



Designing a Air Handling Unit (AHU)

Example architecture and bill of materials

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This is an economic, scalable and robust solution controlled by an HVAC optimized logic controller associated with real time measurement power meter. The air regulation and circulation is managed with simple and optimized drives offering best-in-class motor control and protection and it uses simple electromechanical components for heating and humidity control. It is suitable for offices, industrial buildings, and other applications like clean rooms or indoor farming.

Our suggested design is based on an economic, scalable and robust architecture using a simple set of optimized, fit for purpose HVAC parts.

- ATH200/600 HVAC drive or ATV320 drive for seamless communication and control
- M173O* compact and cost effective HVAC logic controller
- HVAC specialized programming software platform
- Power meters
- BMS connection and access to remote displays

* If needed, use M172 for multiple BMS connectivity and web server

In this example the motors selected for the fans are 15kW, the heating and humidity circuits are respectively 32A - 15kW and 16A - 7.5kW.

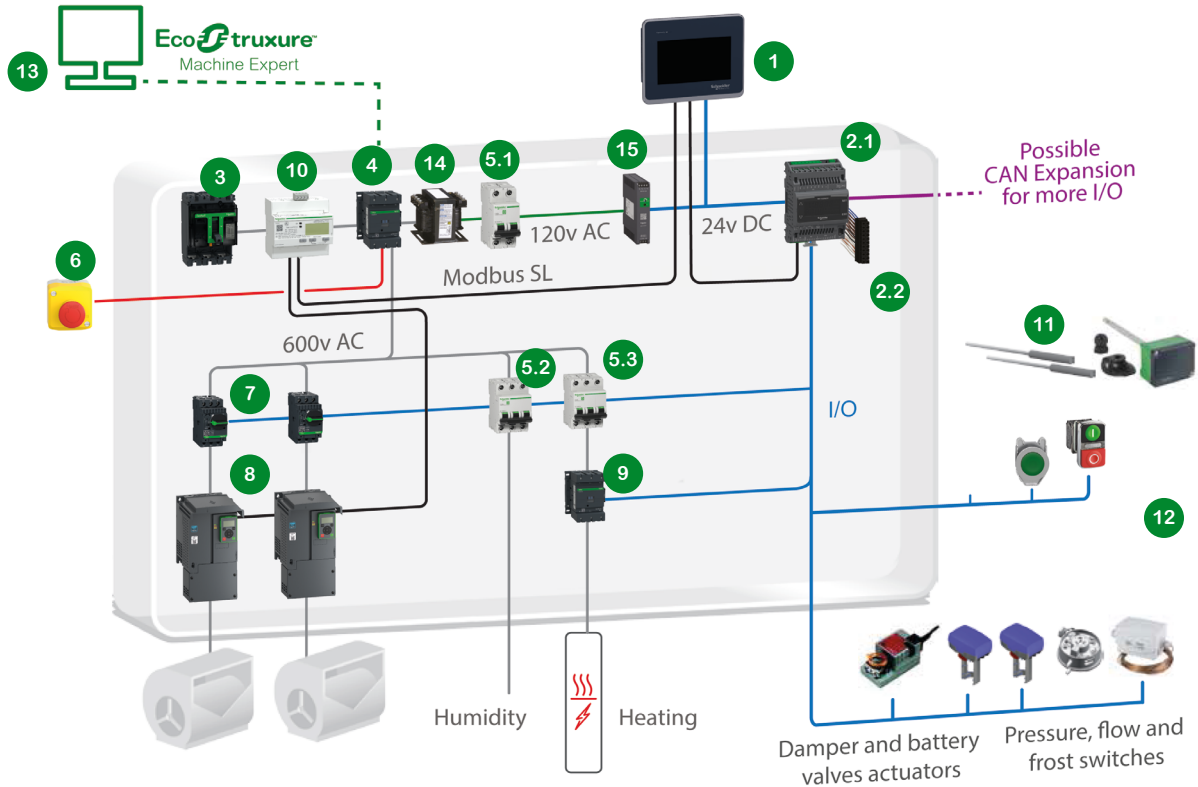
Key differentiators of an AHU

- Simple economic, reliable and robust solution
- Flexible customization and highly scalable design

Why choose Schneider for an AHU?

