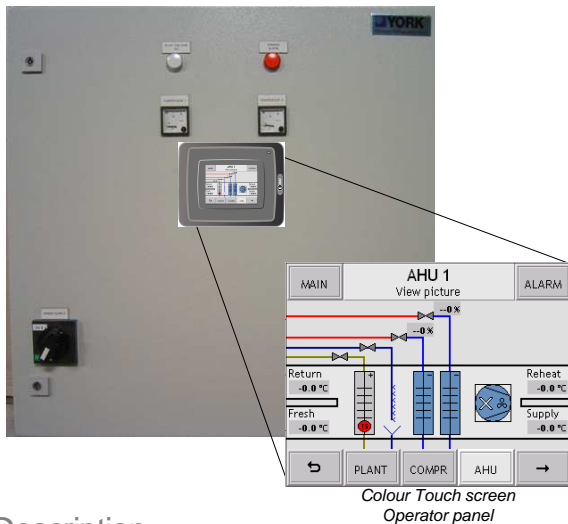




Marine HVAC/R control concept

Efficient control and monitoring of the standard Heating, Ventilation, Air-Condition and Refrigeration system



Description

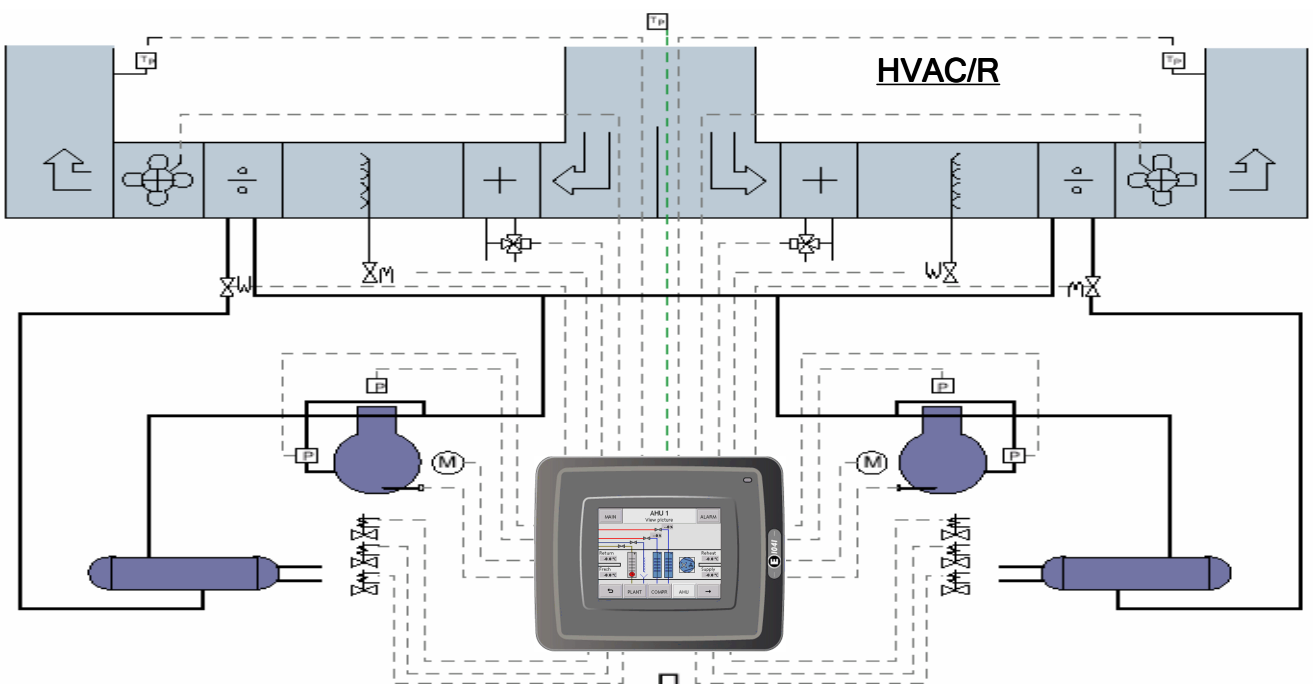
The HVAC/R control concept integrates control and monitoring of compressors and Air Handling Units (AHUs).

