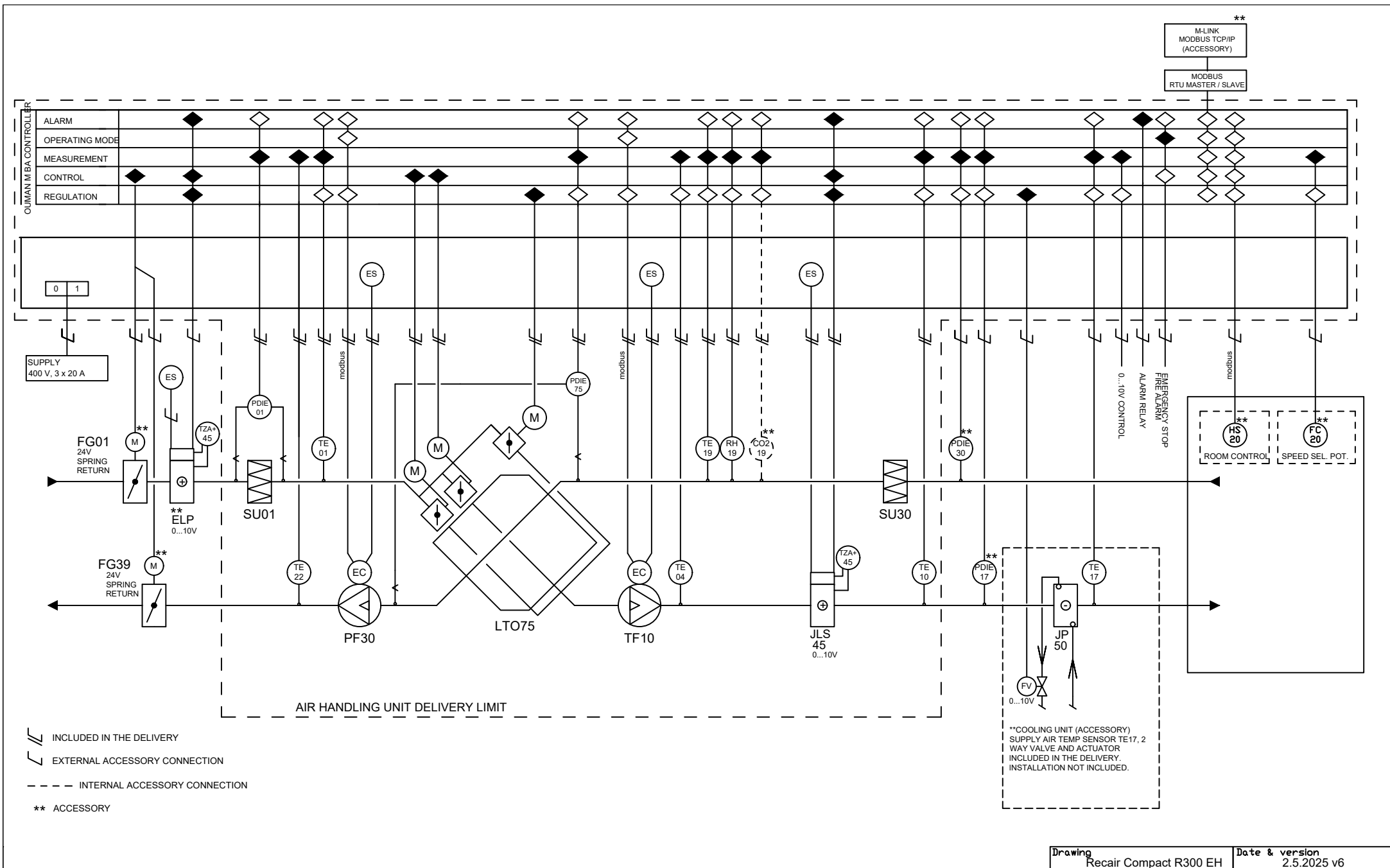




FUNCTIONAL DESCRIPTION - RECAIR COMPACT R300

1. CONTROLS

Air handling unit can be controlled in multiple ways:

- Max. 3 constant speeds with internal time program
- Manual control from Ouman M BA control panel
- BMS control via Modbus or 0 - 10 V control signal
- Speed selector potentiometer (0 - 10 V)
- Control based on humidity and/or CO2 measurements
- Duct pressure control
- Air flow control
- Overtime function with room control panel

2. OPERATION

2.1 OPERATION DURING STANDSTILL

Outdoor and exhaust air dampers are closed. Return water to water heater is kept in its setpoint by adjusting the heating valve.

2.2 OPERATION WHEN THE UNIT IS STARTED

Extract fan is started after start delay (default 50 s) in order to allow outdoor and exhaust air dampers to open. Supply fan is started after preset delay (20 s).

2.3 OPERATION WHEN THE UNIT IS STOPPED

Electrical post heater is disconnected, and the fans run for preset time and cool down the heater. Outdoor and exhaust air dampers are closed once the fans are stopped.