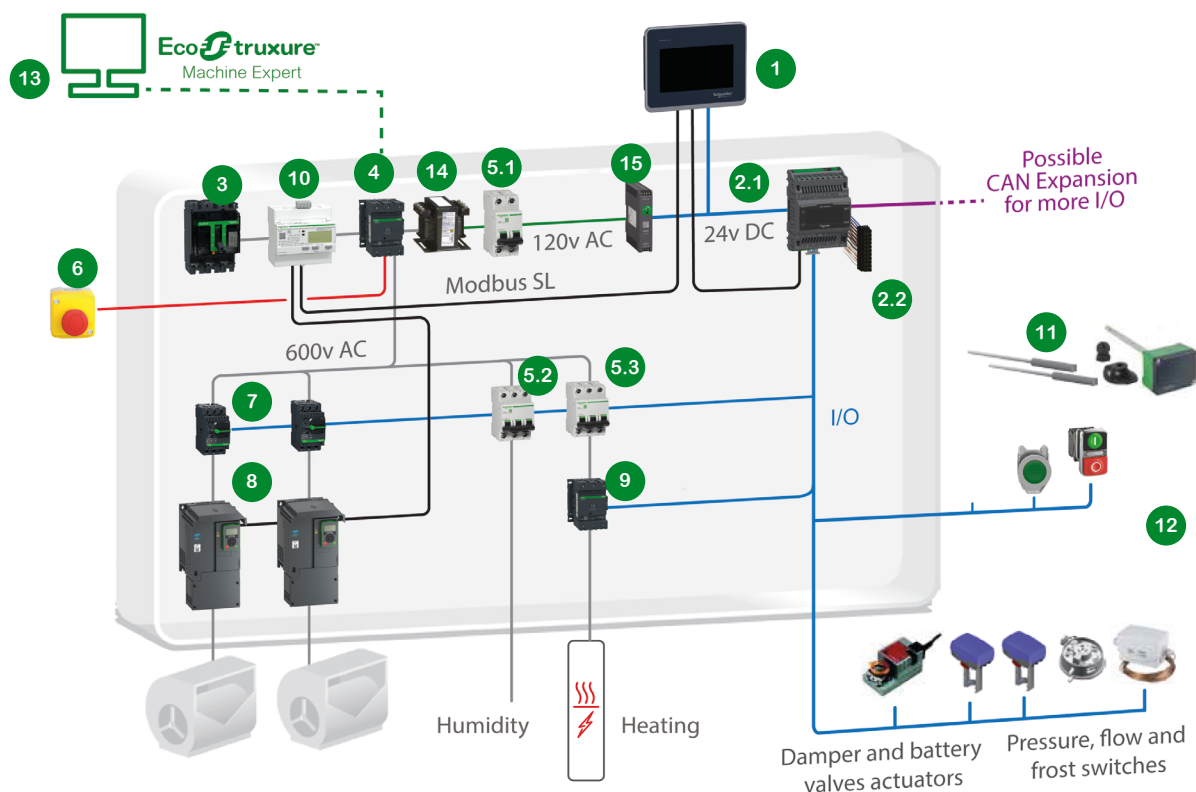
- Long experience and recognized application know-how
- Robust and validated automation architecture
- Complete and optimized HVAC offers, with drives, logic controllers, probes, power meters and free software.
- Dedicated software platform with EcoStrutture Machine Expert – HVAC simplifies each of the steps in machine design, integration and commissioning
- Fast & Easy design through AHU's application function blocks (AFBs) libraries offering "ready to use" and pre-configured functions such as, plant mode control, AHU temperature control, energy management and PID
- Multi-standard components available worldwide
- Incomparable long lifespan in tough applications, thanks to the HVAC dedicated reliable and robust Schneider Electric parts
- Easy installation and on-site commissioning
- Simple maintenance, not requiring Hydronics skills

