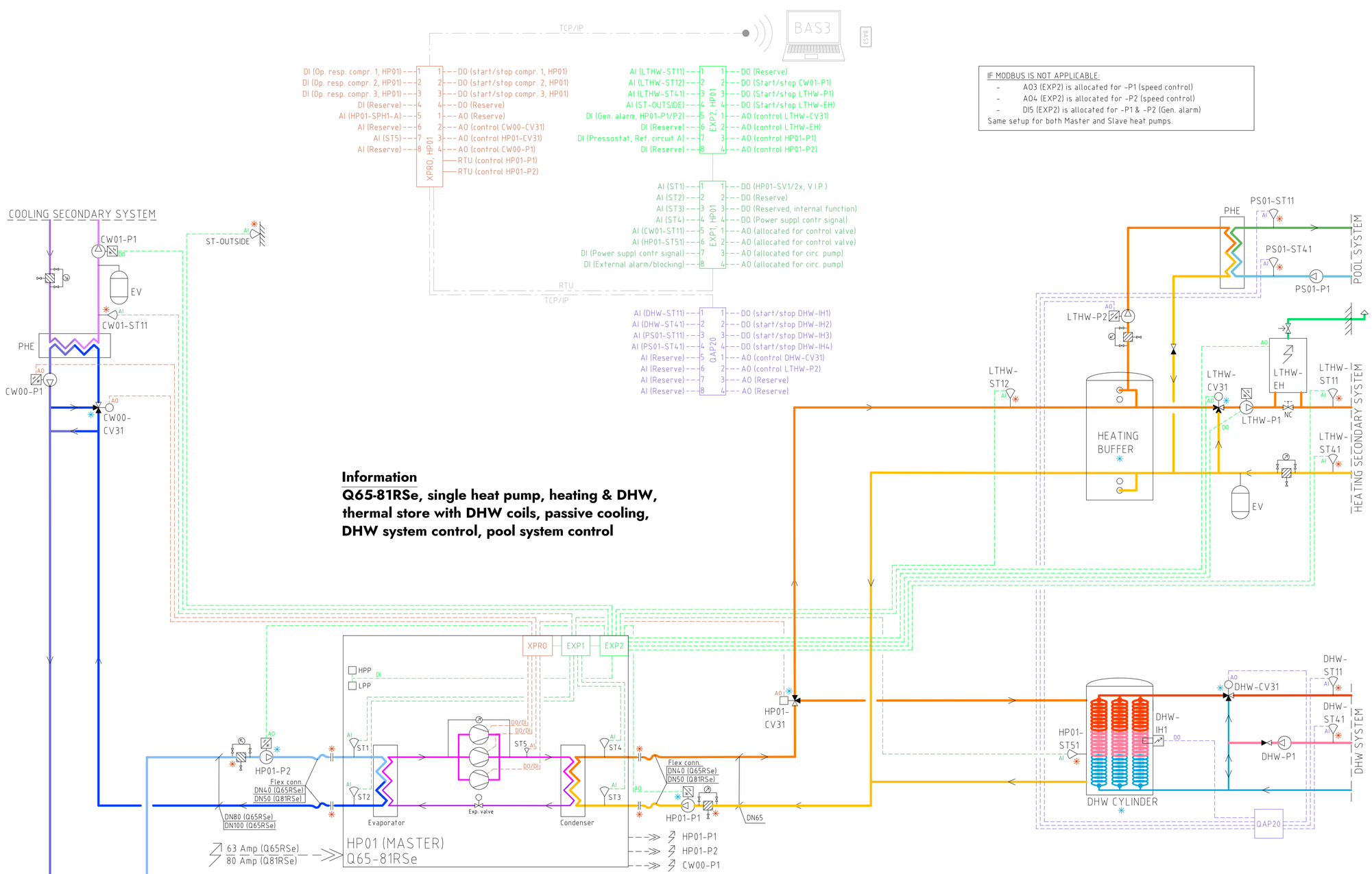
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Subject to possible printing errors.

Please note

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DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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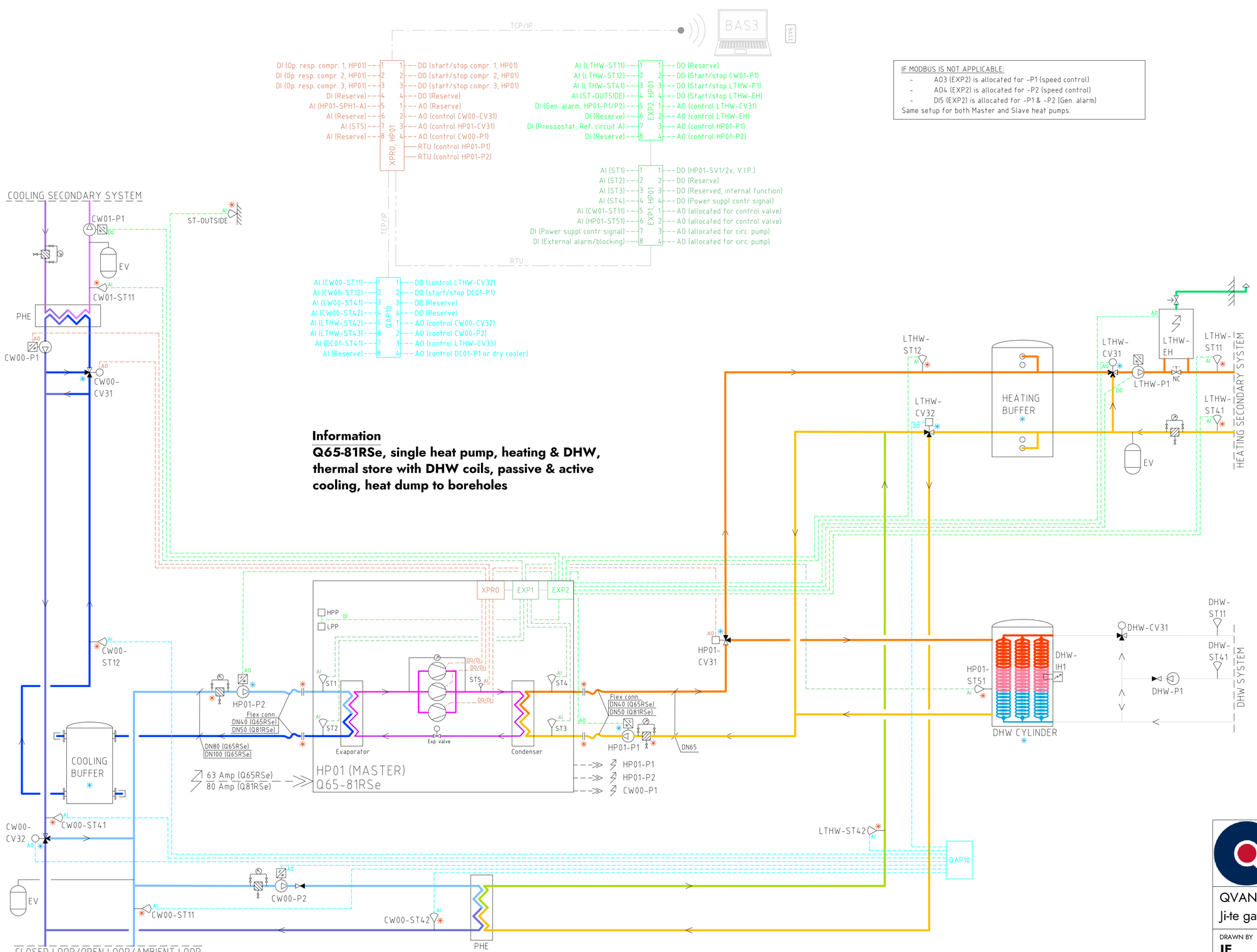
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Subject to possible printing errors.

Please note

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Information

Q65-81RSe, single heat pump, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to boreholes

DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- – – – – DI, DO, AI & AO signals
- —·— Modbus TCP/IP
- — – – Modbus RTU
- ✳ Components supplied by Qvantum
- ✳ Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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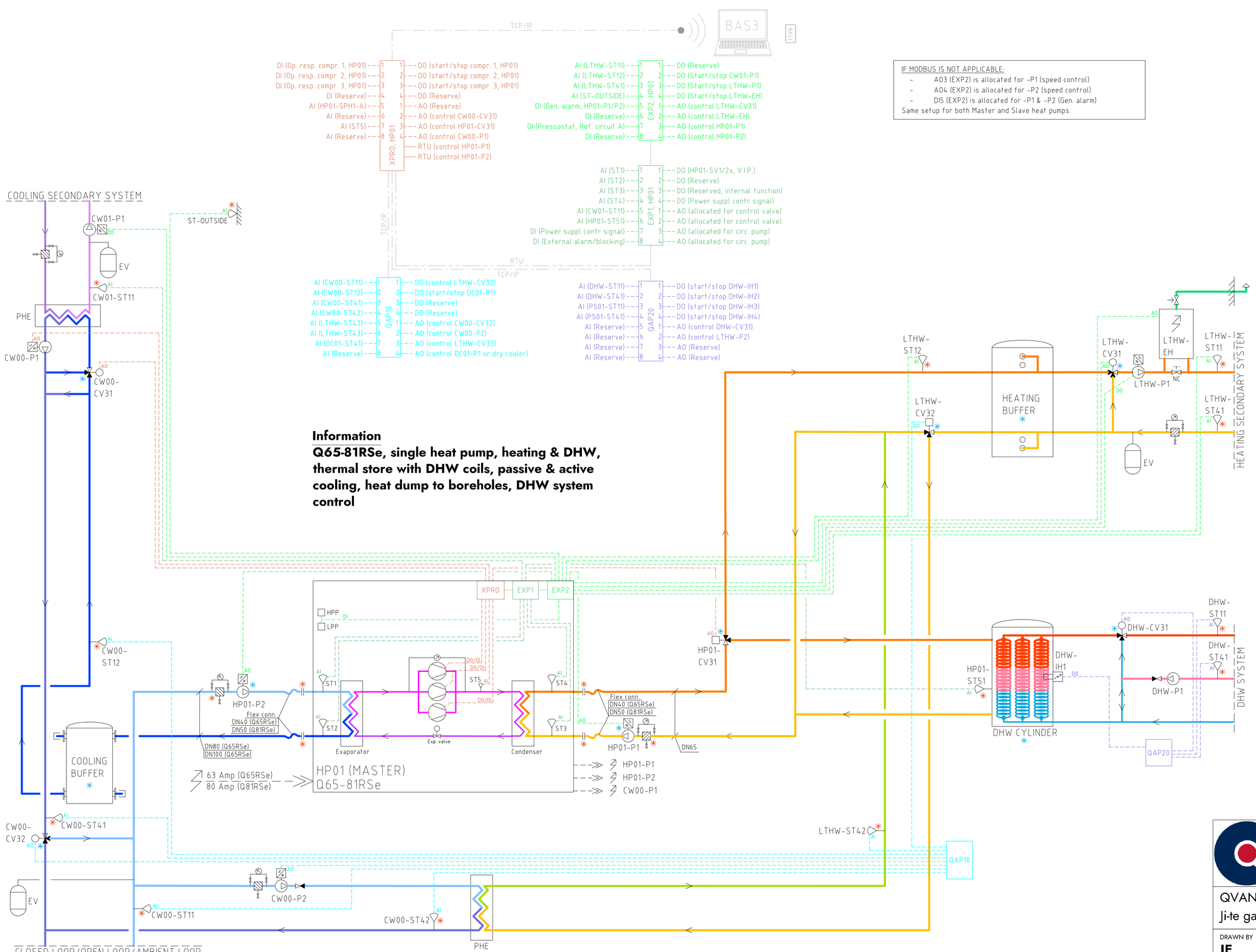
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Subject to possible printing errors.

Please note

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DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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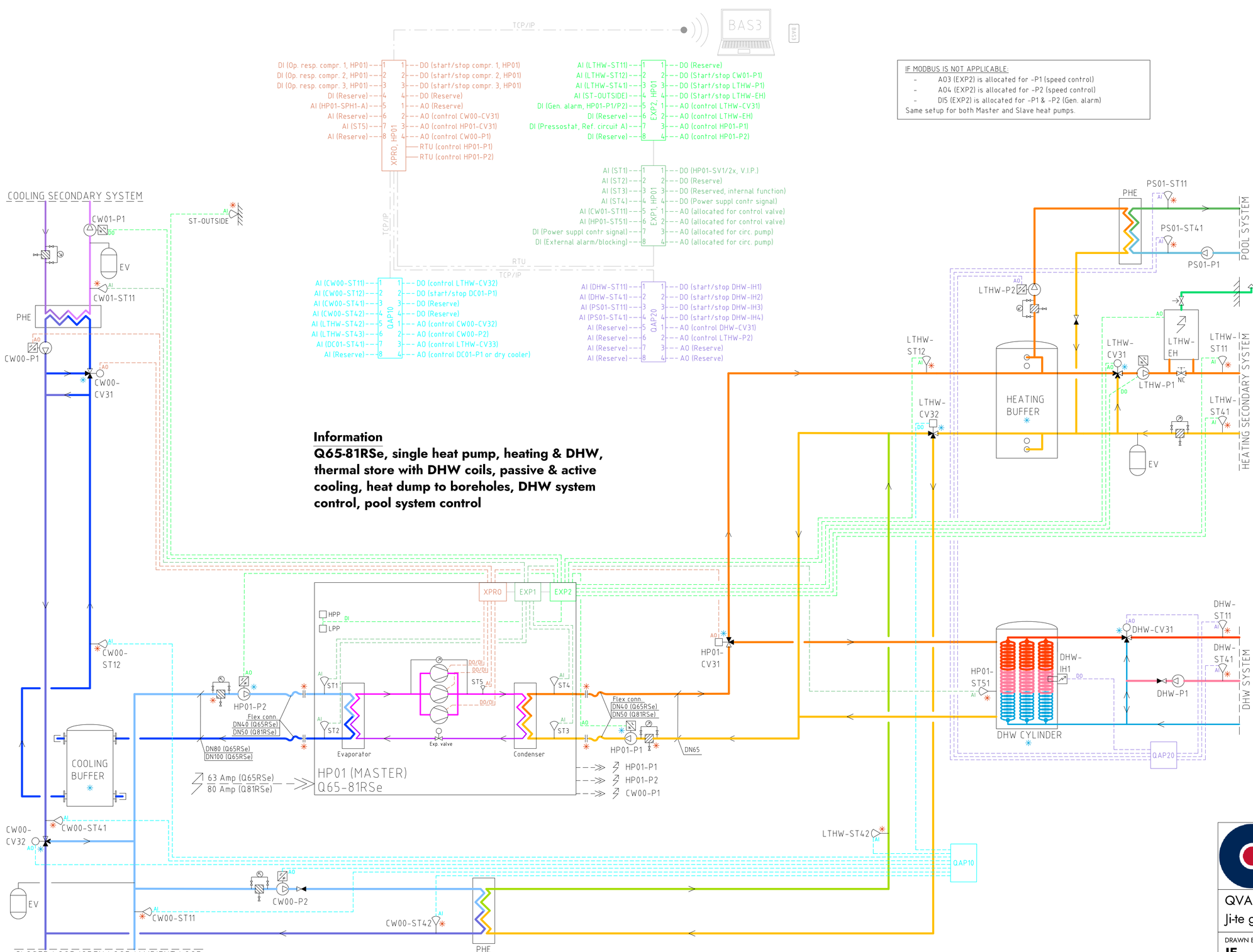
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Subject to possible printing errors.

Please note

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- The representation of safety devices is not complete and fittings and safety devices outside the RSe unit are not included and must be provided and installed on site.



Information

Q65-81RSe, single heat pump, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to boreholes, DHW system control, pool system control

DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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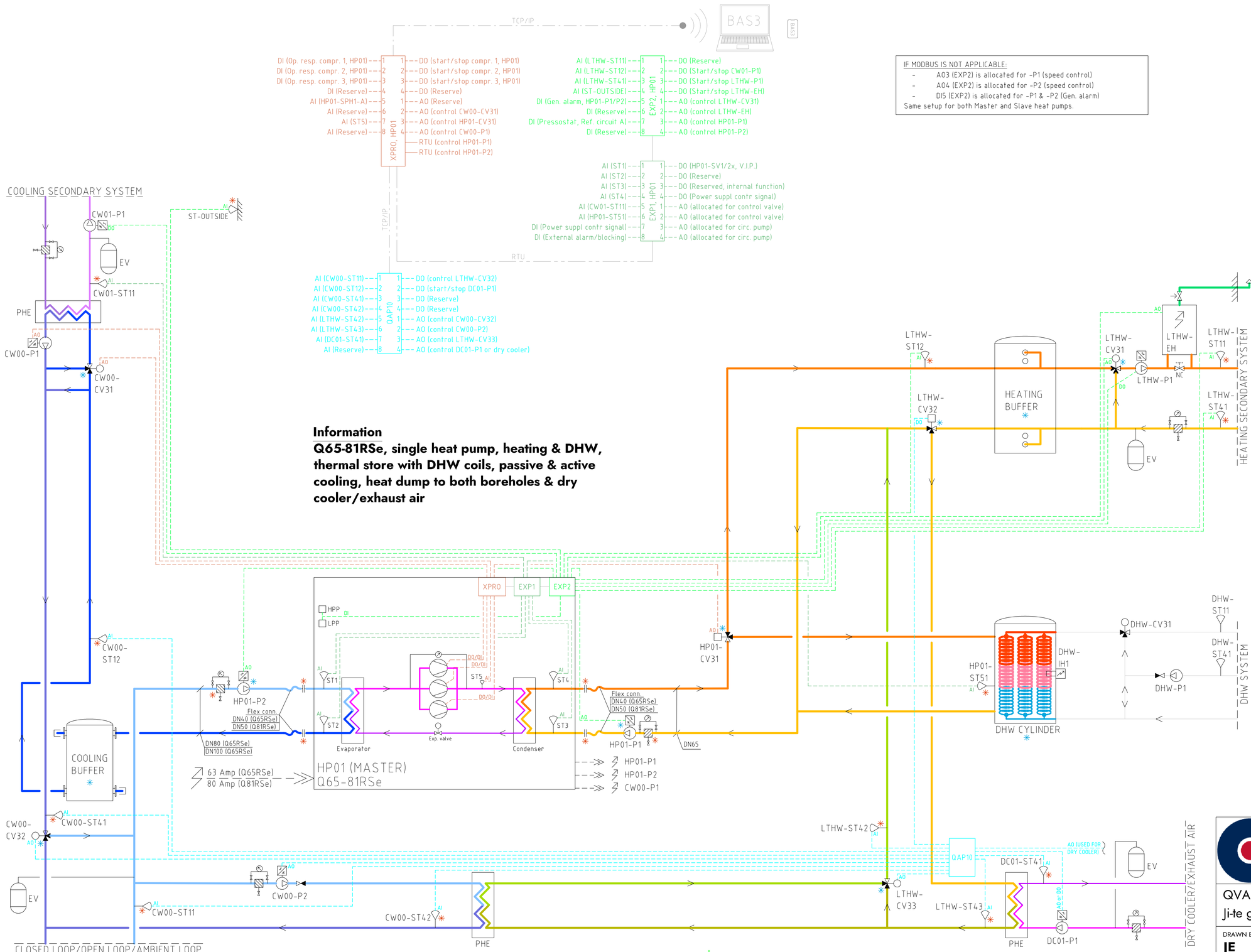
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Subject to possible printing errors.

Please note

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- The representation of safety devices is not complete and fittings and safety devices outside the RSe unit are not included and must be provided and installed on site.



