

Emerson™ XC643CX digital controller for Copeland™ digital compressors



Key functions

- Controls one Copeland digital compressor
- Controls one fixed-speed compressor
- Head pressure control with fan cycling
- Discharge line temperature protection

Key benefits

- Quick and easy setup
- Improves suction pressure control
- Enables multi-refrigerant digital operation
- System display and troubleshooting diagnostics
- Added system safeguards

Icons

SET SET

Standard view: to see or modify the set point
In programming mode: use SETP to select a parameter or confirm an operation



UP

In programming mode: used to browse the parameter codes or increase the displayed value
With HOT key inserted: UP starts the HOT key programming procedure
To access the INFO menu: push and release UP to access the INFO menu



DOWN

In programming mode: used to browse the parameter codes or decrease the displayed value



TOOLS

Displays running hours for each load



Not used



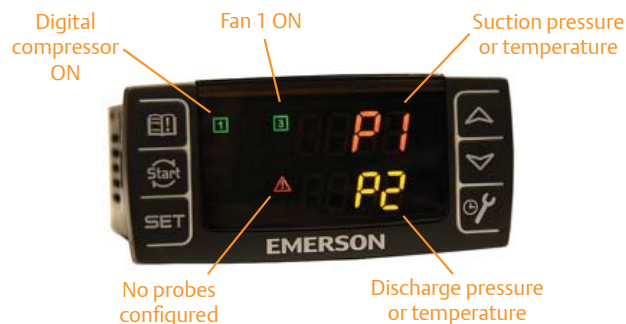
Not used

Key combinations

UP + DOWN for 3 seconds: lock and unlock keypad

SET + UP: Enter programming mode

SET + DOWN: Exit programming mode



Quick setup guide

Adjusting the refrigerant

Default: R-404A (parameter FtyP)

If another refrigerant is used:

Hold DOWN and SET **at the same time** for 3 seconds to enter menu



Cycle through menu options – UP/DOWN



Select FtyP – SET



Adjust refrigerant – UP/DOWN



Store function - SET



Exit menu - UP and SET, or wait 90 seconds



Value pre-set according to the kind of refrigerant

	R-507	R-410A	R-407C	R-407A	R-404A	R-134A	R-22
SEtC (psig)	55	78	37	42	55	17	43
SEtF (psig)	220	295	179	194	220	114	181
LSE (psig)	5	11	-1	-1	5	-7	1
HSE (psig)	114	155	95	99	114	51	93
LSF (psig)	169	245	130	143	170	63	131
HSF (psig)	269	345	230	243	270	163	231

Accessing Pr1 (initial parameters)

Push the SET key for more than 2 seconds



Lower display will show the **SEtC** label

Upper display will show the default value flashing

Push UP or DOWN to change the setpoint



Push SET



Pr1 initial parameters	Description	Default value R-404A
SEtC	Set point for compressors	55 psig
SEtF	Set point for fans	220 psig

See Application Engineering bulletin AE-1386 for application details

Accessing Pr2 (extended parameters)

Hold down the SET and DOWN keys for 3 seconds



Scroll DOWN to Pr2



Select Pr2 and press SET



Enter the password **3210** and press SET after each digit entered. Password screen will timeout after 5 seconds - press SET again to re-enter password



IMPORTANT: After 90 seconds of inactivity the controller will revert to the default display.

Adjusting the type of transducer

Default: 4-20mA pressure transducer (dEU parameter = Pr4.)

If another transducer is used:

After logging into the Pr2 parameters

Cycle through menu options – UP/DOWN



Select dEU – SET



Adjust transducer – UP/DOWN

a. 0.5-4.5V pressure transducers: dEU = Pr5



b. 4-20mA pressure transducers: dEU = Pr4

c¹. NTC 10K temperature sensors: dEU = tPr

Store function - SET



Exit menu - UP and SET, or wait 90 seconds



¹**Note:** Changing to **option c** will result in all parameter temperatures displayed in °F

Pr2 extended parameters	Description	Default value
OA2	Load output 2 (compressor or fan)	CPr
PtB	Code table parameters	1
rEL	Firmware release	2.7
Adr	Serial address	1
oFF	Enabling function oFF	no
Pb	Proportional band for fan regulation	58
don	Delay between starts of two different loads	0.3
tdS	Cycle time for the Copeland digital compressor	20.0
inc	Integration time	300.0
Pbd	Control band compressors	10
PNU	Unit of pressure measurement	PSI
CF	Temperature unit	°F
dEU	Select type size parameters of temperature or pressure	Pr4
FCAL	P2 Offset	0
FA20	20mA or 4.5V readout for P2	435
FA04	4mA or 0.5V readout for P2	0
P2C	Presence probe P2	YES
CAL	P1 offset	0
PA20	20mA or 4.5V readout for P1	160
PA04	4mA or 0.5V readout for P1	-7
FtyP	Refrigerant type	404
OA3	Load output 3 (fan or not used)	Fan
OA4	Load output 4 (fan or not used)	Fan

Common probe errors*

- Flashing P1 or P2, verify the probe is correctly wired
- No P(x), the probe(x) is requesting for a function but not present.
- If P1 shows a fault, the digital compressor will run at 100% loaded, if P2 shows a fault, one fan will be forced on.

*For more information please refer to Application Engineering bulletin AE-1386

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