The HVAC/R control concept includes an electrical panel complete with motor starters and configurable control equipment.

To optimize the efficiency of the entire HVAC system, the supply air is controlled by an integrated compressor capacity and electronic expansion valve system.

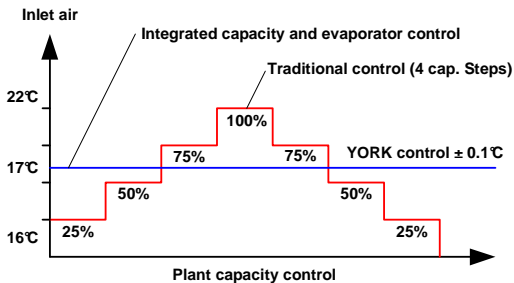
Advantages

- Easy operation at a colour touch screen operator panel
- Compressor supervision and control
- AHU supervision and control
- Summer/winter compensation
- Single/Twin-pipe air supply
- Refrigeration pipe cross connector
- Delayed start after blackout
- Password and alarm system
- Common alarm output to main system
- Integrated electrical panel in IP55 execution, including:
 - Compressor motor starter(s)
 - Fan motor starter(s) (Optional)
 - Main switch, ammeters, and control lamp
- Remote operator panel (Optional)
- Gas monitoring system (Optional)
- Network communications to SCADA system (Optional)
- Virtual Network Computing (VNC) Server function (Optional)
- Larger operator panel, such as 6.5" in stead of 3.5" (Optional)



Additional benefits

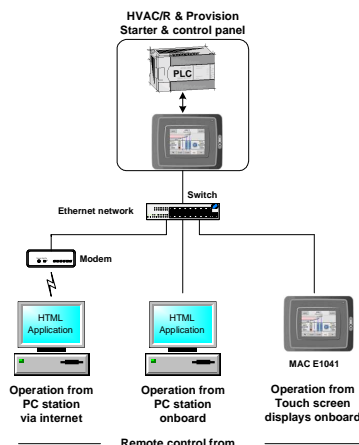
- Standardized system ensures optimal functionality and reliability
- Easy installation and commissioning
- ISO9001 compliance



AHU control

The AHU control includes the following data, regulatory functions and special features:

- AHU status
- Fan control
- Supply-air regulation
- Manual or automatic switching between heating and cooling regulation
- Evaporator superheat regulation, with electronic expansion valves
- Pre-heat regulation, with water, hot oil, steam or electric heat
- Re-heat regulation, with water, hot oil, steam or electric heat
- Humidity regulation
- Enthalpy regulation
- Running hours, including service warning
- Thermostatic freeze protection



Johnson Controls Denmark ApS
Marine
Jens Juuls Vej 28 – 8260 Viby J – Denmark
Phone: +45 87 36 35 00 – Fax: +45 87 36 35 01
www.johnsoncontrols.dk – cg-eur-dk-viby@jci.com

Compressor control

The below mentioned data, settings and functions ensure optimal compressor operation.

Measurements data and settings

- Suction pressure and discharge pressure
- Lubrication oil pressure
- Compressor status
- Running hours, including service warnings
- Maximum Operating Pressure (MOP) function
- Capacity regulation
- Manual/auto mode

Compressor protection against

- High discharge pressure
- Low suction pressure
- Low lubrication oil pressure
- Low condenser-water pressure
- Motor overload
- Motor recycling

Local operation

At the operator panel local operation of the HVAC/R system includes:

- Efficient operation from a 3.5" colour touch-screen display
- Graphic overview pictures of the entire system
- Monitoring of all status values, alarms and warnings
- Operation of connected equipment and setting of modes, limits and regulation set points
- Trend curves that provides excellent overview of plant performance, e.g. temperature logging
- Trend curves and settings can be stored on a USB key

Remote operation

Connected to the ships LAN Network, the HVAC/R system can be remotely controlled and monitored from operator panels or PC stations, such as:

- Monitoring and remote control of all data from any given PC on the network.
- Monitoring and remote control, via the internet, to Johnson Controls Marine service centre or owners technical department, for optimal crew support at e.g. trouble shooting.

The above technical information is subject to updates in content and specification without prior notice.