Information

Q65-81RSe, single heat pump, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to both boreholes & dry cooler/exhaust air

DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- – – – – DI, DO, AI & AO signals
- —·— Modbus TCP/IP
- — – – Modbus RTU
- ✳ Components supplied by Qvantum
- ✳ Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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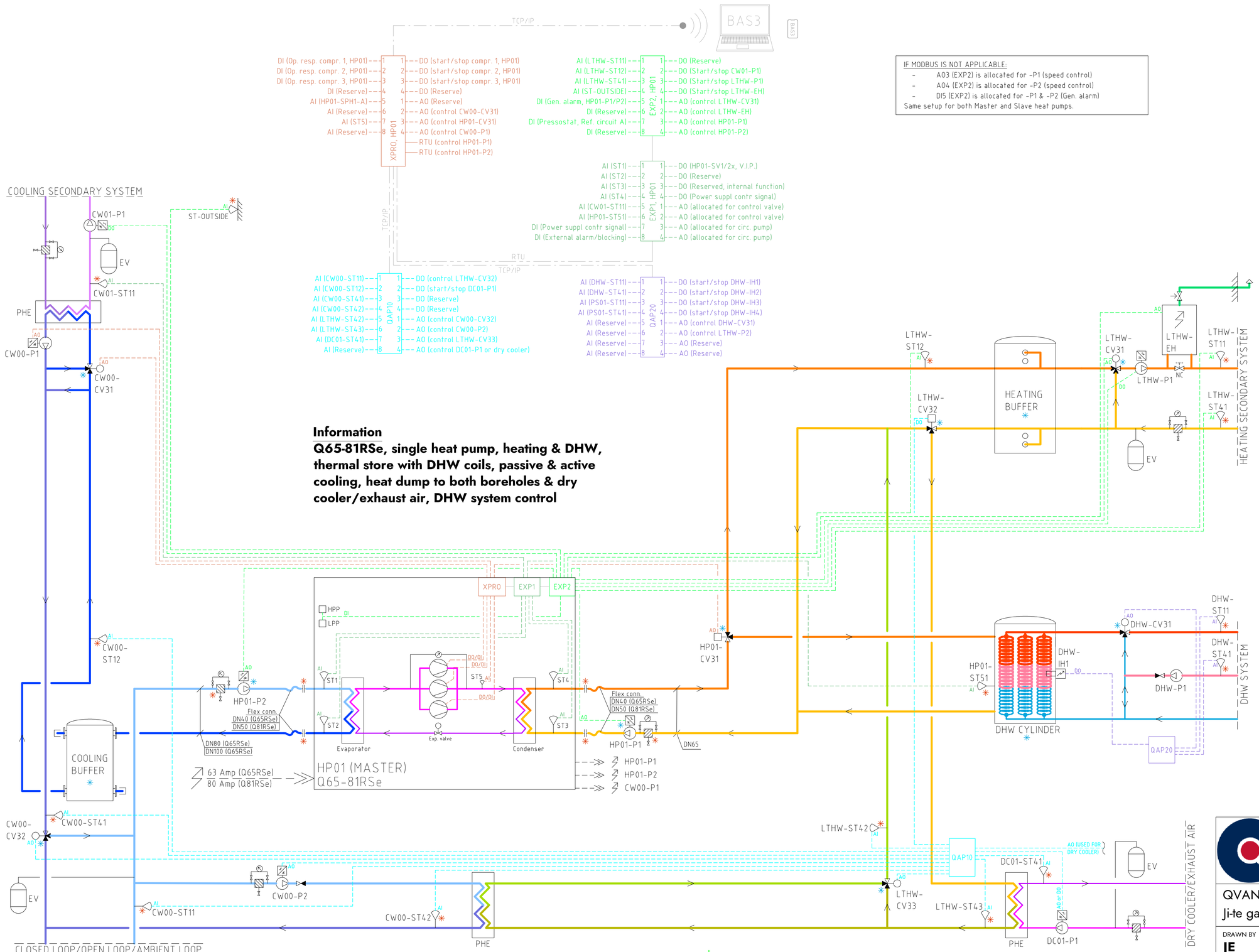
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Subject to possible printing errors.

Please note

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- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete and fittings and safety devices outside the RSe unit are not included and must be provided and installed on site.



Information

Q65-81RSe, single heat pump, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to both boreholes & dry cooler/exhaust air, DHW system control

DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- – – – – DI, DO, AI & AO signals
- —·— Modbus TCP/IP
- — – – Modbus RTU
- ✳ Components supplied by Qvantum
- ✳ Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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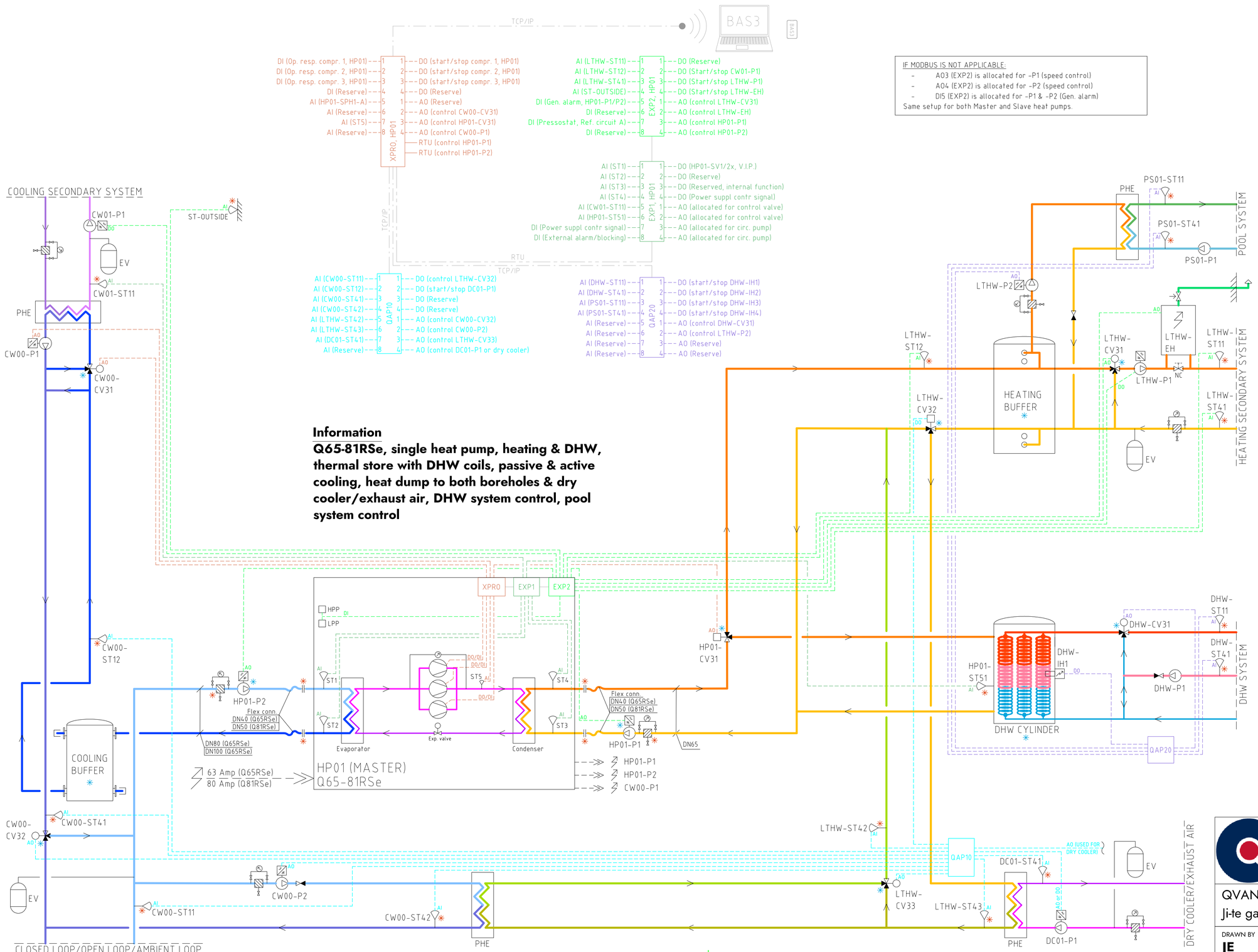
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Subject to possible printing errors.

Please note

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- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete and fittings and safety devices outside the RSe unit are not included and must be provided and installed on site.



Information

Q65-81RSe, single heat pump, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to both boreholes & dry cooler/exhaust air, DHW system control, pool system control

DISCLAIMERS

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM RSe

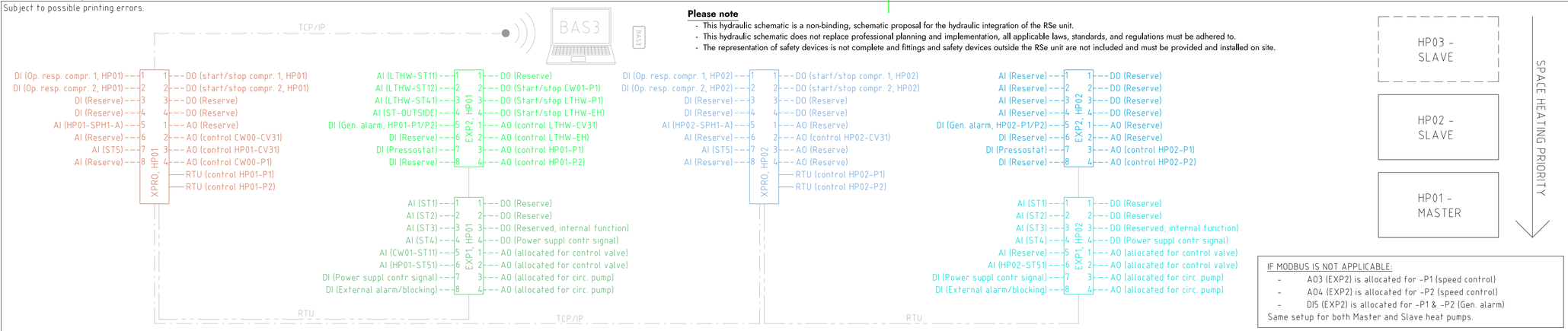
HYDRAULIC SCHEMATICS

multiple heat pumps

Subject to possible printing errors.

Subject to possible printing errors.

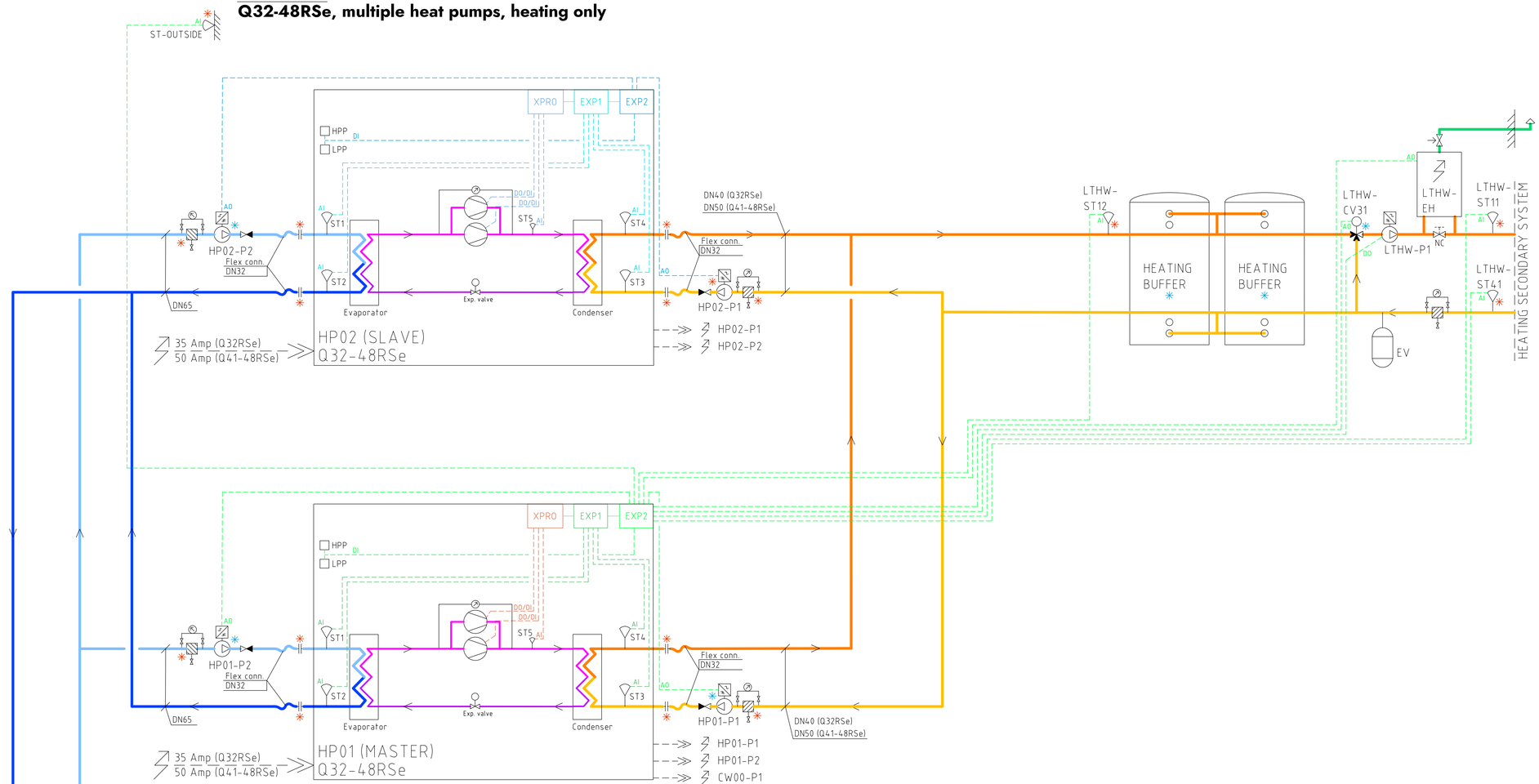
Please note
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- The representation of safety devices is not complete and fittings and safety devices outside the RSe unit are not included and must be provided and installed on site.



IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information
Q32-48RSe, multiple heat pumps, heating only



DISCLAIMERS

Space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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HEAT PUMPS FOR SUSTAINABLE CITIES

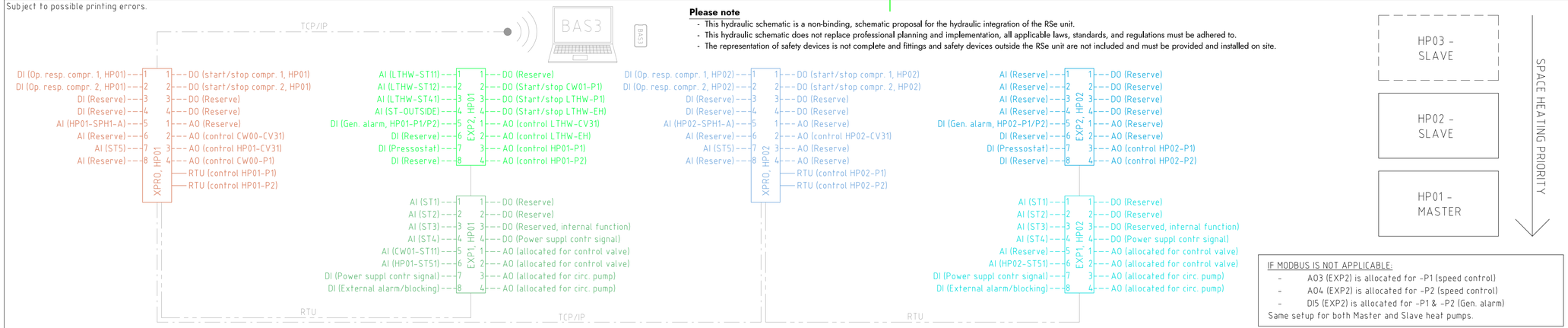
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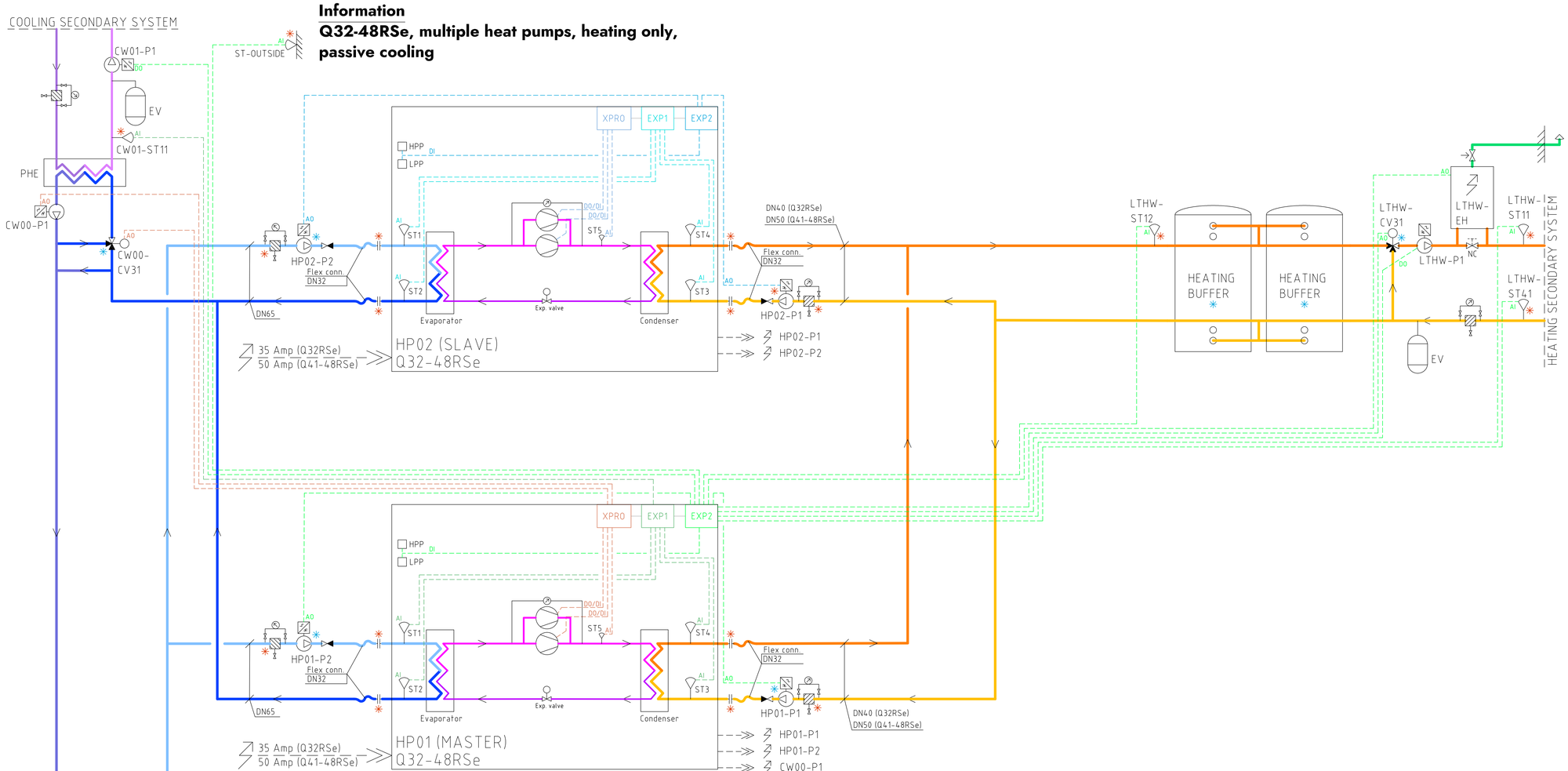
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IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information
Q32-48RSe, multiple heat pumps, heating only, passive cooling



DISCLAIMERS

Space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

- DI, DO, AI & AO signals
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- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

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Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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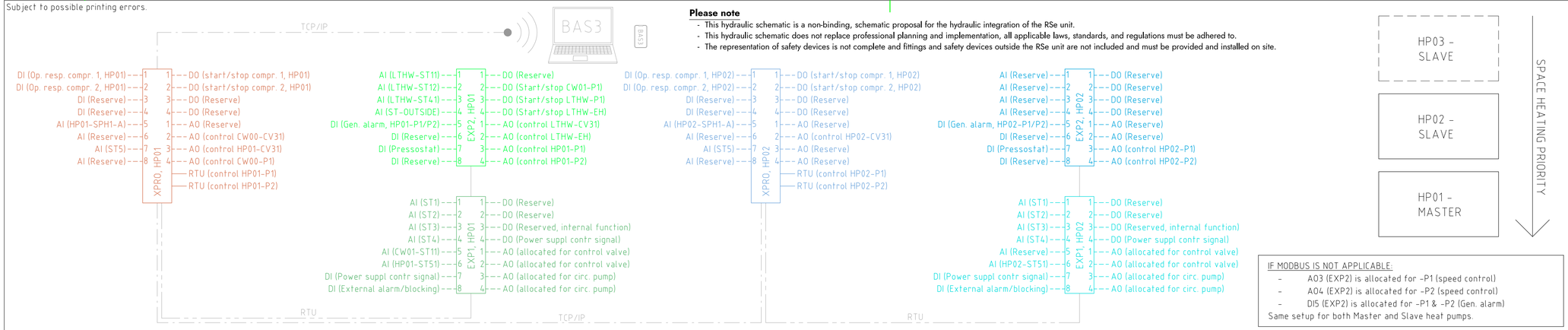
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LAGER: SB11

