



XEV SERIES: SUPERHEAT REGULATION

- Drivers for ON/OFF (pulsed) and stepper electronic expansion valve management
- ON/OFF (pulsed) expansion valve support with 30W max power and coil c.a.
- Temperature analog inputs (NTC, PTC, Pt1000)
- Pressure analog inputs (0-5V, 4-20mA)
- Possibility to broadcast via LAN the pressure signal to multiplexed cabinets
- Alarm management (visual, relay)
- Cool Defrost for defrost time reduction
- Superheat adaptive control
- Sub-cooling management (XEV32D)
- Hot Key or Prog Tool Kit connector for quick and easy programming
- Serial connection to monitoring systems
- 20VA max power absorption

HOW to ORDER

5 = 230Vac

• Display with red LED (10.5mm high) and icons

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Buzzer 0 = No **1** = Yes

XEV11/12D	X	E	V	1		D	-	A	В	С	D	E			
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XEV21/22/32D	^	E	v			U	-	•	D	C	U	0			
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Power supply	lemperature probe				ŀ	Pressure probe						Measurement unit			
2 = 24Vac	P = Pt	P = Pt1000					0 = 0-5V						c = °C/Bar		
4 = 110Vac	N = NTC					1	1 = 4-20mA						$\mathbf{F} = ^{\circ}\mathbf{F}/\mathbf{PSI}$		

2 = PP11 3 = PP30 4 = PPR15 5 = PPR30

44

SUB-COOLING

During the refrigeration cycle shown in the following diagram, the temperature of the liquid refrigerant entering by the thermostatic valve is important. Decreasing this value results in many economic advantages because it increases the "refrigerating effect" (h2-h1). For this reason it's important to introduce the concept of sub-cooling of the refrigerating fluid as "saturated liquid". This process, if properly managed, can improve LT plant operation (also more than 25%), against a meagre power of the NT compressor rack (about 8%) and an appropriate exchanger. The XEV32D driver, thanks to special algorithms, ensures the subcooling optimization, which increases the plant COP (Coefficient Of Performance). Screens show as, with the same compressor, the subcooling management increase the refrigeration power (COP increasing). For this reason it's possible to consider the use of a smaller compressor (less absorbed power).



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✓ Digital			D3D5-100X		25.60	11.70	2.19	19.71	243.00	49.90	
			DODS-150K		26.00	11.75	2.22	20.53	246.00	49.90	
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Pressure-enthalpy diagram shows the refrigeration cycle and the sub-cooling zone.

REFRIGERATION CIRCUIT

The diagram shows the different ways to connect the XEV drivers to a generic application like a single cooling unit or multiplexed cabinet. The valve is driven by the XEV module that is in turn commanded, by the activation of the digital input, from the temperature controller.

SINGLE SYSTEM: section 1 of the schematic diagram shows how connections would be arranged for a single cooling system.

MULTIPLEXED CABINET: to reduce installation costs, it is possible to use a single suction pressure transducer as shown in the overall schematic diagram. This transducer's pressure signal is repeated to the other controllers across a digital LAN connection that guarantees optimal noise immunity.



XEV

KEYBOARD and DRIVERS for ON/OFF and STEPPER ELECTRONIC EXPANSION VALVE MANAGEMENT



D: 4 DIN Rail



XEV11D	ON/OFF electronic expansion valve driver
XEV12D	ON/OFF electronic expansion valve driver with integrated display
XEV21D	Stepper electronic expansion valve driver
XEV22D	Stepper electronic expansion valve driver with integrated display
XEV32D	Stepper electronic expansion valve driver with integrated display and sub-cooling management
KB1 PRG	Programming keyboard for XEV11D and XEV21D modules

XEV21D XEV32D **KB1 PRG FEATURES** XEV11D XEV12D XEV22D Display: n° digits ± 3 d.p. ± 3 d.p. ± 3 d.p. ± 3 d.p. Keyboard: push buttons 3 3 6 3 24, 110, 230Vac 24, 110, 230Vac 24Vac/dc 24Vac/dc 24Vac/dc Power supply from controller Probe inputs 4-20mA, 0-5V 4-20mA, 0-5V 4-20mA, 0-5V 4-20mA, 0-5V 4-20mA, 0-5V Suction pressure NTC, Pt1000 NTC, Pt1000 NTC, Pt1000 NTC, Pt1000 NTC, Pt1000 Suction temperature NTC, Pt1000 Output liquid temperature Digital inputs Free of voltage pres pres pres pres pres High voltage pres pres pres pres pres **Relay outputs** Alarm 8A config 8A config 8A config 8A config 8A config Other ON/OFF up to 30W Valve driver output ON/OFF up to 30W stepper stepper stepper Hot Key/Prog Tool Kit output pres pres pres pres pres Remote keyboard output KB1 PRG KB1 PRG Serial output RS485 RS485 RS485 RS485 RS485 Alarm recovery by LAN pres pres pres pres pres Buzzer opt opt Battery backup input pres pres pres

XEV11D - XEV12D



XEV21D - XEV22D



XEV32D



ACCESSORY

CAB/KB11

46

Cable for the connection between the keyboard and the XEV driver, 1m