3. TEMPERATURE CONTROL

Temperature control has three (3) control options: constant supply air temperature, constant extract air temperature and extract air temperature compensation. Selected temperature is kept in the setpoint by controlling the heat recovery and post-heater in series.

Air handling unit controller can control two-way valve of the post cooling (accessory). When duct cooling is used the supply air temperature is measured from the supply duct after cooling coil.

3.1 NIGHT COOLING

When night cooling function is in use, it is active between 21:00 and 8:00. It recognizes the cooling need when extract air temperature TE30 is higher than outdoor temperature TE01. During night cooling heat recovery bypass is fully open and block defrost dampers are closed. Fan speed or setpoint can be set to normal (speed 2) or boost (speed 3). Night cooling function is not activated if the outdoor temperature is below set outdoor temperature limit (default 14 °C). Note! During night cooling function the supply air temperature might be lower than normal and create a feeling of draft.

4. HEAT RECOVERY DEFROST

Block defrosting is activated when pressure difference over the plate heat exchangers extract side reaches the limit value. The limit value curve is set up during commissioning based on four (4) pressure difference values in different speeds. During defrost period, block defrost dampers are closed alternately for certain period (default 20 min). Bypass damper is set to a position where the air flow matches the air flow of the closed defrost damper (default 55 %). Defrost function ends when the heat exchanger pressure difference is below setpoint in the end of defrost period.

It is possible to prevent the heat exchanger from freezing by using pre-heater accessory. The pre-heater control is available in the Ouman M BA controller.

5. AVAILABLE INTERLOCKS AND PRECAUTIONS

- In case supply or extract air temperature is above set limit (45 °C) the unit is stopped, and alarm is activated.
- In case the post heater return water temperature is below set limit (8 °C) the unit is stopped, and alarm is activated. Note! This function is only used in the units with water post heater.
- Missing heating pump status indication stops the unit and alarm is activated. Note! This function is not active by default, and it should be activated in case circulation pump is used in the heating circuit.
- Electrical post heater overheat protection stops the unit and alarm is activated. Note! This function is only used with units with electrical heater.
- Supply air or return water temperature sensor failure stops the unit and alarm is activated.
- Fan motor failure stops the unit and alarm is activated.
- Emergency stop/ Fire alarm input stops the unit and alarm is activated. Note! This function must be activated during commissioning in case external emergency stop or fire alarm circuit is supposed to stop the unit.

6. ALARMS

Alarms are divided into two groups. Priority A class alarms activate the General alarm relay output immediately and priority B class alarms during set time frame (e.g. from Monday to Friday between 08:00 and 16:00).

DEVICE ID	DEVICE NAME	TECHNICAL INFO SETTINGS	DEL.	ALARM			RESTRICTIONS	
				LOW LIMIT	HIGH LIMIT	DELAY	LOW LIMIT	HIGH LIMIT
FG01	OUTDOOR DAMPER	24 V, SPRING RETURN	CT	-	-	-	-	-
FG39	EXHAUST DAMPER	24 V, SPRING RETURN	CT	-	-	-	-	-
FG02.1	DAMPER MOTOR, HREC. BYPASS	-	ES	-	-	-	-	-
FG02.2	DAMPER MOTOR, BLOCK DEFROSTING	-	ES	-	-	-	-	-
FG02.3	DAMPER MOTOR, BLOCK DEFROSTING	-	ES	-	-	-	-	-
LTO75	COUNTERFLOW HEAT RECOVERY	-	ES	-	-	-	-	-
PDIE01	PRESSURE DIFF. TRANSMITTER	FILTER GUARD	ES	100 Pa	200 Pa	-	-	-
PDIE75	PRESSURE DIFF. TRANSMITTER	HERC. PRESSURE DROP (EXTRACT)	ES	-	-	-	-	-
SU01	SUPPLY FILTER	BAG FILTER, F7 / ePM1 60 %	ES	-	-	-	-	-
SU30	EXTRACT FILTER	BAG FILTER, M5 / ePM10 60 %	ES	-	-	-	-	-
TF10	SUPPLY FAN	-	ES	-	-	-	-	-
PF30	EXTRACT FAN	-	ES	-	-	-	-	-
TE01	TEMPERATURE SENSOR	OUTDOOR AIR	ES	-	-	-	-	-
TE04	TEMPERATURE SENSOR	SUPPLY AIR AFTER HREC	ES	-	-	-	-	-
TE10	TEMPERATURE SENSOR	SUPPLY AIR AFTER POST HEATER	ES	-	-	-	-	-
TE19	TEMPERATURE SENSOR	EXTRACT AIR	ES	-	-	-	-	-
TE22	TEMPERATURE SENSOR	EXHAUST AIR	ES	-	-	-	-	-
JLP45/JLS45	POST HEATER	WATER HEATER,12kW / ELEC. HEATER, 9 kW	ES	-	-	-	-	-
TZA45	RETURN WATER/OVERHEAT PROTECTION	WATER HEATER/ELEC. HEATER	ES	-	-	-	8 C (water)	100 C (el.)
RH19	HUMIDITY TRANSMITTER	-	ES	-	-	-	-	-
-	-	-	-	-	-	-	-	-
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