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Please note

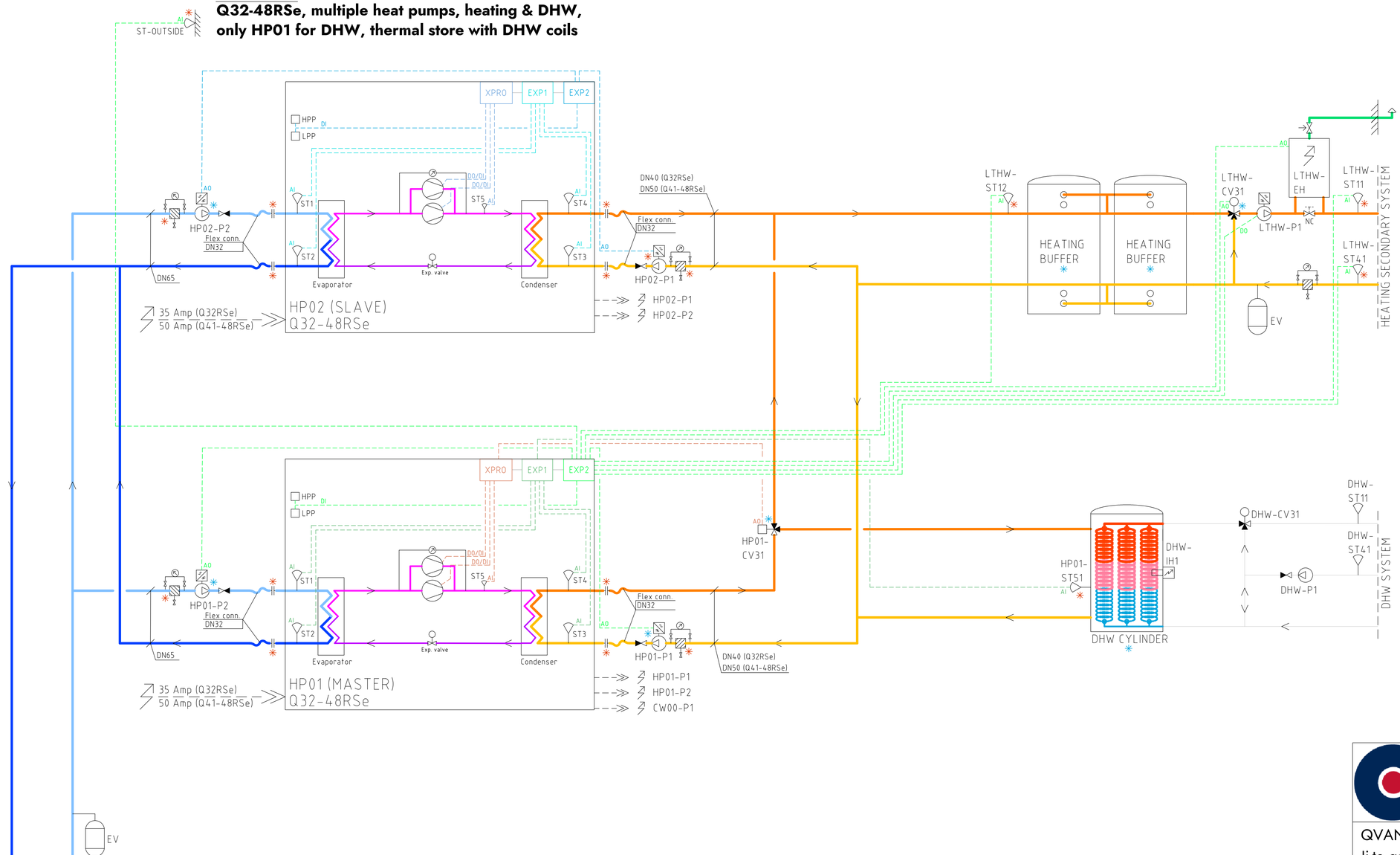
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IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information

Q32-48RSe, multiple heat pumps, heating & DHW, only HP01 for DHW, thermal store with DHW coils



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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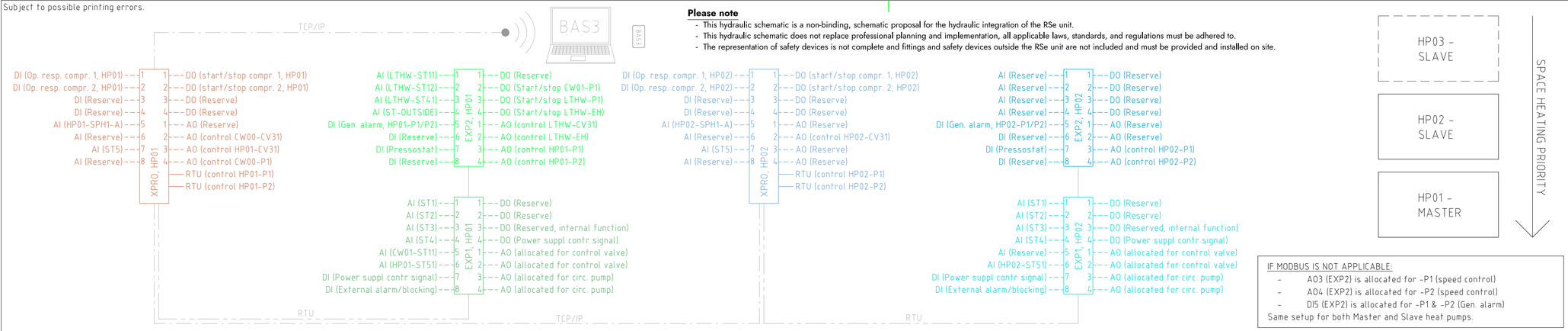
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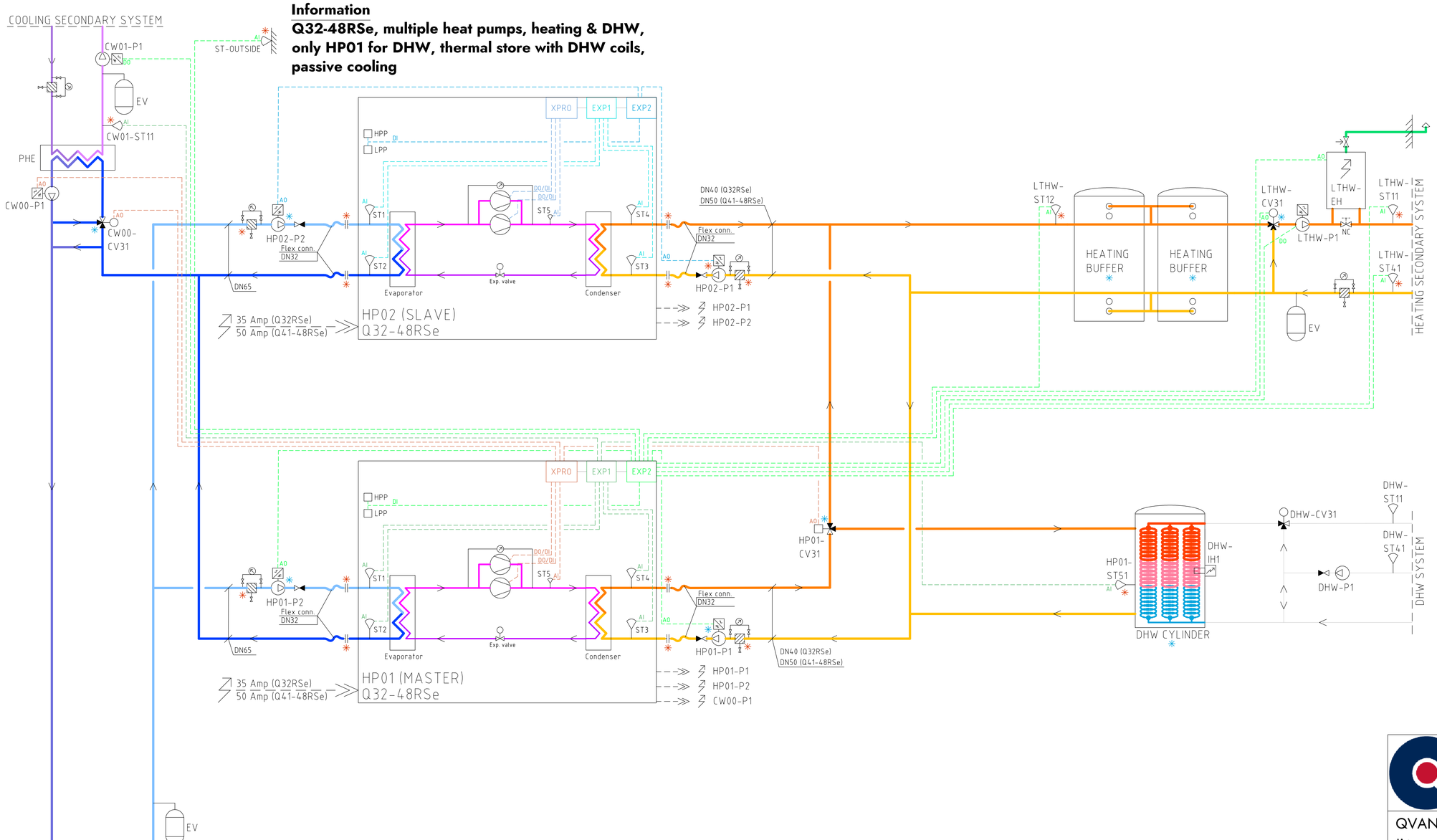
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IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information
Q32-48RSe, multiple heat pumps, heating & DHW, only HP01 for DHW, thermal store with DHW coils, passive cooling



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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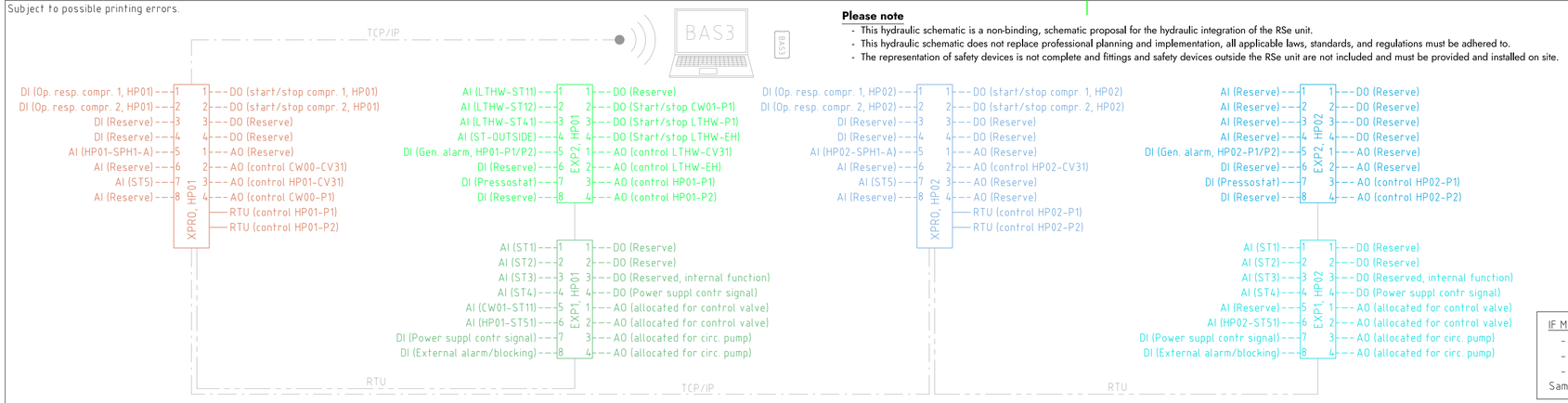
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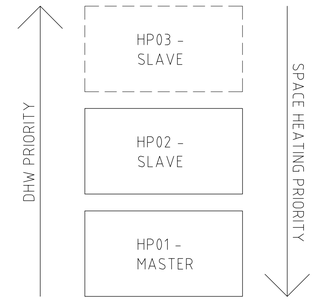
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Please note

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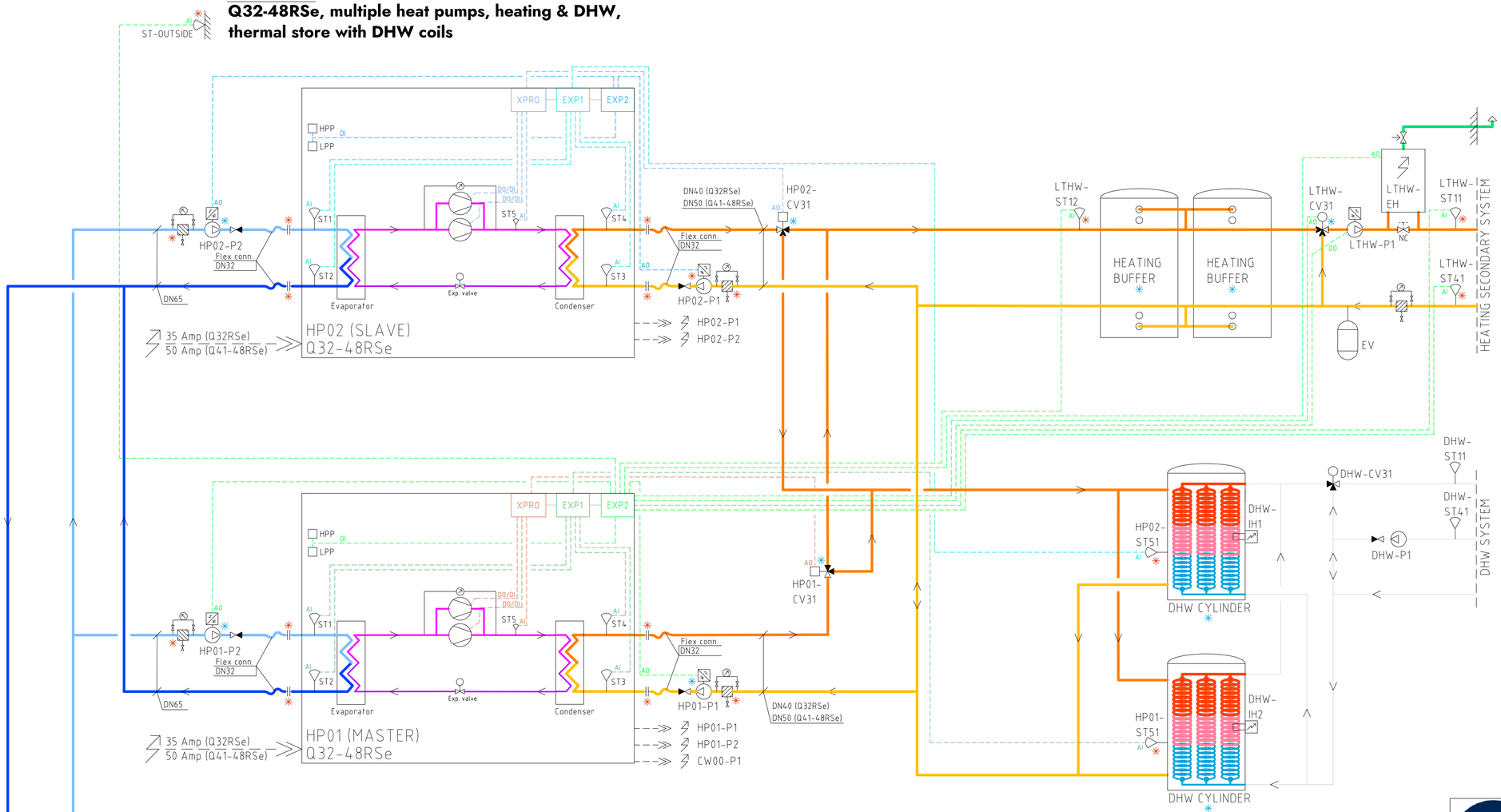




IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information
Q32-48RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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HEAT PUMPS FOR SUSTAINABLE CITIES

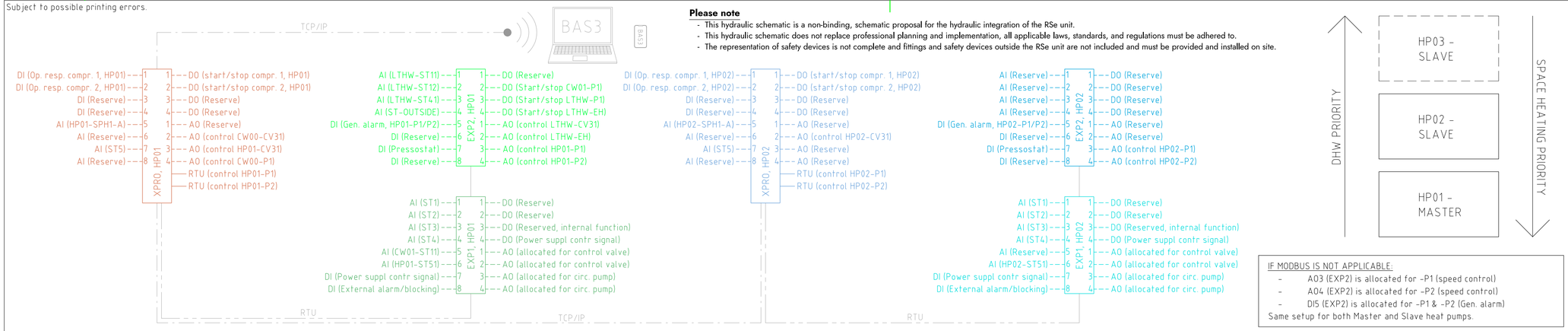
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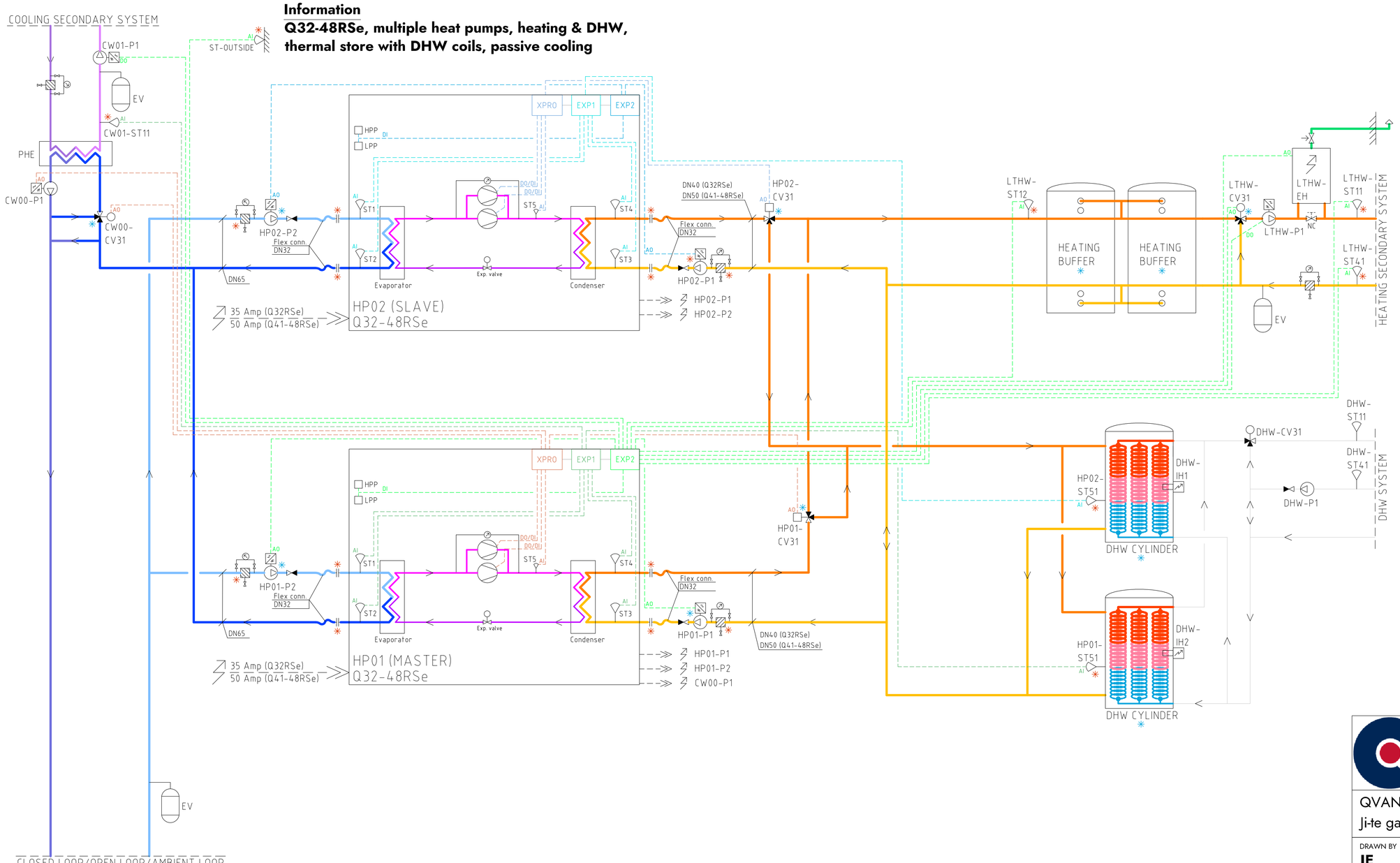
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IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information
Q32-48RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive cooling



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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HEAT PUMPS FOR SUSTAINABLE CITIES