HVAC: AHU – Air Handling Unit machine



Offer list – AHU - Air Handling Unit machine	#	Products	Descriptions	Qty
Harmony ST6 - Touch screen panel	①	HMIST6200	Small Touch screen panel to supervise the system 4"W color display, 1COM (RS-232C or RS-485), 1Ethernet, USB host & device, 24V DC	1
Modicon M1730 – Logic controller	②.1	M173ODM22R	230V AC HVAC Logic controller with display, 22 I/O with 6 DI, 5DO, 7 AI, 4 AO with possibility for extension. Use programming EcoStruxure Operator Terminal Expert - HVAC software with ready to use assets and HVAC Libraries for AHU	1
Modicon M173 LV Connector	②.2	TM173ACB1M	LV Connector - 1m cable	
ComPacT NSX100F – Circuit breaker, MA trip unit	③	C10F3MA100	3 poles, 3-phases, 100A, magnetic motor protection, 10kA, 600V AC	1
TeSys Deca - LC1D Contactor	④	LC1D115AEHE	115A contactor,3 pole AC-3, 100 HP at 575/600 VAC 60 Hz, 1NO + 1NC auxiliary contacts, 110V AC coil	1
Multi9 C60N	⑤.1	M9F42103	1 pole - 3A - Curve C - 120V AC, 14kA mini circuit breaker 3 pole - 16A	1
ComPacT NSX100F – Circuit breaker, MA trip unit	⑤.2	C10F3MA013	3 poles 3-phases, 12.5A, magnetic motor protection, 10kA, 600V AC	1
ComPacT NSX100F – Circuit breaker, MA trip unit	⑤.3	C10F3MA025	3 poles 3-phases, 25A, magnetic motor protection, 10kA, 600V AC	1
Harmony XALK - Control station plastic, yellow cover	⑥	XALK178E	Control station, yellow cover with 1 emergency switching off function – 1 NO + 1 NC	1
TeSys Power GV2L - Motor circuit breaker	⑦	GV2L32	3 pole AC-3, 32A - magnetic motor circuit breaker, rotary handle	2
Altivar HVAC ATH200 – variable speed drive	⑧	ATH230D15S6	15kW / 20HP – 600V AC, 3 phase, Modbus, BACnet MS/TP, BACnet/IP	2
TeSys Deca - LC1D Contactor	⑨	LC1D32F7	3 pole AC-1, 25 HP 600 VAC, 27A contactor, 1NO + 1NC auxiliary contacts, 110V AC coil	1
Acti9 – EM3500 series - Energy Meter	⑩	METSEEM3550	The EM3500 series meters provide the essential measurement capabilities (for example, current, voltage and energy)	1
		METSECTLV10010U	Current transformer	1

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Temperature and Humidity Sensors	11	TM1STNTXXX TM1SHXXX	Temperature NTC, PT1000 Humidity Sensors, 4-20mA	X X
Harmony XB4 – Metal push buttons, Flush mounting	12	XB4FA3311 XB4FL4322	Ø 22 mm green pushbutton with “I” marking, flush mounting, 1NO contact Ø 22 mm red pushbutton with “O” marking, flush mounting, 1NC contact Note: For standard mounting, use XB4BA3311 and XB4BA4322	1 1
Harmony XB4 (alternative)		Alternative	Ø 22 mm double-headed pushbutton with 1 green “I” marking button + 1 red “O” making projecting button + 1 central pilot light white, 1NO + 1NC contacts	1
EcoStruxure Machine Expert Software (free license)	13	NA	Simplify machine programming & commissioning using a single environment. Free online download	1
Transformer	14	9070T200D5	Transformer, Type T, industrial control, 200VA, 1 phase, 600V primary, 120V secondary, 80C rise	1
Regulated Power Supply	15	ABLS1A24031	100-240V AC, 24V 3.1 A, single phase, Optimized	1