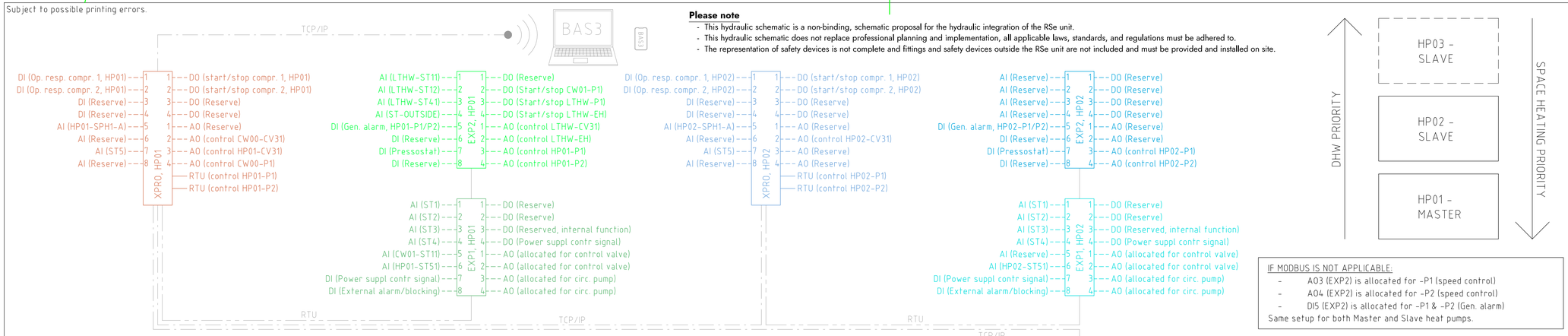
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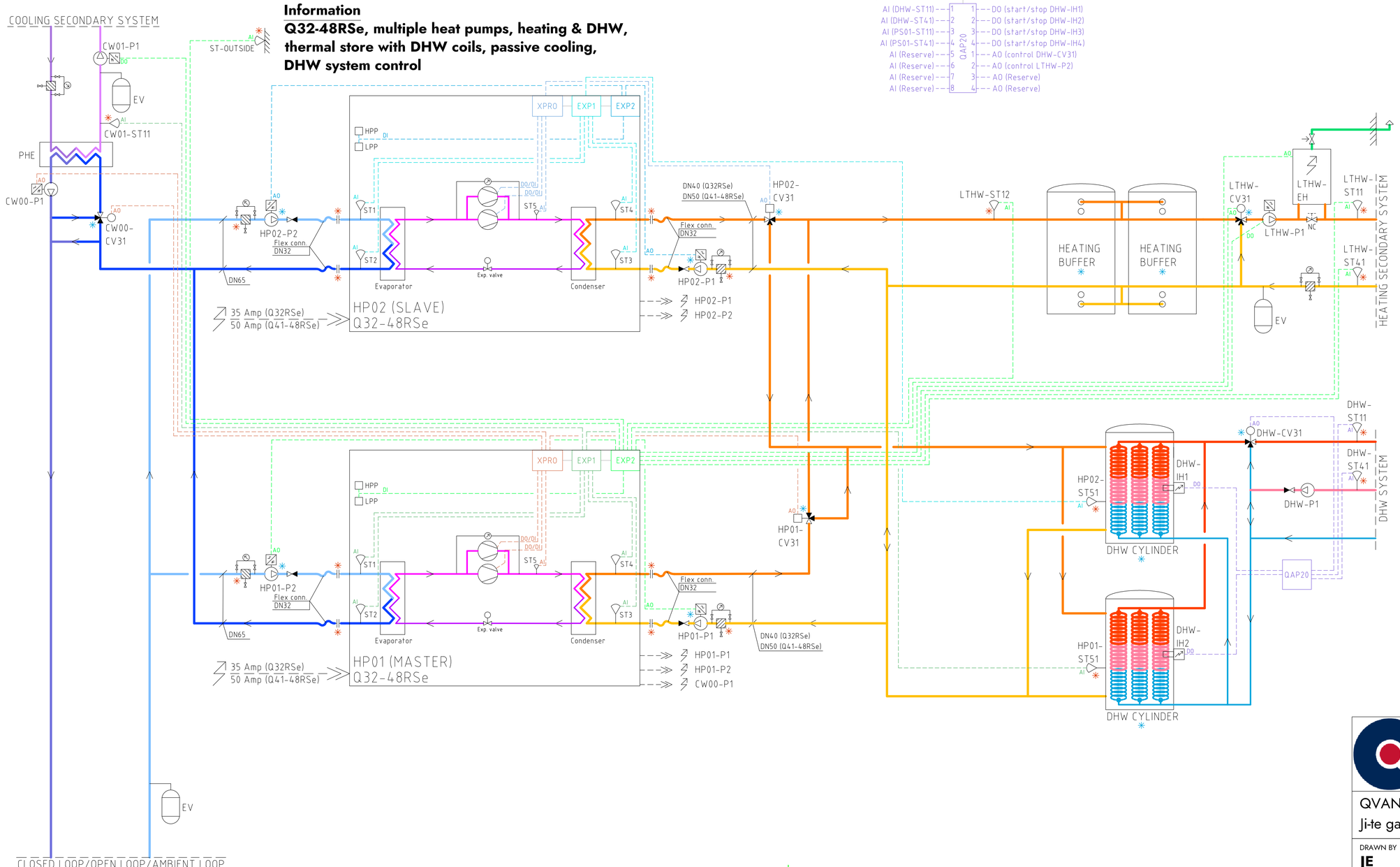
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IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information
Q32-48RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive cooling, DHW system control



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

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Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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HEAT PUMPS FOR SUSTAINABLE CITIES

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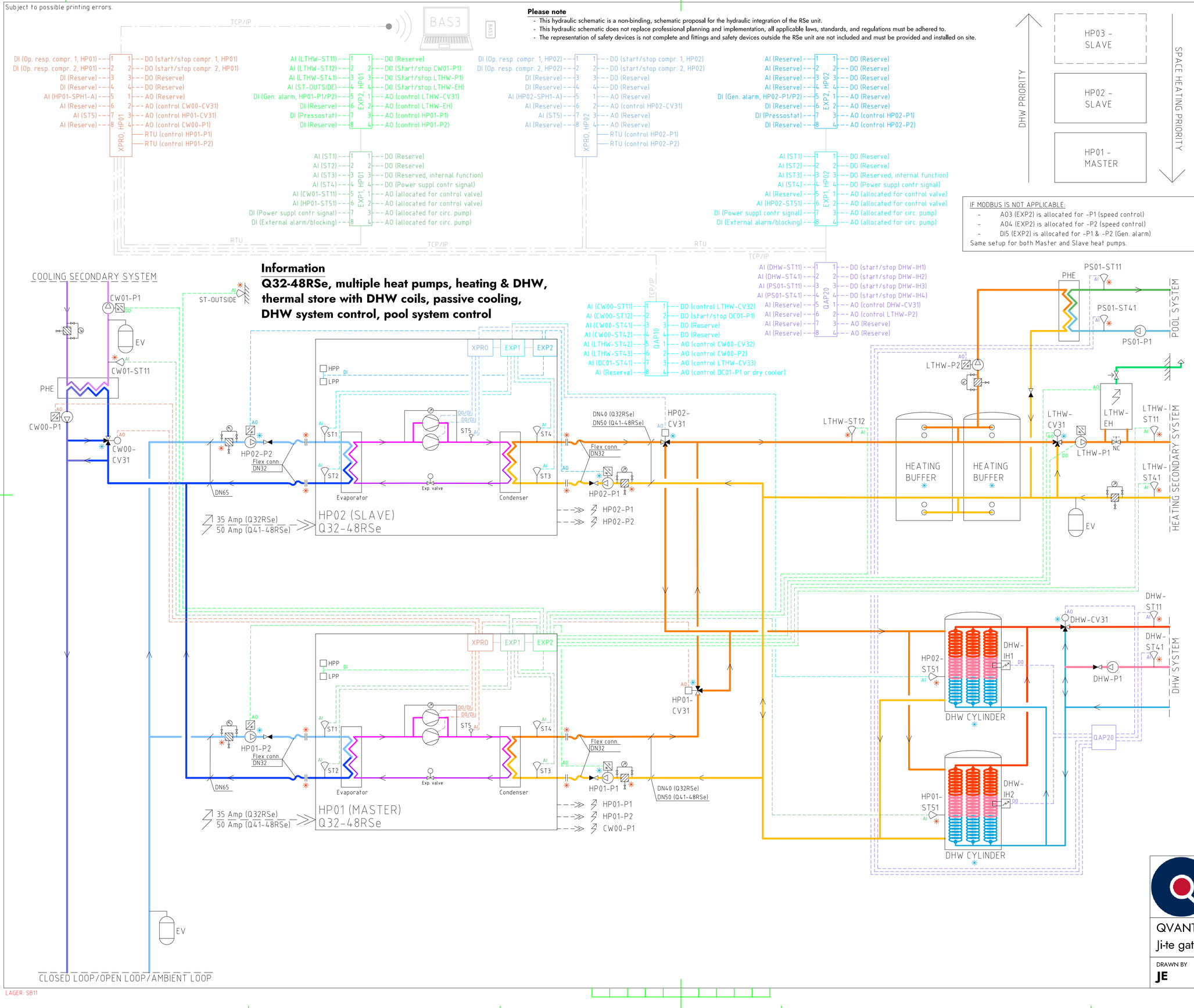
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Information

Q32-48RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive cooling, DHW system control, pool system control



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

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Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

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- Components supplied by Qvantum
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Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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HEAT PUMPS FOR SUSTAINABLE CITIES

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Information
Q32-48RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to boreholes

TCP/IP · BAS3 · BAS

XPRO, HP01: DI (Op. resp. compr. 1, HP01) · DI (Op. resp. compr. 2, HP01) · DI (Reserve) · DI (Reserve) · AI (HP01-SPH1-A) · AI (Reserve) · AI (ST5) · AI (Reserve) → DO (start/stop compr. 1, HP01) · DO (start/stop compr. 2, HP01) · DO (Reserve) · DO (Reserve) · AO (Reserve) · AO (control CW00-CV31) · AO (control HP01-CV31) · AO (control CW00-P1) · RTU (control HP01-P1) · RTU (control HP01-P2)

EXP2, HP01: AI (LTHW-ST11) · AI (LTHW-ST12) · AI (LTHW-ST41) · AI (ST-OUTSIDE) · DI (Gen. alarm, HP01-P1/P2) · DI (Reserve) · DI (Pressostat) · DI (Reserve) → DO (Reserve) · DO (Start/stop CW01-P1) · DO (Start/stop LTHW-P1) · DO (Start/stop LTHW-EH) · AO (control LTHW-CV31) · AO (control LTHW-EH) · AO (control HP01-P1) · AO (control HP01-P2)

EXP1, HP01: AI (ST1) · AI (ST2) · AI (ST3) · AI (ST4) · AI (CW01-ST11) · AI (HP01-ST51) · DI (Power suppl contr signal) · DI (External alarm/blocking) → DO (Reserve) · DO (Reserve) · DO (Reserved, internal function) · DO (Power suppl contr signal) · AO (allocated for control valve) · AO (allocated for control valve) · AO (allocated for circ. pump) · AO (allocated for circ. pump)

XPRO, HP02: DI (Op. resp. compr. 1, HP02) · DI (Op. resp. compr. 2, HP02) · DI (Reserve) · DI (Reserve) · AI (HP02-SPH1-A) · AI (Reserve) · AI (ST5) · AI (Reserve) → DO (start/stop compr. 1, HP02) · DO (start/stop compr. 2, HP02) · DO (Reserve) · DO (Reserve) · AO (Reserve) · AO (control HP02-CV31) · AO (Reserve) · AO (Reserve) · RTU (control HP02-P1) · RTU (control HP02-P2)

EXP2, HP02: AI (Reserve) · AI (Reserve) · AI (Reserve) · AI (Reserve) · DI (Gen. alarm, HP02-P1/P2) · DI (Reserve) · DI (Pressostat) · DI (Reserve) → DO (Reserve) · DO (Reserve) · DO (Reserve) · DO (Reserve) · AO (Reserve) · AO (Reserve) · AO (control HP02-P1) · AO (control HP02-P2)

EXP1, HP02: AI (ST1) · AI (ST2) · AI (ST3) · AI (ST4) · AI (Reserve) · AI (HP02-ST51) · DI (Power suppl contr signal) · DI (External alarm/blocking) → DO (Reserve) · DO (Reserve) · DO (Reserved, internal function) · DO (Power suppl contr signal) · AO (allocated for control valve) · AO (allocated for control valve) · AO (allocated for circ. pump) · AO (allocated for circ. pump)

DHW PRIORITY · SPACE HEATING PRIORITY

HP03 - SLAVE · HP02 - SLAVE · HP01 - MASTER

IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

QAP10: AI (CW00-ST11) · AI (CW00-ST12) · AI (CW00-ST41) · AI (CW00-ST42) · AI (LTHW-ST42) · AI (LTHW-ST43) · AI (DC01-ST41) · AI (Reserve) → DO (control LTHW-CV32) · DO (start/stop DC01-P1) · DO (Reserve) · DO (Reserve) · AO (control CW00-CV32) · AO (control CW00-P2) · AO (control LTHW-CV33) · AO (control DC01-P1 or dry cooler)

COOLING SECONDARY SYSTEM · CW01-P1 · EV · CW01-ST11 · PHE · CW00-P1 · CW00-CV31 · CW00-ST12 · COOLING BUFFER · ST-OUTSIDE

HP02 (SLAVE) Q32-48RSe: XPRO · EXP1 · EXP2 · HPP · LPP · HP02-P2 · Flex conn. DN32 · DN65 · ST1 · ST2 · ST3 · ST4 · ST5 · Evaporator · Exp. valve · Condenser · HP02-P1 · DN40 (Q32RSe) DN50 (Q41-48RSe) · HP02-CV31 · 35 Amp (Q32RSe) 50 Amp (Q41-48RSe)

HP01 (MASTER) Q32-48RSe: XPRO · EXP1 · EXP2 · HPP · LPP · HP01-P2 · Flex conn. DN32 · DN65 · ST1 · ST2 · ST3 · ST4 · ST5 · Evaporator · Exp. valve · Condenser · HP01-P1 · DN40 (Q32RSe) DN50 (Q41-48RSe) · HP01-CV31 · 35 Amp (Q32RSe) 50 Amp (Q41-48RSe)

LTHW-ST12 · LTHW-CV32 · HEATING BUFFER · HEATING BUFFER · LTHW-CV31 · LTHW-EH · LTHW-P1 · LTHW-ST11 · LTHW-ST41 · EV · HEATING SECONDARY SYSTEM

DHW CYLINDER · HP02-ST51 · DHW-IH1 · DHW-CV31 · DHW-ST11 · DHW-ST41 · DHW-P1 · DHW SYSTEM

DHW CYLINDER · HP01-ST51 · DHW-IH2

CW00-CV32 · CW00-ST41 · CW00-ST42 · CW00-ST11 · CW00-P2 · LTHW-ST42 · QAP10 · EV · PHE · CLOSED LOOP/OPEN LOOP/AMBIENT LOOP

DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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DRAWN BY	DRAWING NUMBER	PAGE NUMBER
JE	Q-32-48-RSe-8-208	41

XREF:
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PLOT: 2025-11-29 23:09 G:\QVANTUM\01 INTERNT\05 RITNINGAR\DOCKNINGSPRINCIPER\DOCKNINGSPRINCIP KYLKARETS MITT I RSE_[200-213]_2025-11-24.DWG JONAS

Subject to possible printing errors.

Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the RSe unit.
- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete and fittings and safety devices outside the RSe unit are not included and must be provided and installed on site.

Information

Q32-48RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to boreholes, DHW system control

TCP/IP · BAS3 · BAS3

XPRO, HP01: DI (Op. resp. compr. 1, HP01) · DI (Op. resp. compr. 2, HP01) · DI (Reserve) · DI (Reserve) · AI (HP01-SPH1-A) · AI (Reserve) · AI (ST5) · AI (Reserve) → DO (start/stop compr. 1, HP01) · DO (start/stop compr. 2, HP01) · DO (Reserve) · DO (Reserve) · AO (Reserve) · AO (control CW00-CV31) · AO (control HP01-CV31) · AO (control CW00-P1) · RTU (control HP01-P1) · RTU (control HP01-P2)

EXP2, HP01: AI (LTHW-ST11) · AI (LTHW-ST12) · AI (LTHW-ST41) · AI (ST-OUTSIDE) · DI (Gen. alarm, HP01-P1/P2) · DI (Reserve) · DI (Pressostat) · DI (Reserve) → DO (Reserve) · DO (Start/stop CW01-P1) · DO (Start/stop LTHW-P1) · DO (Start/stop LTHW-EH) · AO (control LTHW-CV31) · AO (control LTHW-EH) · AO (control HP01-P1) · AO (control HP01-P2)

EXP1, HP01: AI (ST1) · AI (ST2) · AI (ST3) · AI (ST4) · AI (CW01-ST11) · AI (HP01-ST51) · DI (Power suppl contr signal) · DI (External alarm/blocking) → DO (Reserve) · DO (Reserve) · DO (Reserved, internal function) · DO (Power suppl contr signal) · AO (allocated for control valve) · AO (allocated for control valve) · AO (allocated for circ. pump) · AO (allocated for circ. pump)

XPRO, HP02: DI (Op. resp. compr. 1, HP02) · DI (Op. resp. compr. 2, HP02) · DI (Reserve) · DI (Reserve) · AI (HP02-SPH1-A) · AI (Reserve) · AI (ST5) · AI (Reserve) → DO (start/stop compr. 1, HP02) · DO (start/stop compr. 2, HP02) · DO (Reserve) · DO (Reserve) · AO (Reserve) · AO (control HP02-CV31) · AO (Reserve) · AO (Reserve) · RTU (control HP02-P1) · RTU (control HP02-P2)

EXP2, HP02: AI (Reserve) · AI (Reserve) · AI (Reserve) · AI (Reserve) · DI (Gen. alarm, HP02-P1/P2) · DI (Reserve) · DI (Pressostat) · DI (Reserve) → DO (Reserve) · DO (Reserve) · DO (Reserve) · DO (Reserve) · AO (Reserve) · AO (Reserve) · AO (control HP02-P1) · AO (control HP02-P2)

EXP1, HP02: AI (ST1) · AI (ST2) · AI (ST3) · AI (ST4) · AI (Reserve) · AI (HP02-ST51) · DI (Power suppl contr signal) · DI (External alarm/blocking) → DO (Reserve) · DO (Reserve) · DO (Reserved, internal function) · DO (Power suppl contr signal) · AO (allocated for control valve) · AO (allocated for control valve) · AO (allocated for circ. pump) · AO (allocated for circ. pump)

QAP10: AI (CW00-ST11) · AI (CW00-ST12) · AI (CW00-ST41) · AI (CW00-ST42) · AI (LTHW-ST42) · AI (LTHW-ST43) · AI (DC01-ST41) · AI (Reserve) → DO (control LTHW-CV32) · DO (start/stop DC01-P1) · DO (Reserve) · DO (Reserve) · AO (control CW00-CV32) · AO (control CW00-P2) · AO (control LTHW-CV33) · AO (control DC01-P1 or dry cooler)

QAP20: AI (DHW-ST11) · AI (DHW-ST41) · AI (PS01-ST11) · AI (PS01-ST41) · AI (Reserve) · AI (Reserve) · AI (Reserve) · AI (Reserve) → DO (start/stop DHW-IH1) · DO (start/stop DHW-IH2) · DO (start/stop DHW-IH3) · DO (start/stop DHW-IH4) · AO (control DHW-CV31) · AO (control LTHW-P2) · AO (Reserve) · AO (Reserve)

DHW PRIORITY ↓ SPACE HEATING PRIORITY

HP03 - SLAVE · HP02 - SLAVE · HP01 - MASTER

IF MODBUS IS NOT APPLICABLE:
- A03 (EXP2) is allocated for -P1 (speed control)
- A04 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

COOLING SECONDARY SYSTEM · CW01-P1 · ST-OUTSIDE · EV · CW01-ST11 · PHE · CW00-P1 · CW00-CV31 · CW00-ST12 · COOLING BUFFER · CW00-ST41 · CW00-CV32 · EV · CW00-P2 · CW00-ST11 · CW00-ST42 · PHE · CLOSED LOOP/OPEN LOOP/AMBIENT LOOP

HP02 (SLAVE) Q32-48RSe: XPRO · EXP1 · EXP2 · HPP · LPP · DI · HP02-P2 · Flex conn. DN32 · DN65 · ST1 · ST2 · ST3 · ST4 · ST5 · DO/DI · Evaporator · Exp. valve · Condenser · DN40 (Q32RSe) DN50 (Q41-48RSe) · Flex conn. DN32 · HP02-P1 · HP02-CV31 · 35 Amp (Q32RSe) 50 Amp (Q41-48RSe) · HP02-P1 · HP02-P2

HP01 (MASTER) Q32-48RSe: XPRO · EXP1 · EXP2 · HPP · LPP · DI · HP01-P2 · Flex conn. DN32 · DN65 · ST1 · ST2 · ST3 · ST4 · ST5 · DO/DI · Evaporator · Exp. valve · Condenser · Flex conn. DN32 · HP01-P1 · HP01-CV31 · DN40 (Q32RSe) DN50 (Q41-48RSe) · 35 Amp (Q32RSe) 50 Amp (Q41-48RSe) · HP01-P1 · HP01-P2 · CW00-P1

LTHW-ST12 · LTHW-CV32 · HEATING BUFFER · HEATING BUFFER · LTHW-CV31 · LTHW-EH · LTHW-P1 · LTHW-ST11 · LTHW-ST41 · EV · HEATING SECONDARY SYSTEM

LTHW-ST42 · QAP10

DHW-ST11 · DHW-CV31 · DHW-ST41 · DHW SYSTEM · HP02-ST51 · DHW-IH1 · DHW CYLINDER · DHW-P1 · QAP20 · HP01-ST51 · DHW-IH2 · DHW CYLINDER

DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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DRAWN BY	DRAWING NUMBER	PAGE NUMBER
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Subject to possible printing errors.

Please note
- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the RSe unit.
- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete and fittings and safety devices outside the RSe unit are not included and must be provided and installed on site.

Information
Q32-48RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to boreholes, DHW system control, pool system control

DHW PRIORITY
SPACE HEATING PRIORITY
HP03 - SLAVE
HP02 - SLAVE
HP01 - MASTER

IF MODBUS IS NOT APPLICABLE:
- A03 (EXP2) is allocated for -P1 (speed control)
- A04 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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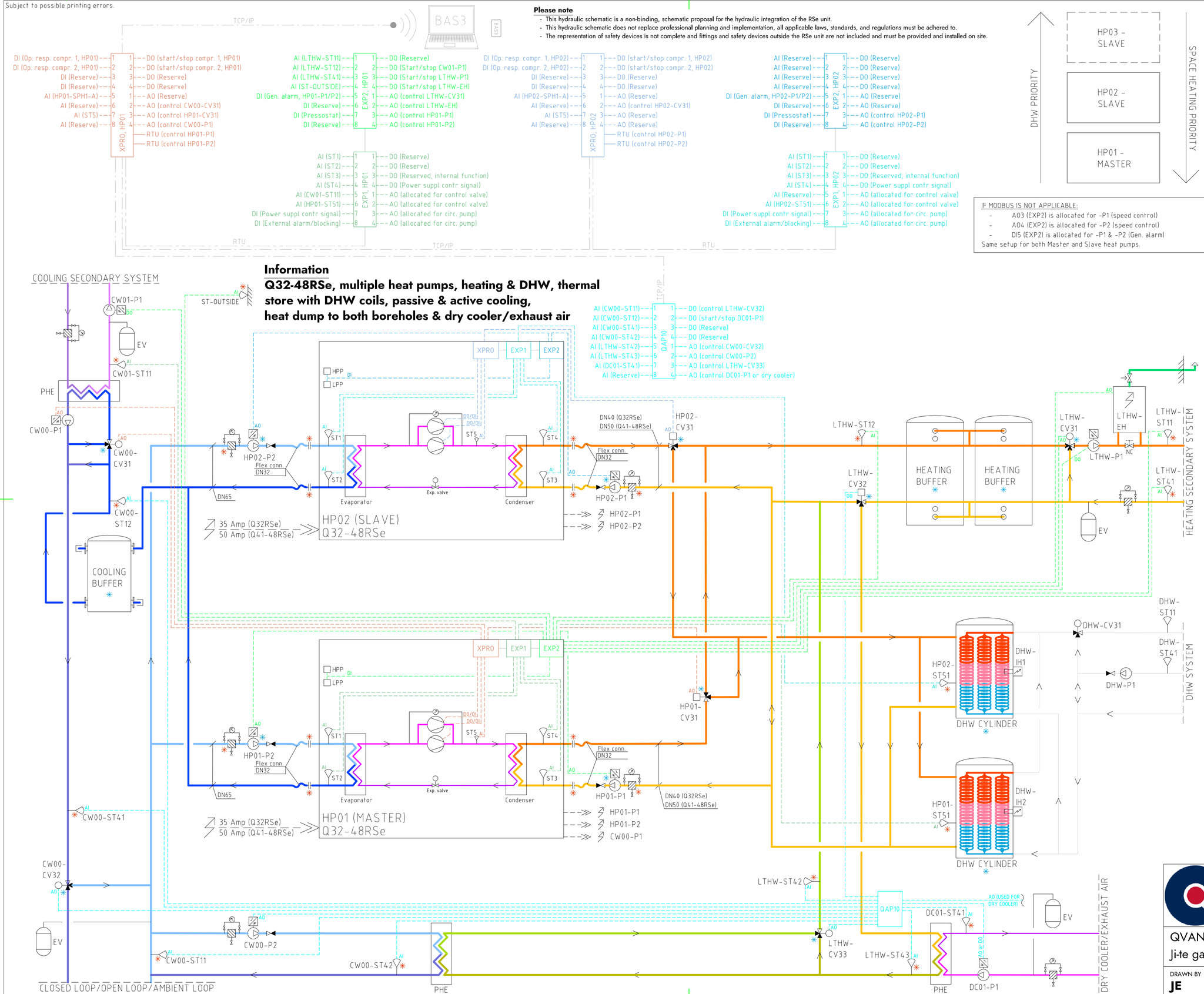
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Subject to possible printing errors.

Please note
- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the RSe unit.
- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete and fittings and safety devices outside the RSe unit are not included and must be provided and installed on site.

Information
Q32-48RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to both boreholes & dry cooler/exhaust air



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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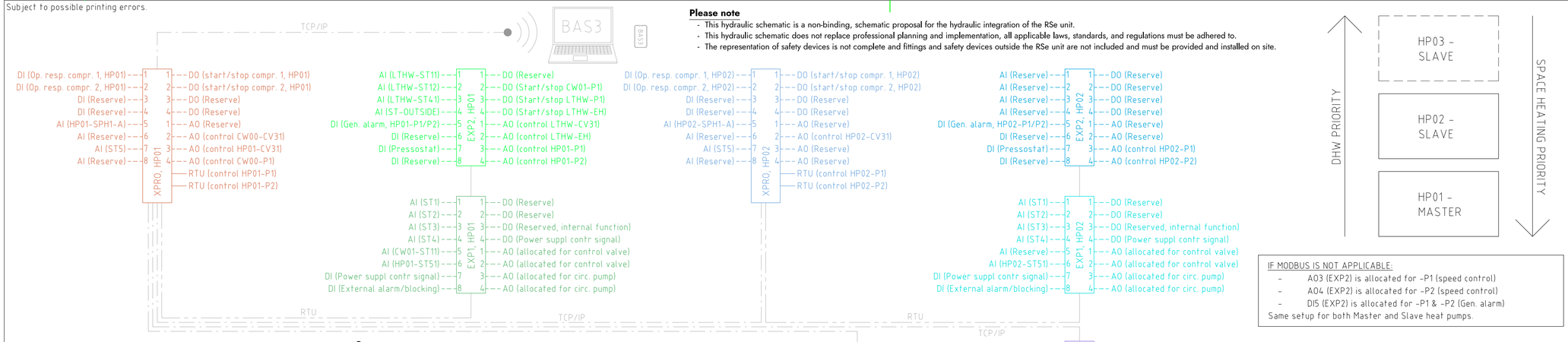
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XREF:
LAGER: SB11

Subject to possible printing errors.

Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the RSe unit.
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- The representation of safety devices is not complete and fittings and safety devices outside the RSe unit are not included and must be provided and installed on site.

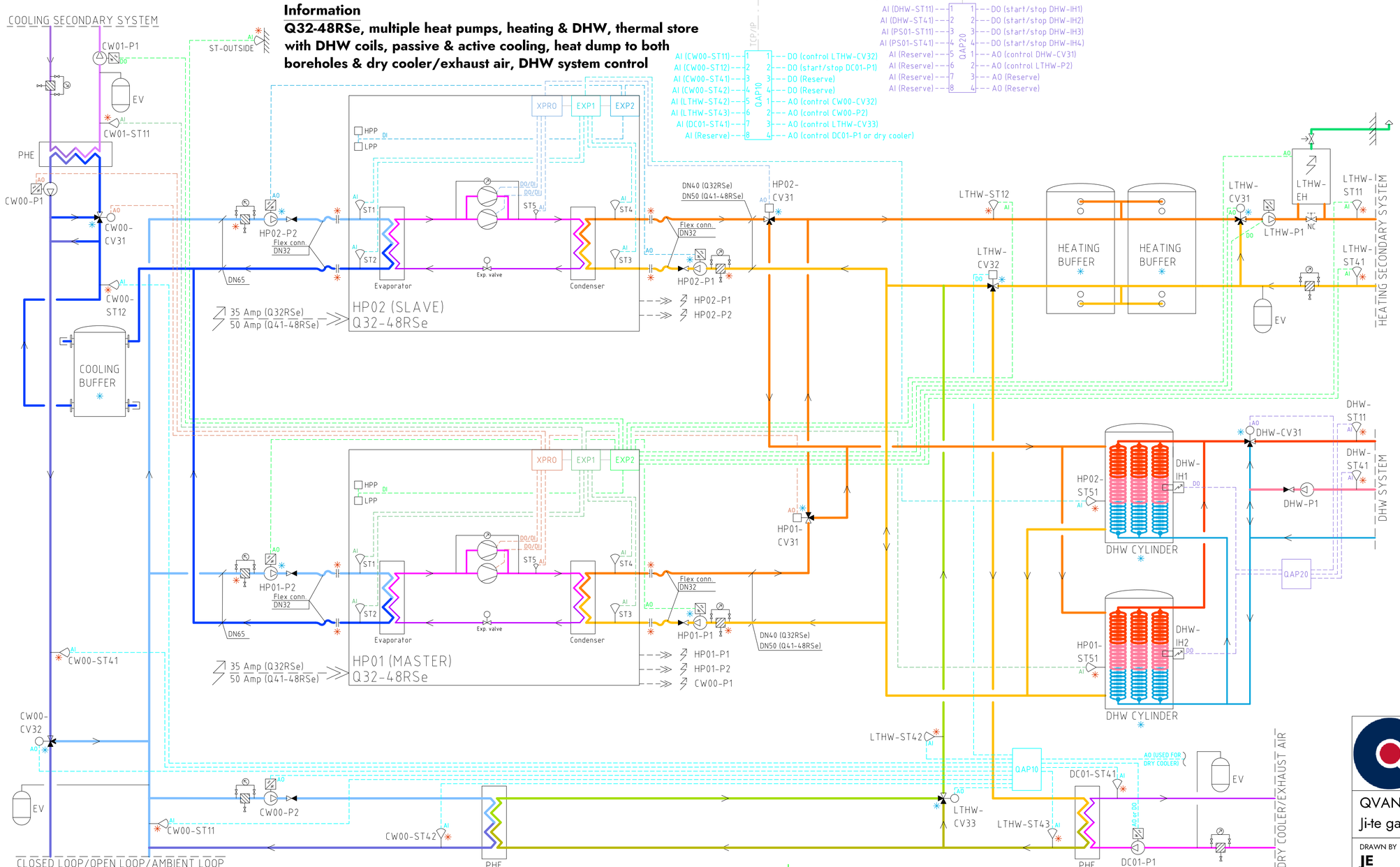


IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information

Q32-48RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to both boreholes & dry cooler/exhaust air, DHW system control



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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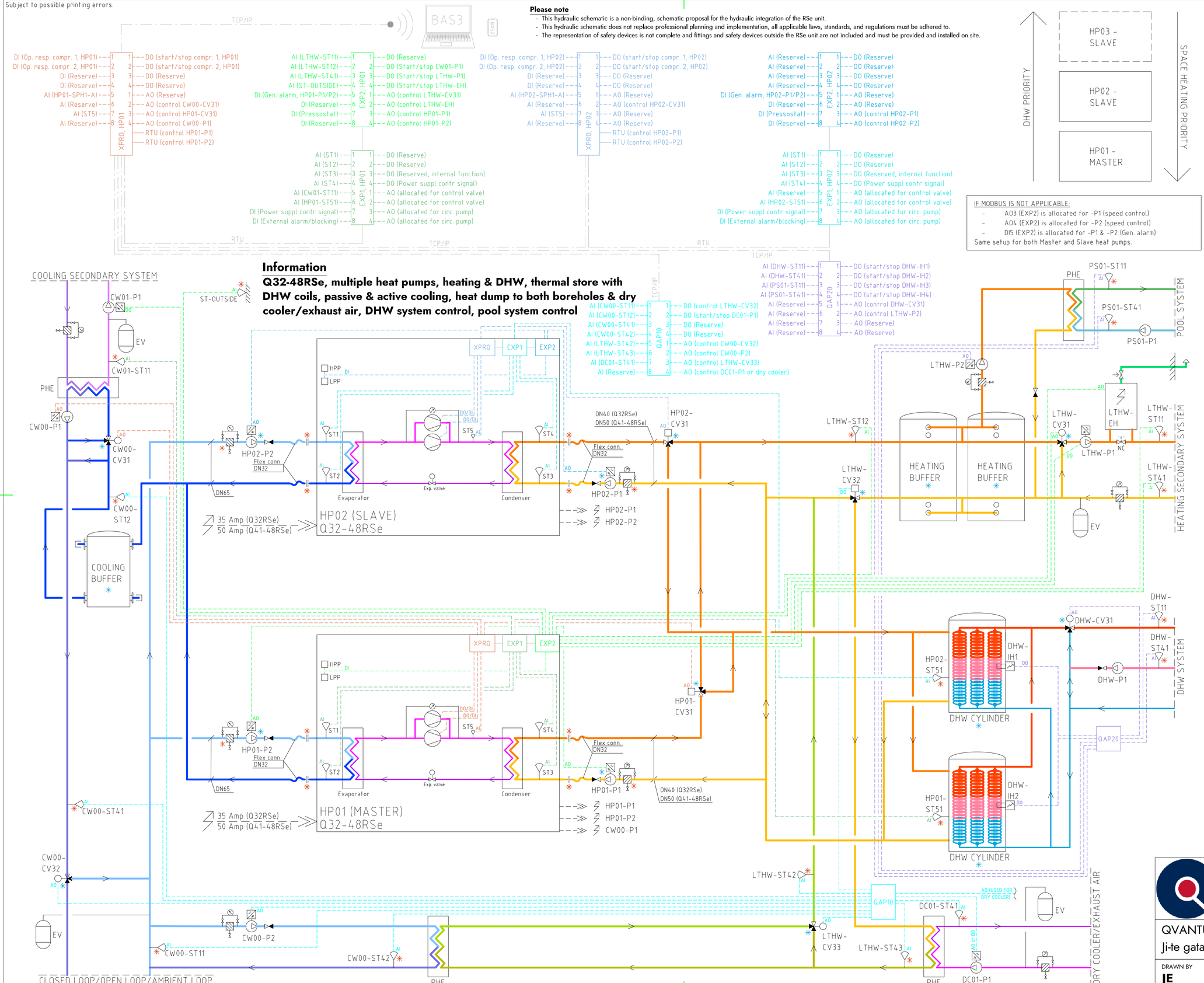
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Please note

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- The representation of safety devices is not complete and fittings and safety devices outside the RSe unit are not included and must be provided and installed on site.

Information

Q32-48RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to both boreholes & dry cooler/exhaust air, DHW system control, pool system control



IF MODBUS IS NOT APPLICABLE:

- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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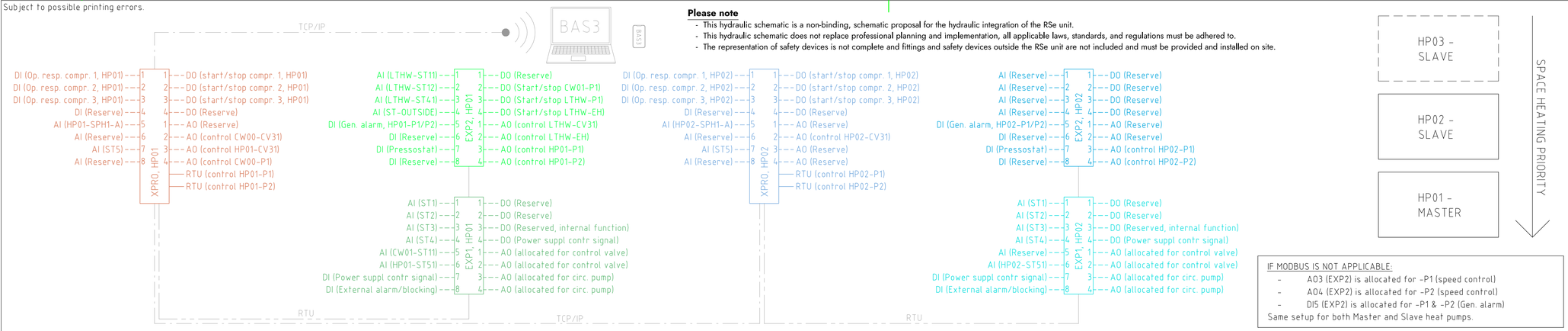
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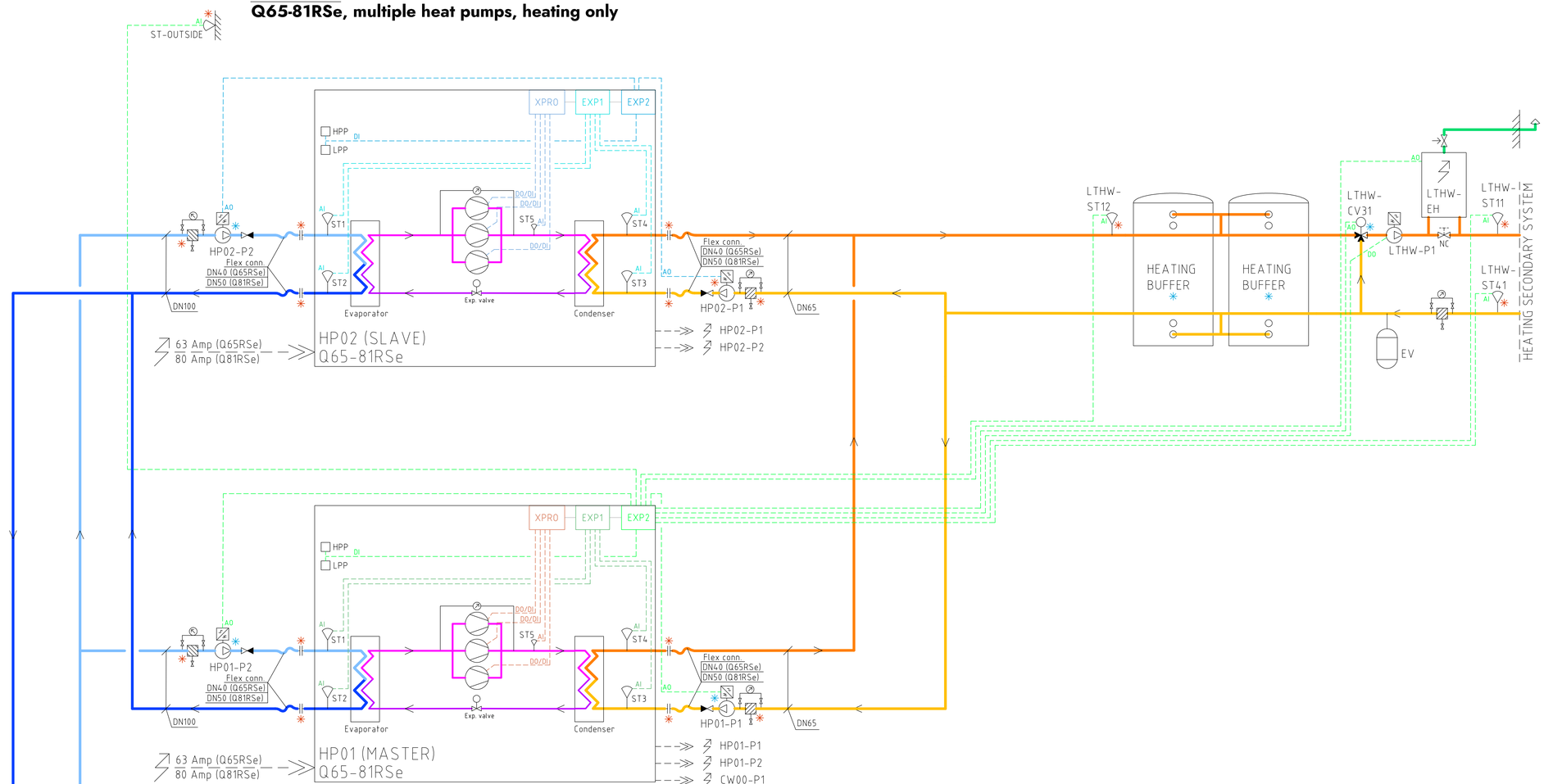
Please note
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- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
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IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information
Q65-81RSe, multiple heat pumps, heating only



DISCLAIMERS

Space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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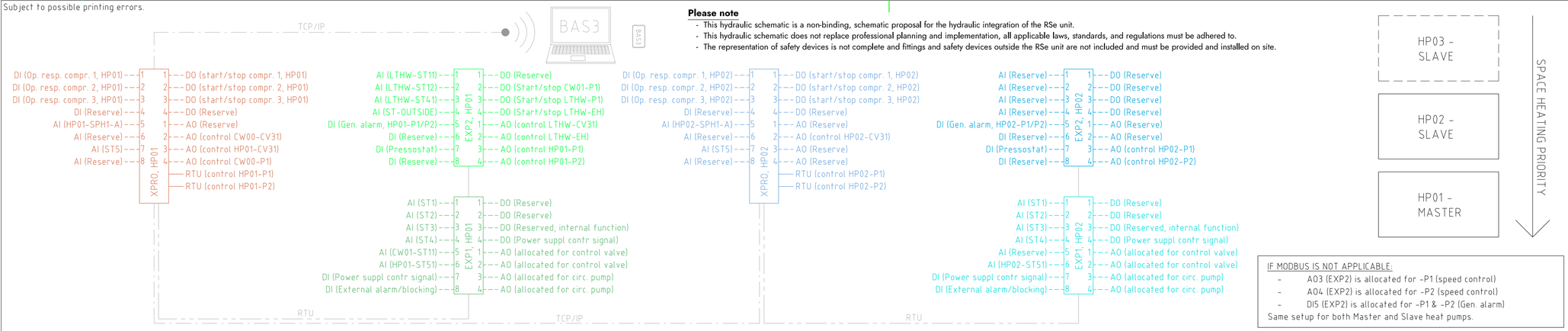
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Ji-te gatan 7, 265 38 Åstorp

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LAGER: SB11

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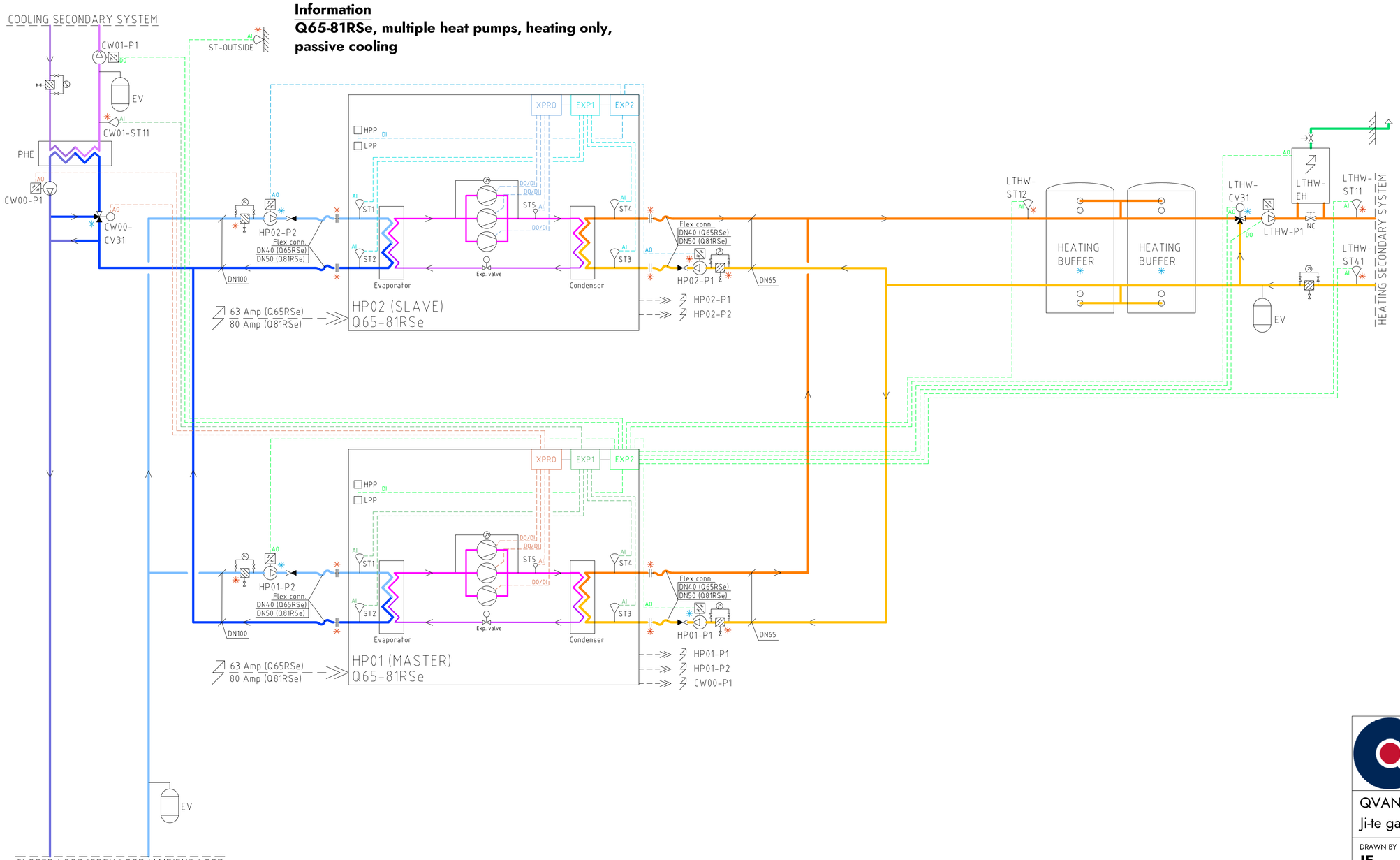
Please note

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IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information
Q65-81RSe, multiple heat pumps, heating only, passive cooling



DISCLAIMERS

Space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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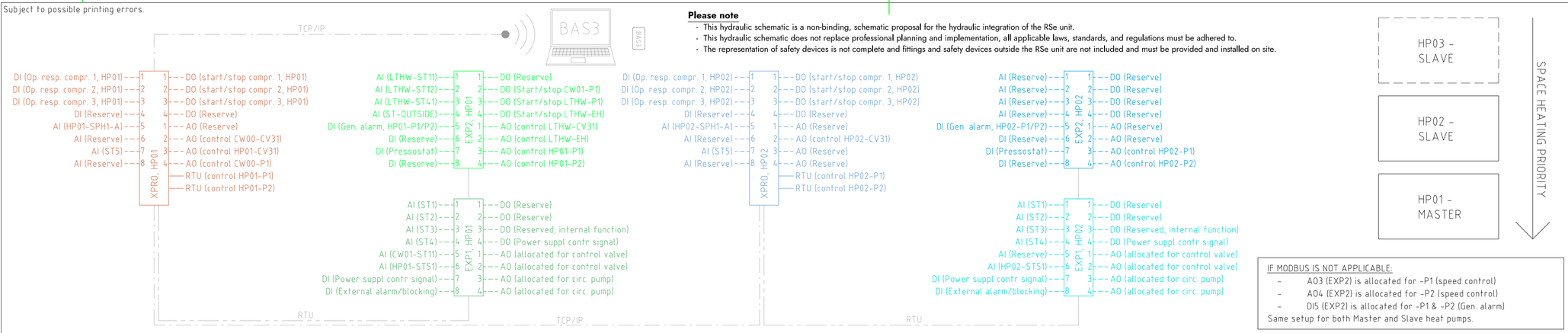
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Subject to possible printing errors.

Please note

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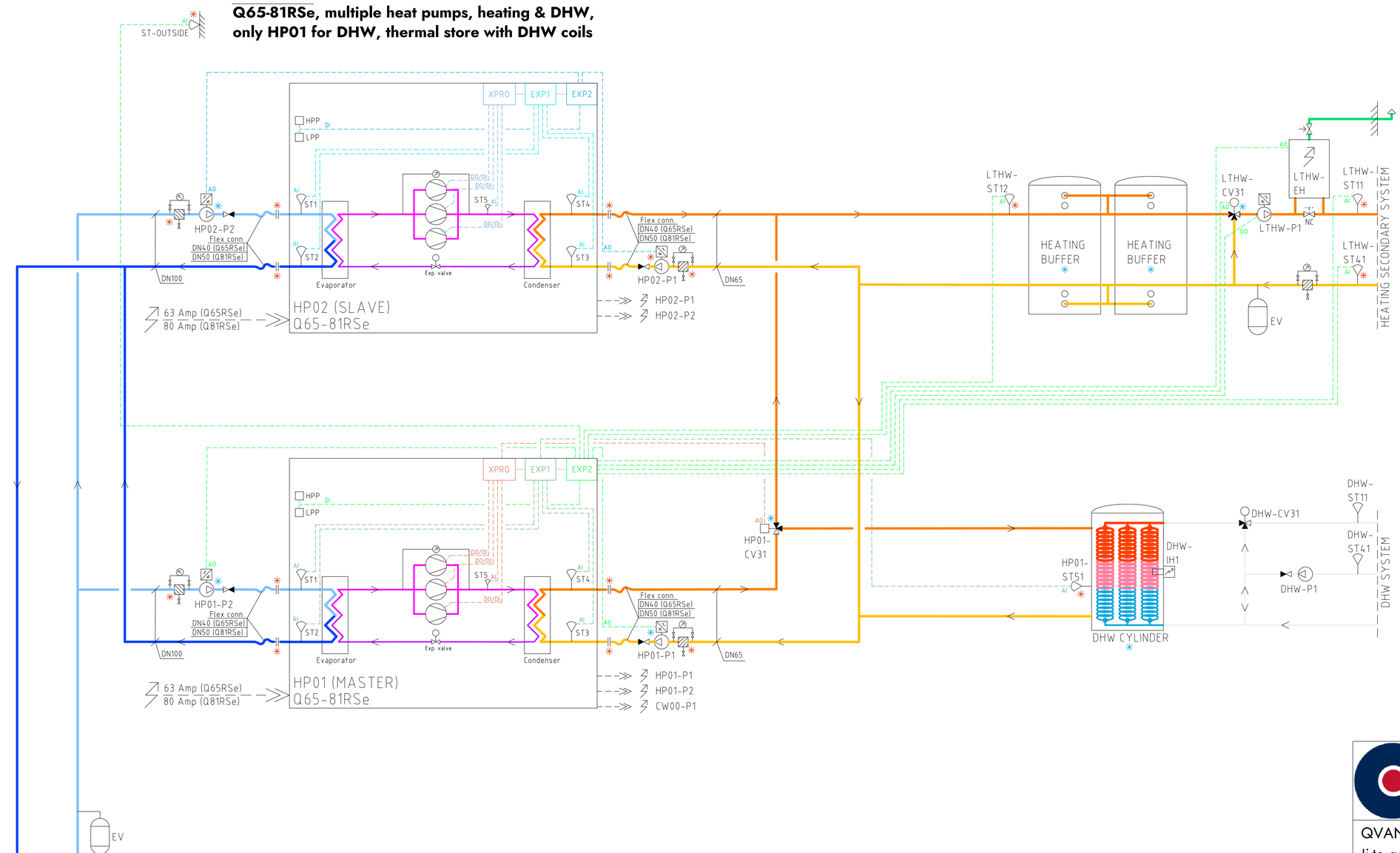


IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information

Q65-81RSe, multiple heat pumps, heating & DHW, only HP01 for DHW, thermal store with DHW coils



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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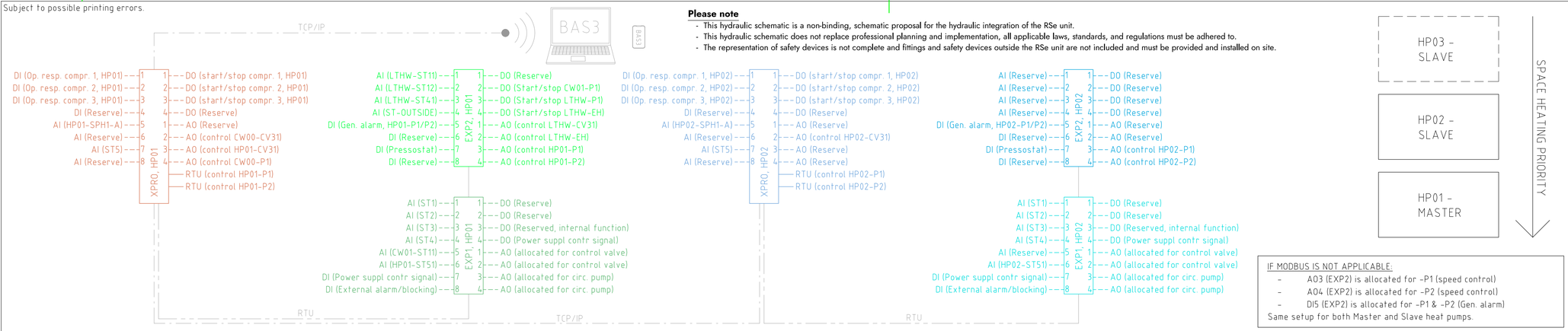
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Subject to possible printing errors.

Please note

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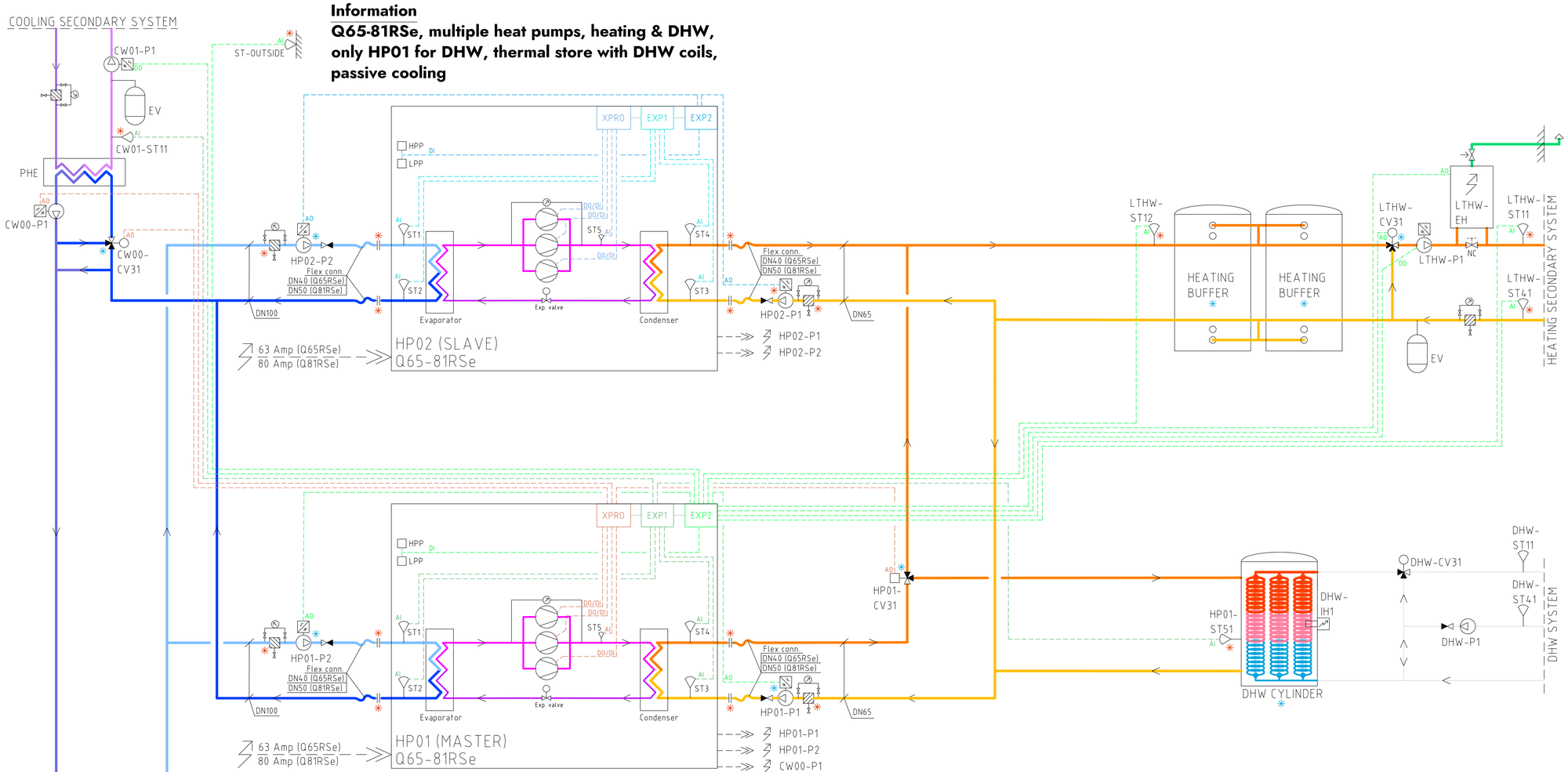


IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information

Q65-81RSe, multiple heat pumps, heating & DHW, only HP01 for DHW, thermal store with DHW coils, passive cooling



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 1 DHW cylinders, however same control setup applies for additional cylinders.

DI, DO, AI & AO signals

Modbus TCP/IP

Modbus RTU

Components supplied by Qvantum

Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

Circulation pump

Temperature sensor

3-way control valve

Isolation valve

Non return valve

Strainer

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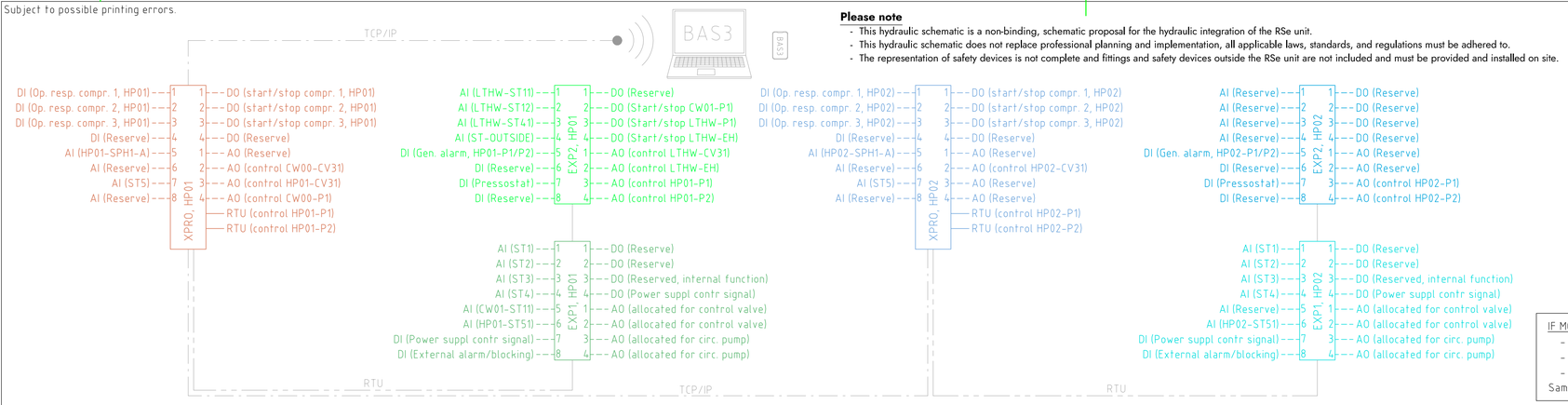
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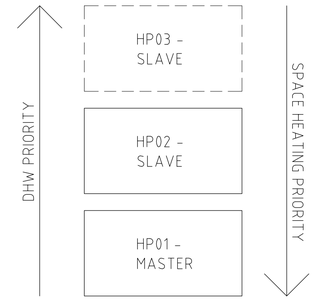
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Subject to possible printing errors.

Please note
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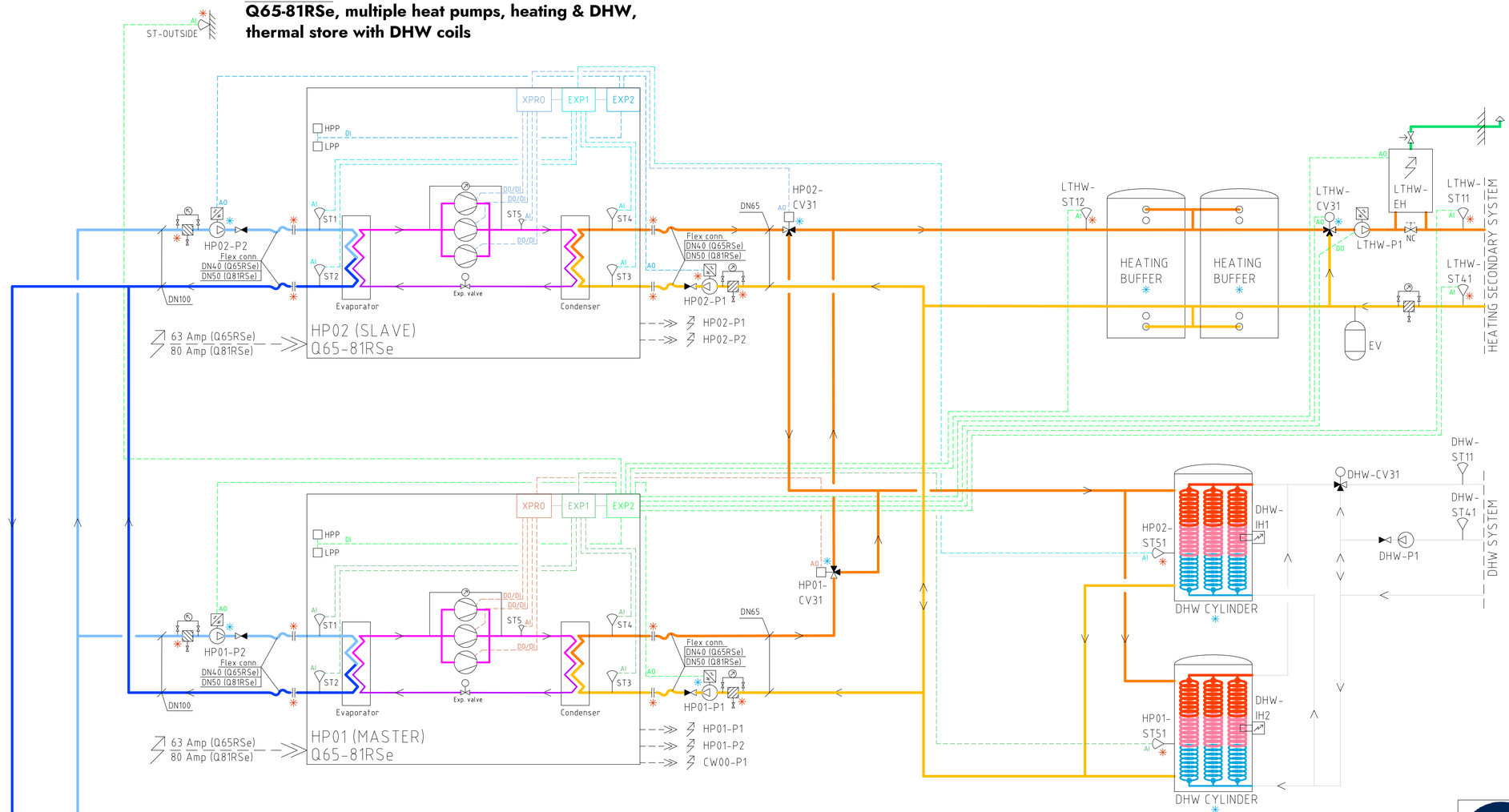




IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information
Q65-81RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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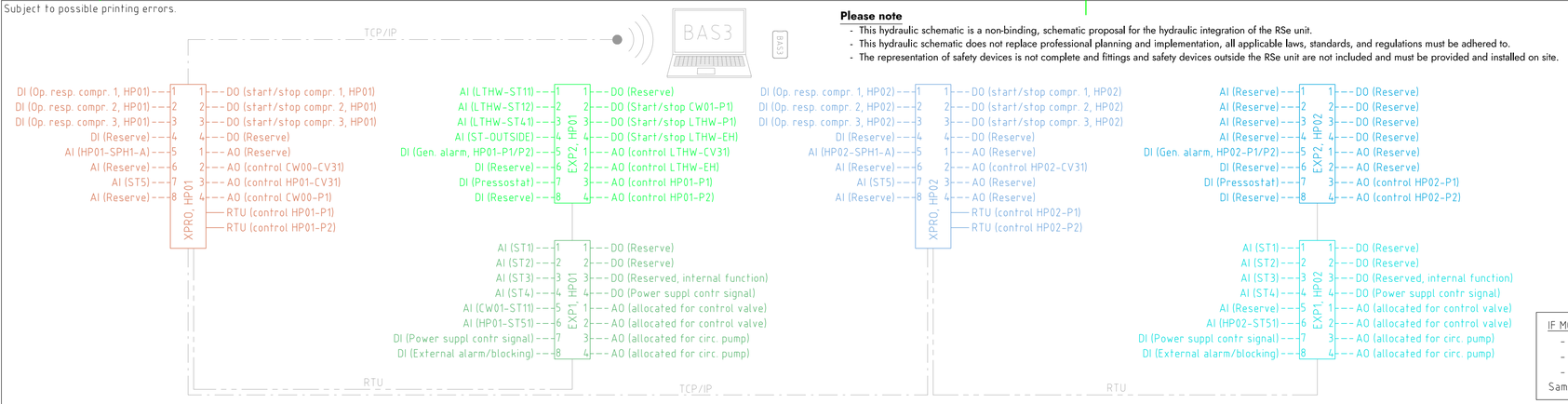
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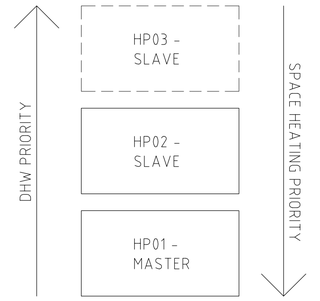
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Subject to possible printing errors.

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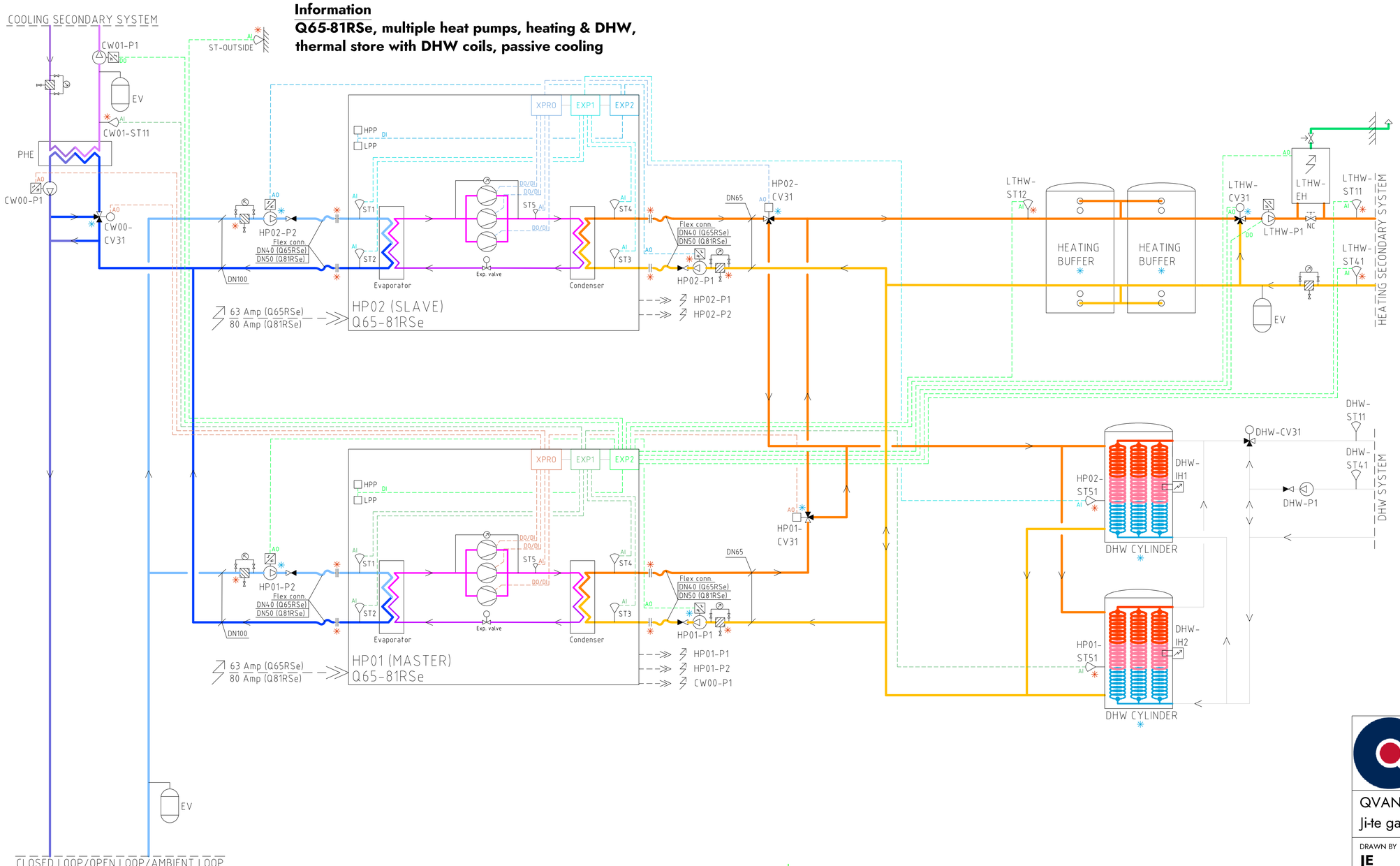


IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information

Q65-81RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive cooling



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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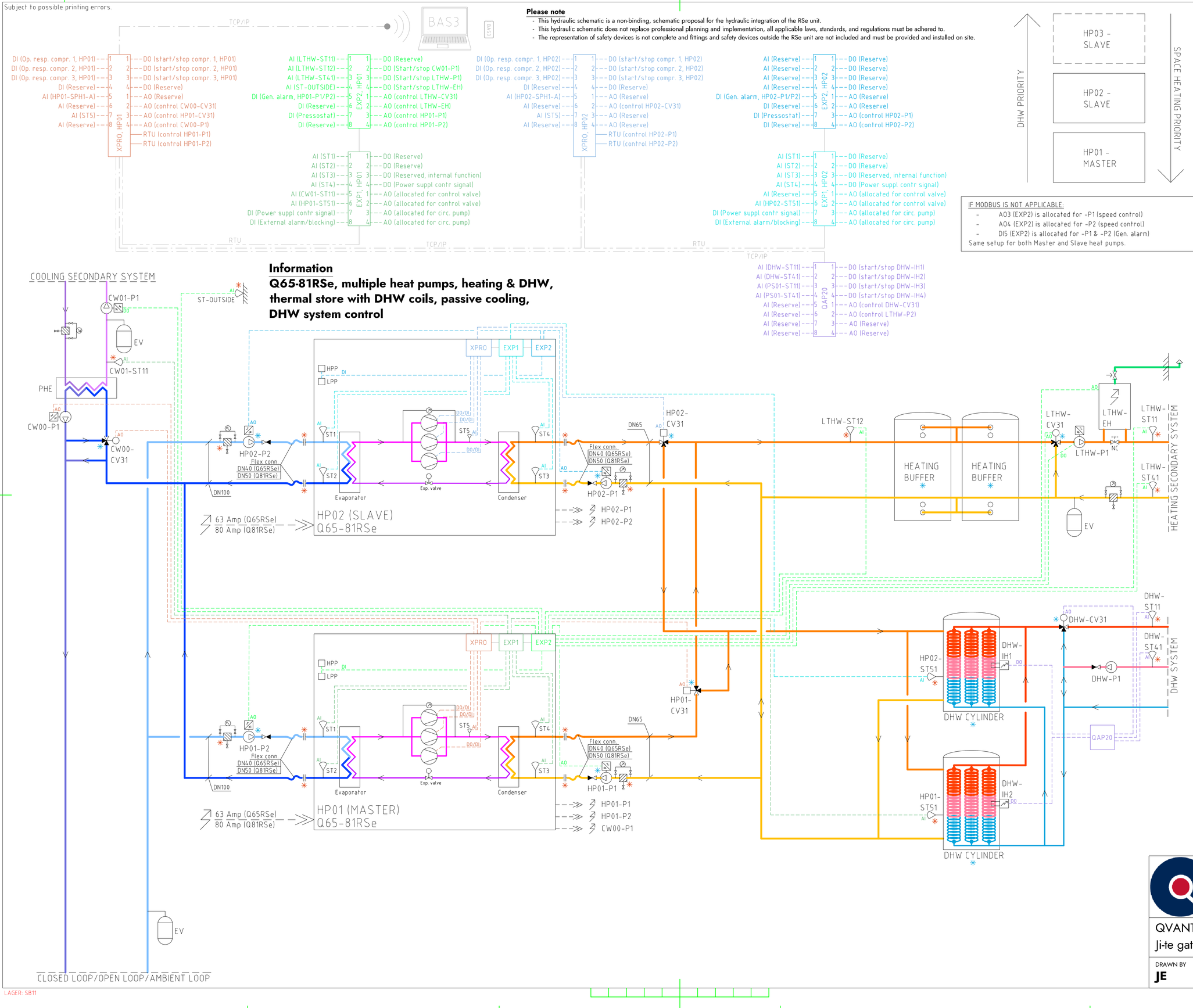
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Subject to possible printing errors.

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Information
Q65-81RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive cooling, DHW system control



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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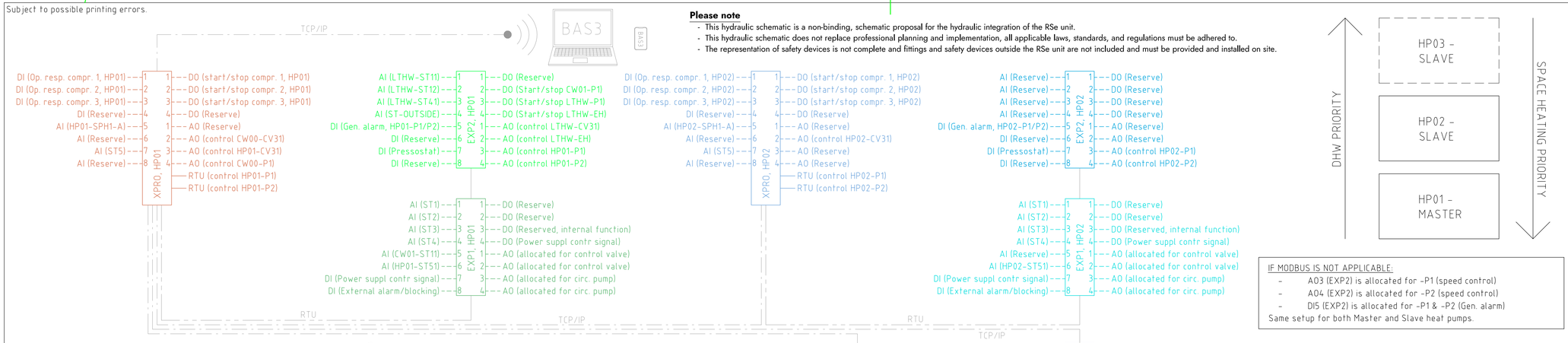
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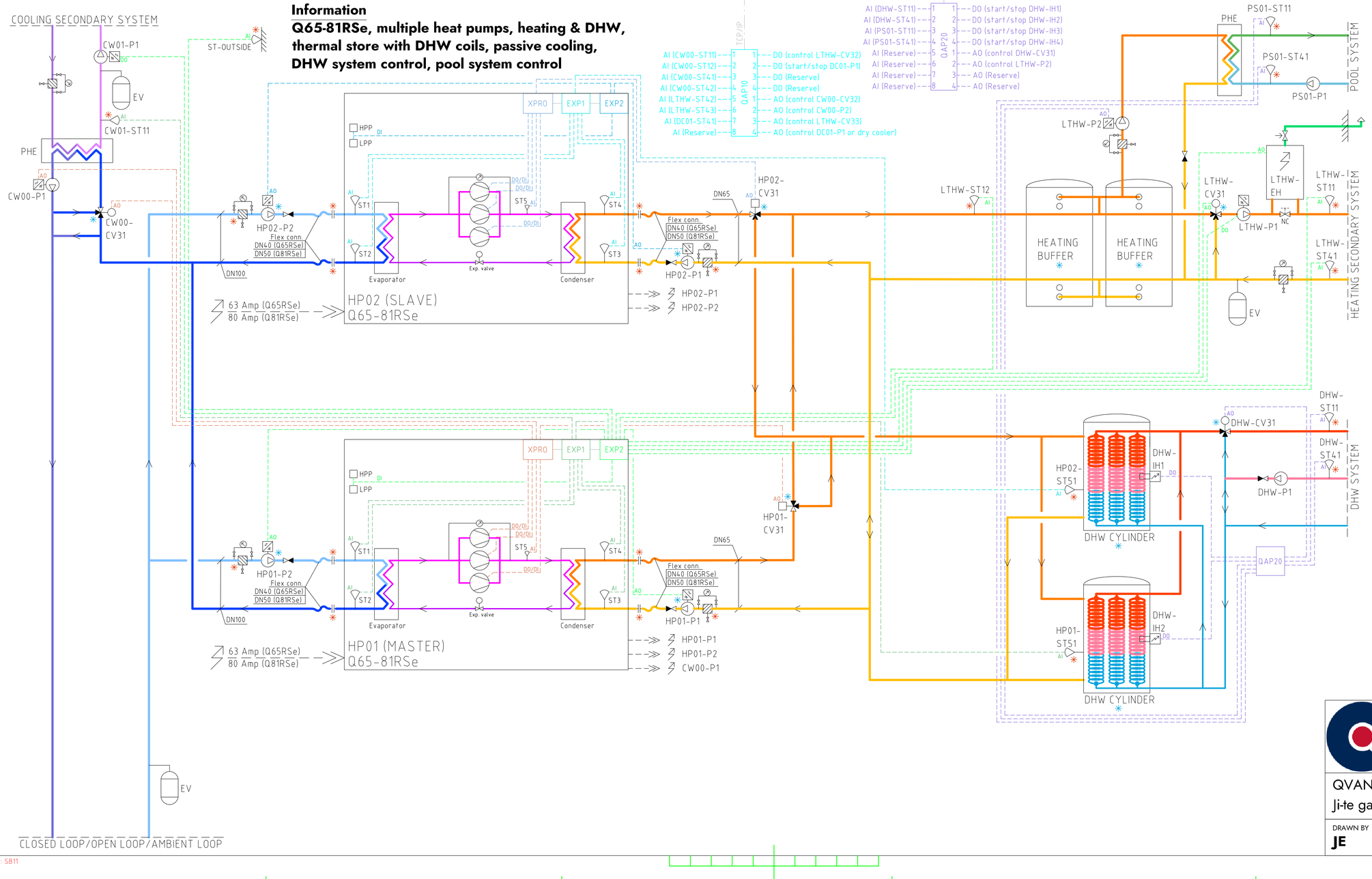
IF MODBUS IS NOT APPLICABLE:

- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information

Q65-81RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive cooling, DHW system control, pool system control



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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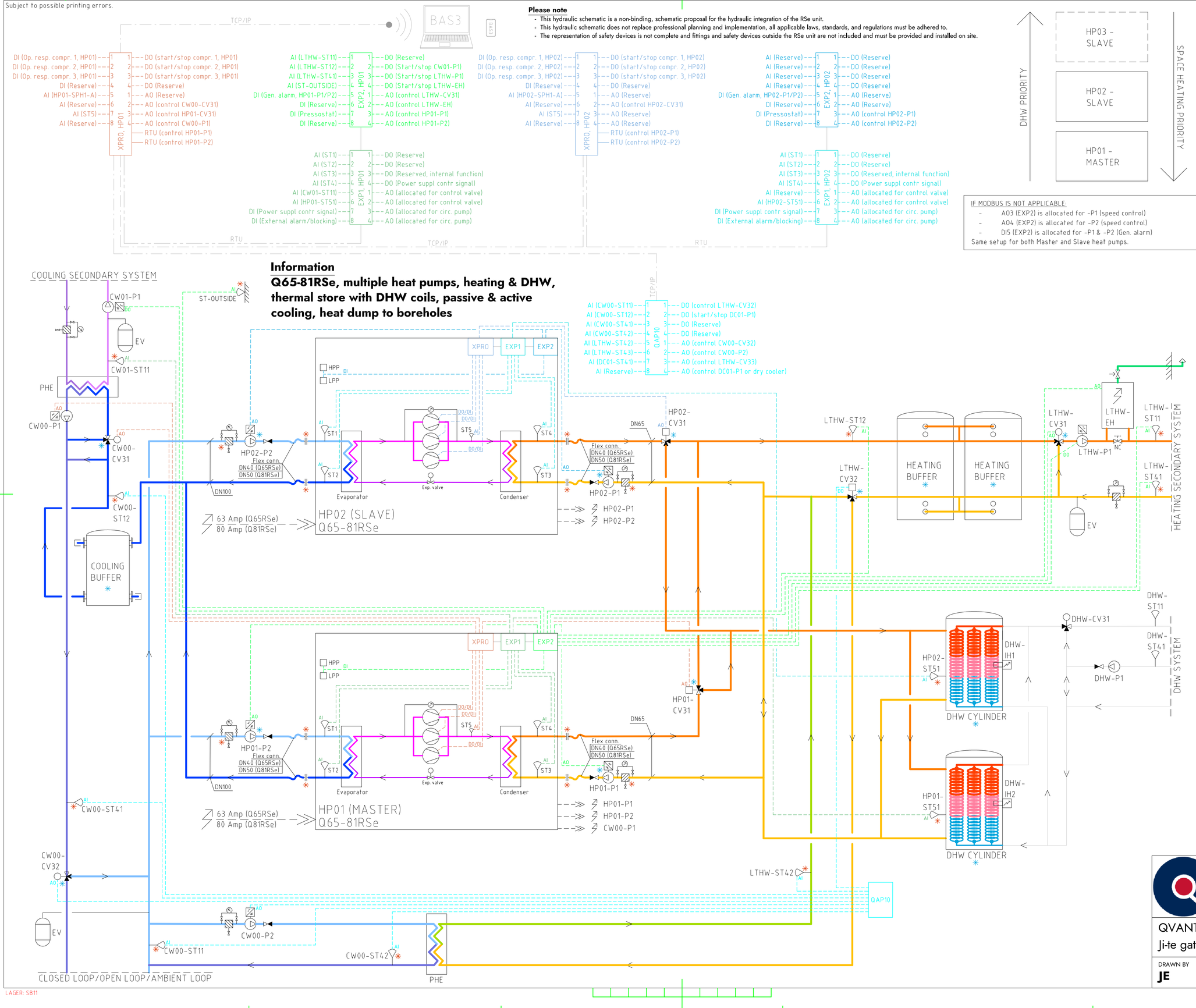
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Subject to possible printing errors.

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Information
Q65-81RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to boreholes



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

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- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

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Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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QVANTUM
HEAT PUMPS FOR SUSTAINABLE CITIES

QVANTUM ENERGI AB
Ji-te gatan 7, 265 38 Åstorp

DRAWN BY	DRAWING NUMBER	PAGE NUMBER
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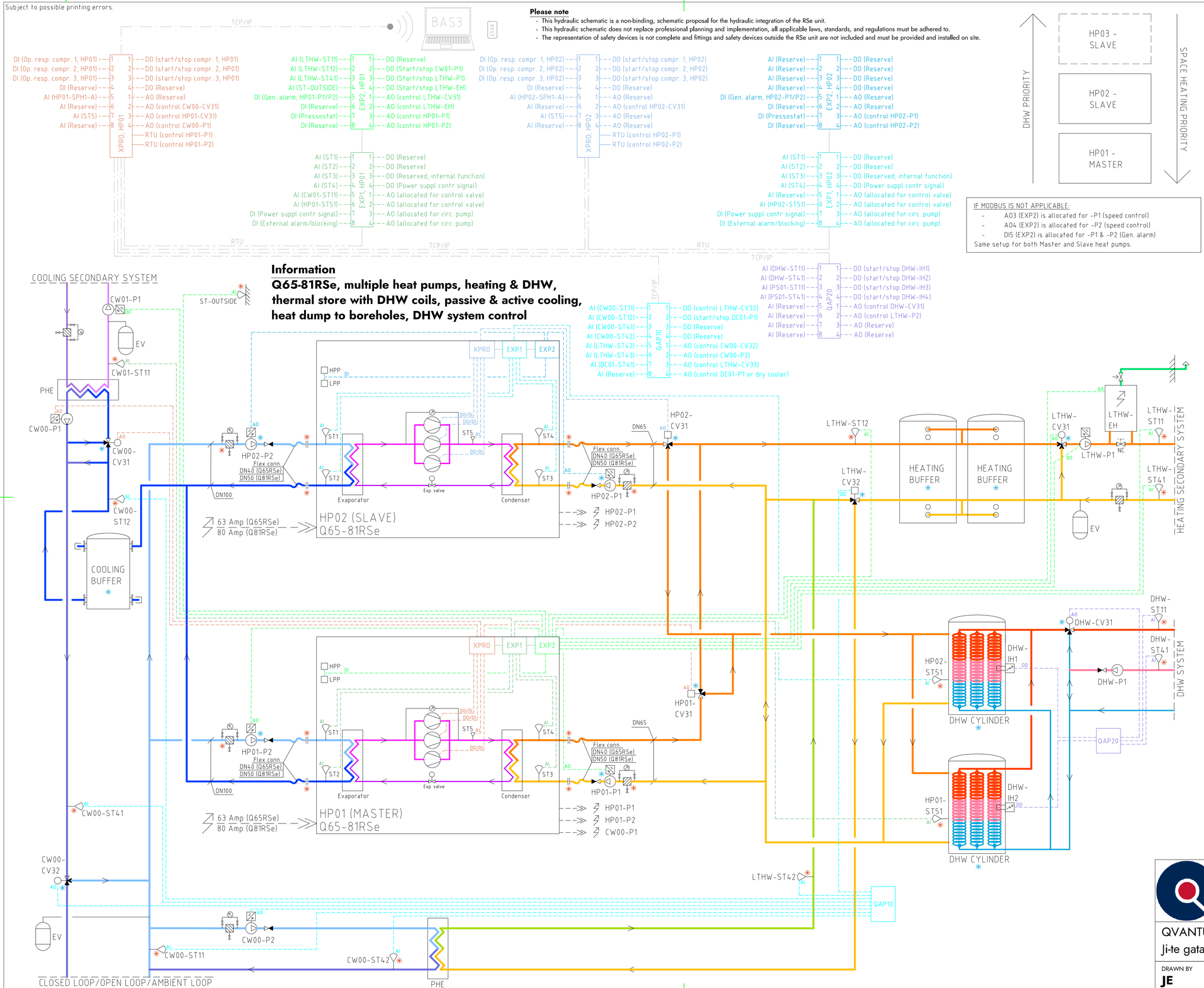
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Please note

- This hydraulic schematic is a non-binding, schematic proposal for the hydraulic integration of the RSe unit.
- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete and fittings and safety devices outside the RSe unit are not included and must be provided and installed on site.

Information

Q65-81RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to boreholes, DHW system control



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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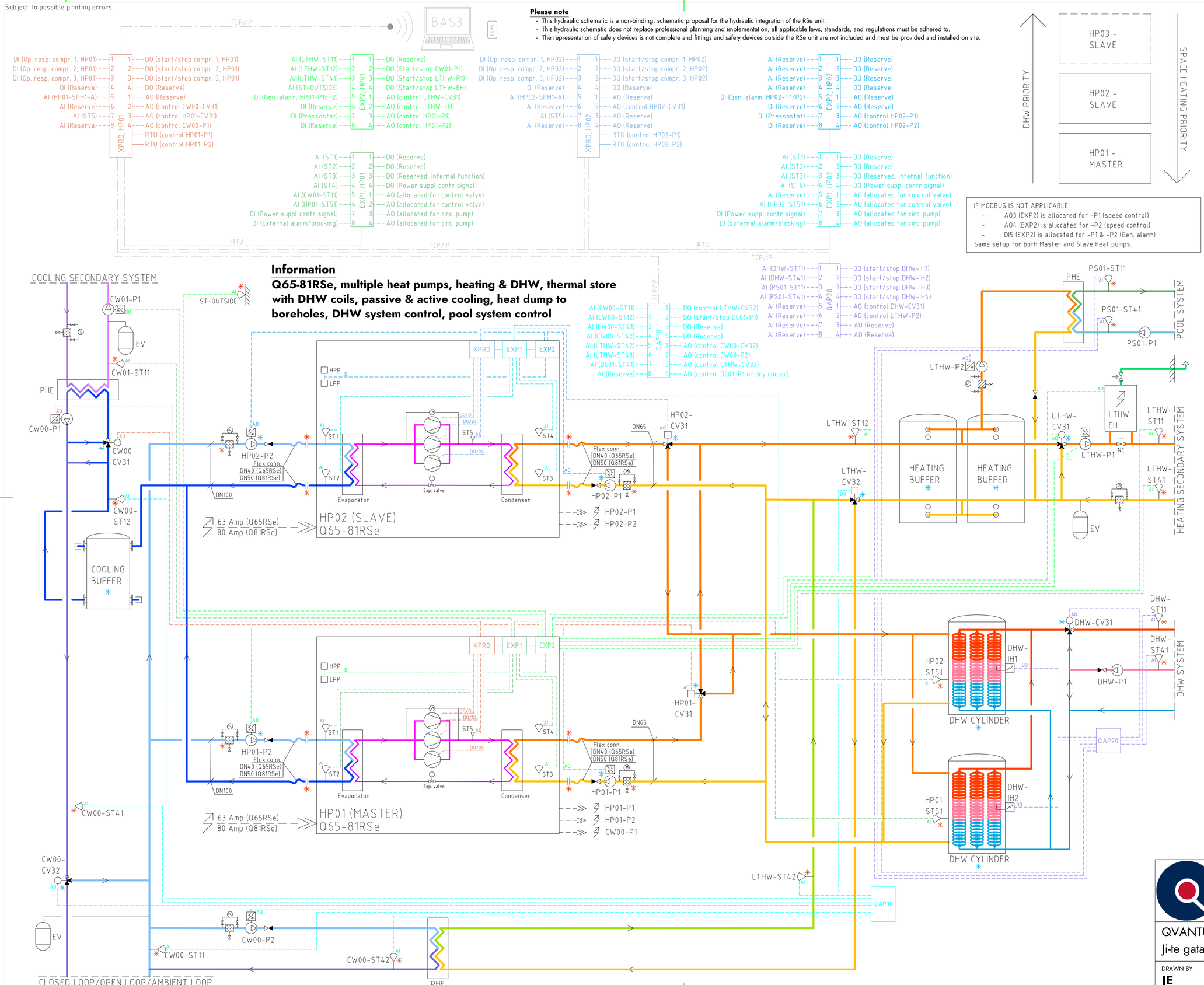
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Please note

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- This hydraulic schematic does not replace professional planning and implementation, all applicable laws, standards, and regulations must be adhered to.
- The representation of safety devices is not complete and fittings and safety devices outside the RSe unit are not included and must be provided and installed on site.

Information

Q65-81RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to boreholes, DHW system control, pool system control



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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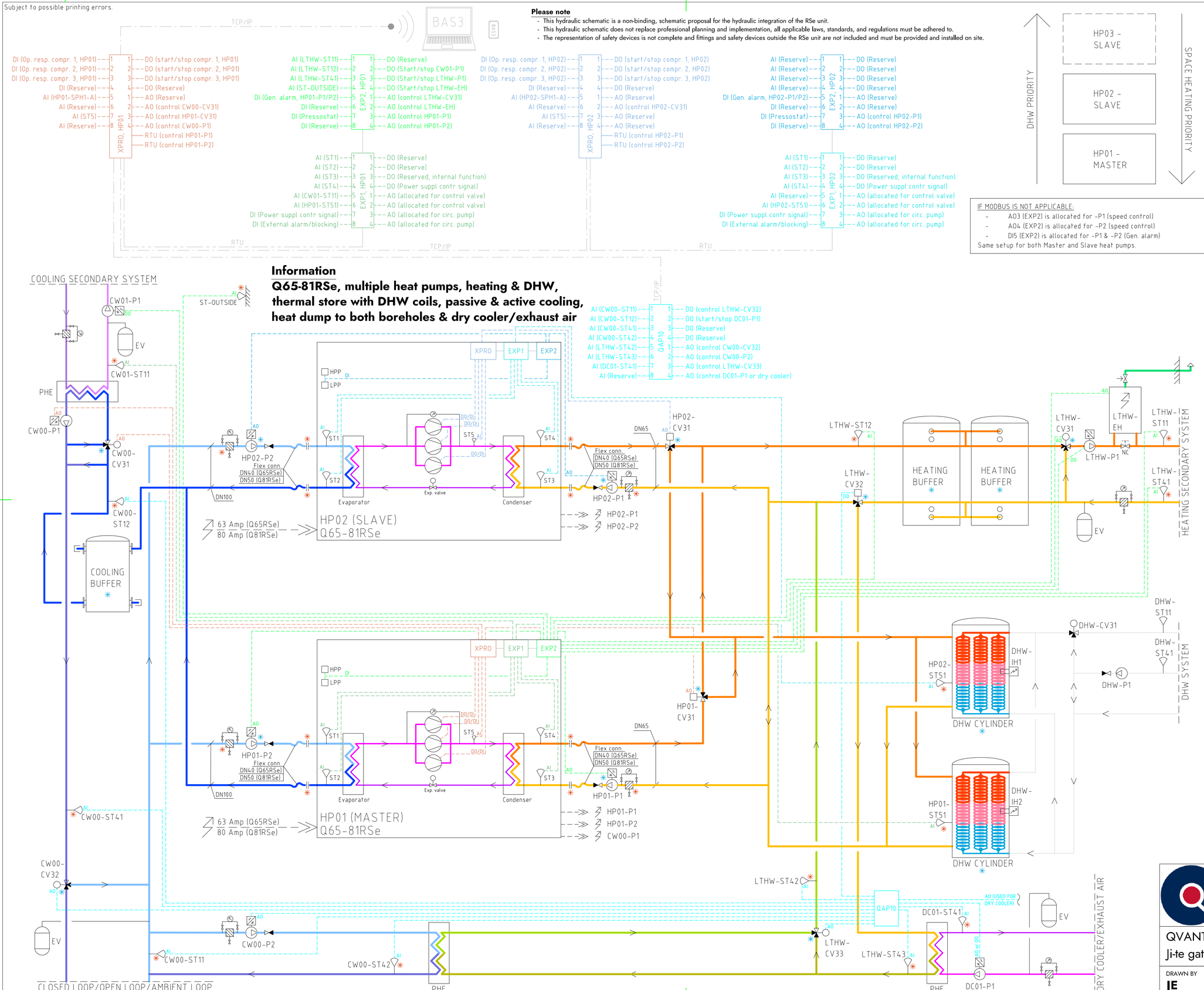
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Please note

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Information

Q65-81RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to both boreholes & dry cooler/exhaust air



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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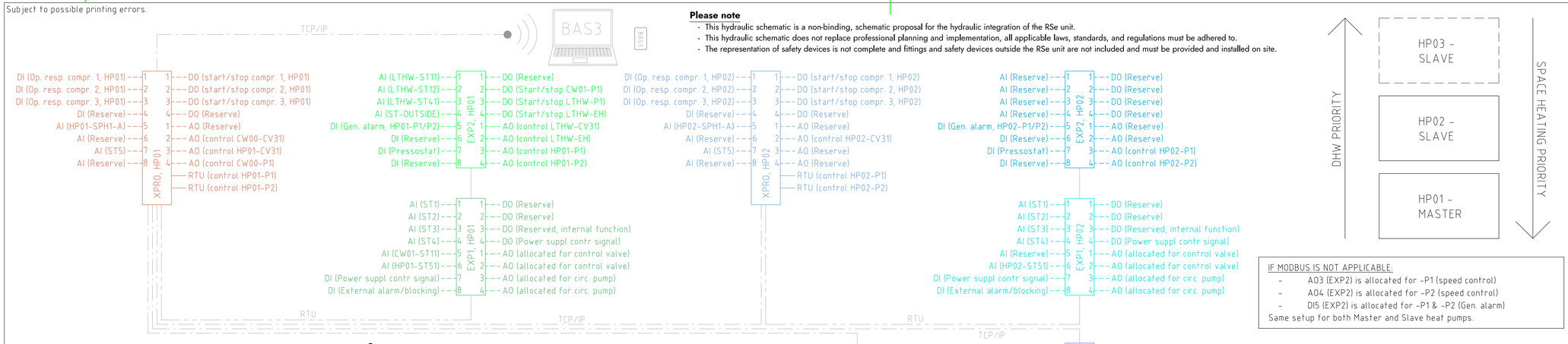
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Please note
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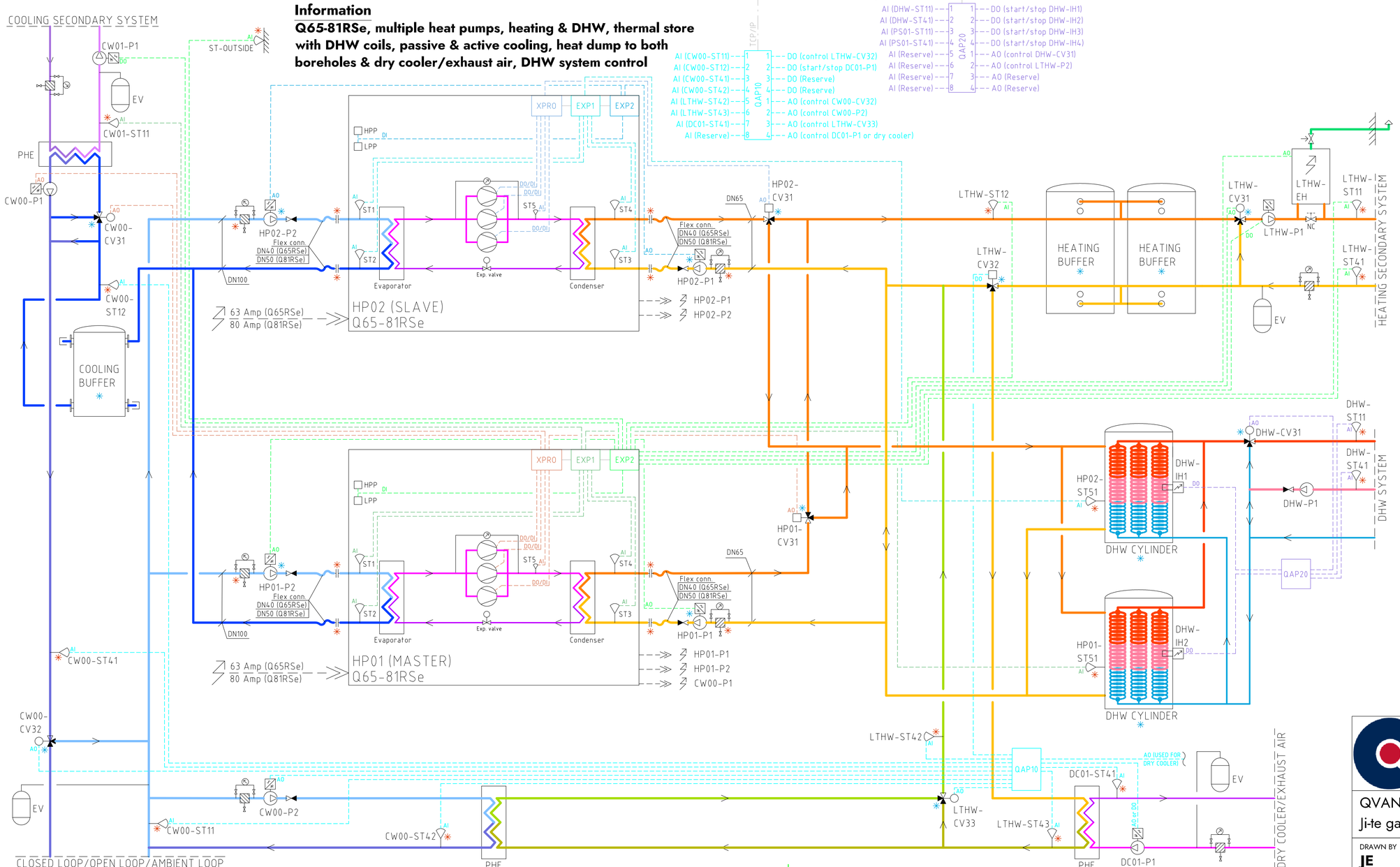


IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

Information

Q65-81RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to both boreholes & dry cooler/exhaust air, DHW system control



DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

Control for DHW distribution is excluded, hence grey flow lines and unidentified components.

Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

Pipe size on evaporator side is based on stainless steel EN 1.4301 (ISO).

Pipe size on condenser side is based on Geberit Mapress Electro-galvanized Steel.

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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Subject to possible printing errors.

Please note

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Information

Q65-81RSe, multiple heat pumps, heating & DHW, thermal store with DHW coils, passive & active cooling, heat dump to both boreholes & dry cooler/exhaust air, DHW system control, pool system control

DHW PRIORITY

SPACE HEATING PRIORITY

HP03 - SLAVE

HP02 - SLAVE

HP01 - MASTER

IF MODBUS IS NOT APPLICABLE:
- AO3 (EXP2) is allocated for -P1 (speed control)
- AO4 (EXP2) is allocated for -P2 (speed control)
- DI5 (EXP2) is allocated for -P1 & -P2 (Gen. alarm)

Same setup for both Master and Slave heat pumps.

DISCLAIMERS

DHW priority from Master to Slave and space heating priority from Slave to Master.

Example with electric boiler as supplementary heat source. Solution may vary due to specific conditions.

Depending on size of electric boiler normally closed isolation valve or balancing valve is used to direct flow over the boiler.

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Solution for DHW may vary due to country specific regulations.

Example shown with No. 2 DHW cylinders, however same control setup applies for additional cylinders.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Modbus RTU
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

For meausurements and other information regarding the heat pump, see separate documents and drawings.

Connections on evaporator and condenser are based on thin-walled copper pipe SS EN 1057 R290.

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COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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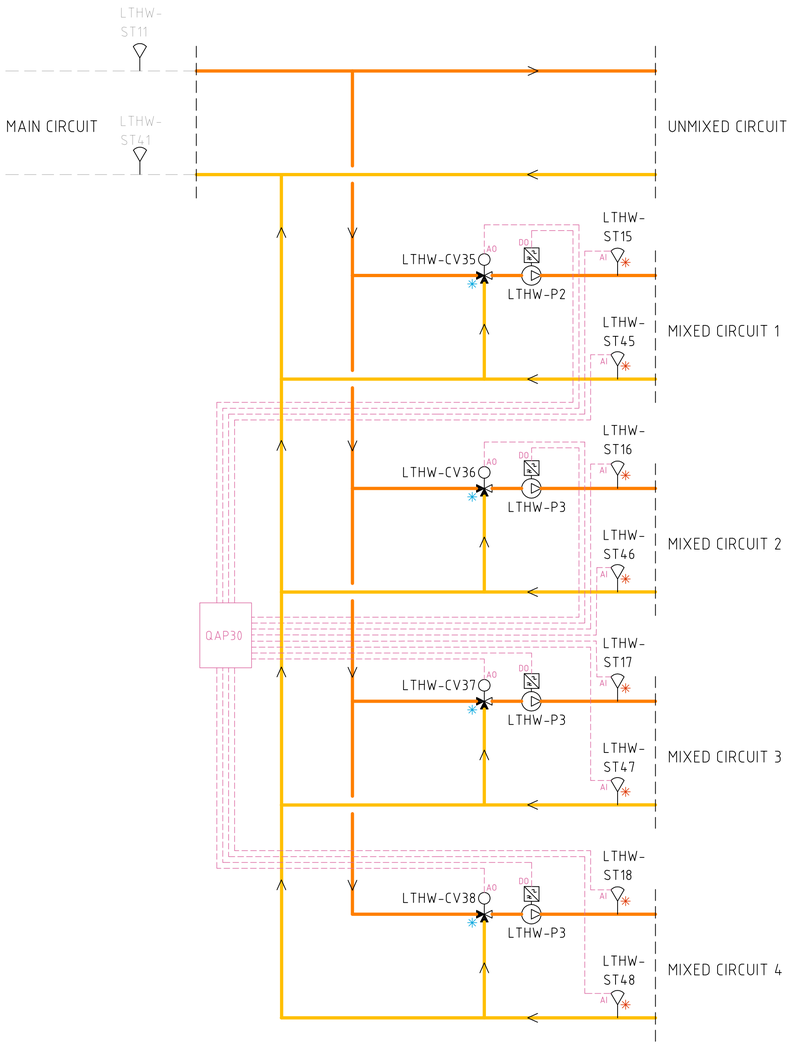
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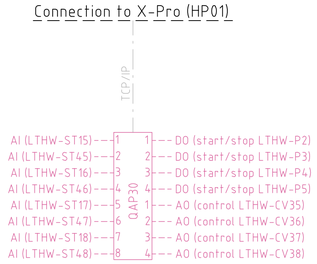
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Subject to possible printing errors.

Information
QAP30 - mixed circuits



Connection to X-Pro (HP01)



DISCLAIMERS

Accessories package QAP30 showing 1 main unmixed ciruit and 4 mixed circuits all connected to the main circuit.

- DI, DO, AI & AO signals
- Modbus TCP/IP
- Components supplied by Qvantum
- Components that can be supplied by Qvantum

COMPONENT SYMBOLS

- Circulation pump
- Temperature sensor
- 3-way control valve
- Isolation valve
- Non return valve
- Strainer

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