Table 10 — Run Status Mode and Sub-Mode Directory

SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	SUB-ITEM	DISPLAY	SUB-ITEM	DISPLAY	ITEM EXPANSION	COMMENT
VIEW	ENTER	EWT	XXX.X °F					ENTERING FLUID TEMP	
	↓	LWT	XXX.X °F					LEAVING FLUID TEMP	
	↓	SETP	XXX.X °F					ACTIVE SETPOINT	
	↓	CTPT	XXX.X °F					CONTROL POINT	
	↓	LOD.F	XXX					LOAD/UNLOAD FACTOR	
	↓	STAT	X					CONTROL MODE	0 = Service Test 1 = Off Local 2 = Off CCN 3 = Off Time 4 = Off Emrgcy 5 = On Local 6 = On CCN 7 = On Time 8 = Ht Enabled 9 = Pump Delay
	↓	LD.PM						LEAD PUMP	
	↓	OCC	YES/NO					OCCUPIED	
	↓	LS.AC	YES/NO					LOW SOUND ACTIVE	
	↓	MODE	YES/NO					OVERRIDE MODES IN EFFECT	
	↓	CAP	XXX %					PERCENT TOTAL CAPACITY	
	↓	STGE	X					REQUESTED STAGE	
	↓	ALRM	XXX					CURRENT ALARMS & ALERTS	
	↓	TIME	XX.XX					TIME OF DAY	00.00-23.59
	↓	MNTH	XX					MONTH OF YEAR	1 = January, 2 = February, etc.
	↓	DATE	XX					DAY OF MONTH	01-31
	↓	YEAR	XX					YEAR OF THE CENTURY	
RUN	ENTER	HRS.U	XXXX HRS					MACHINE OPERATING HOURS	
	↓	STR.U	XXXX					MACHINE STARTS	
	↓	HR.P1	XXXX.X					PUMP 1 RUN HOURS	
	↓	HR.P2	XXXX.X					PUMP 2 RUN HOURS	
HOUR	ENTER	HRS.A	XXXX HRS					CIRCUIT A RUN HOURS	
	↓	HRS.B	XXXX HRS					CIRCUIT B RUN HOURS	See Note
	↓	HR.A1	XXXX HRS					COMPRESSOR A1 RUN HOURS	
	↓	HR.A2	XXXX HRS					COMPRESSOR A2 RUN HOURS	
	↓	HR.B1	XXXX HRS					COMPRESSOR B1 RUN HOURS	See Note
	↓	HR.B2	XXXX HRS					COMPRESSOR B2 RUN HOURS	See Note
STRT	ENTER	ST.A1	XXXX					COMPRESSOR A1 STARTS	
	↓	ST.A2	XXXX					COMPRESSOR A2 STARTS	
	↓	ST.B1	XXXX					COMPRESSOR B1 STARTS	See Note
	↓	ST.B2	XXXX					COMPRESSOR B2 STARTS	See Note
PM	ENTER	PUMP						PUMP MAINTENANCE	
	ENTER			SI.PM	XXXX HRS			PUMP SERVICE INTERVAL	
	↓			P.1.DN	XXXX HRS			PUMP 1 SERVICE COUNTDOWN	
	↓			P.2.DN	XXXX HRS			PUMP 2 SERVICE COUNTDOWN	
	↓			P.1.MN	YES/NO			PUMP 1 MAINTENANCE DONE	User Entry
	↓			P.2.MN	YES/NO			PUMP 2 MAINTENANCE DONE	User Entry

NOTE: If the unit has a single circuit, the Circuit B items will not appear in the display, except the ability to configure circuit B will be displayed.

Table 10 — Run Status Mode and Sub-Mode Directory (cont)

SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	SUB-ITEM	DISPLAY	SUB-ITEM	DISPLAY	ITEM EXPANSION	COMMENT
PM (cont)	↓			PMDT				PUMP MAINTENANCE DATES	
	ENTER					P.1.M0		MM/DD/YY HH:MM	
	↓					P.1.M1		MM/DD/YY HH:MM	
	↓					P.1.M2		MM/DD/YY HH:MM	
	↓					P.1.M3		MM/DD/YY HH:MM	
	↓					P.1.M4		MM/DD/YY HH:MM	
	↓					P.2.M0		MM/DD/YY HH:MM	
	↓					P.2.M1		MM/DD/YY HH:MM	
	↓					P.2.M2		MM/DD/YY HH:MM	
	↓					P.2.M3		MM/DD/YY HH:MM	
	↓					P.2.M4		MM/DD/YY HH:MM	
	ENTER	STRN						STRAINER MAINTENANCE	
	ENTER			SI.ST	XXXX HRS			STRAINER SRVC INTERVAL	
	↓			S.T.DN	XXXX HRS			STRAINER SRVC COUNTDOWN	
	↓			S.T.MN	YES/NO			STRAINER MAINT. DONE	User Entry
	↓			ST.DT				STRAINER MAINT. DATES	
	ENTER					S.T.M0		MM/DD/YY HH:MM	
	↓					S.T.M1		MM/DD/YY HH:MM	
	↓					S.T.M2		MM/DD/YY HH:MM	
	↓					S.T.M3		MM/DD/YY HH:MM	
	↓					S.T.M4		MM/DD/YY HH:MM	
	ENTER	COIL						COIL MAINTENANCE	
	ENTER			SI.CL	XXXX HRS			COIL SRVC INTER	
	↓			C.L.DN	XXXX HRS			COIL SERVICE COUNTDOWN	
	↓			C.L.MN	YES/NO			COIL MAINT. DONE	User Entry
	↓			CL.DT				COIL MAINTENANCE DATES	
	ENTER					C.L.M0		MM/DD/YY HH:MM	
	↓					C.L.M1		MM/DD/YY HH:MM	
	↓					C.L.M2		MM/DD/YY HH:MM	
	↓					C.L.M3		MM/DD/YY HH:MM	
	↓					C.L.M4		MM/DD/YY HH:MM	
VERS	ENTER	MBB						CESR-131279-xx-xx	xx-xx is Version number*
	↓	MARQ						CESR-131171-xx-xx	xx-xx is Version number*
	↓	EMM						CESR-131174-xx-xx	xx-xx is Version number*
	↓	NAVI						CESR-131227-xx-xx	xx-xx is Version number*

*Press ENTER and ESCAPE simultaneously to obtain version number.

Table 11 — Service Test Mode and Sub-Mode Directory

SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENT
TEST	ENTER		ON/OFF	SERVICE TEST MODE	To Enable Service Test Mode, move Enable/Off/Remote Contact switch to OFF. Change TEST to ON. Move switch to ENABLE.
OUTS				OUTPUTS AND PUMPS	
	ENTER	FAN1	ON/OFF	FAN 1 RELAY	
	↓	FAN2	ON/OFF	FAN 2 RELAY	
	↓	CLP.1	ON/OFF	COOLER PUMP 1 RELAY	
	↓	CLP.2	ON/OFF	COOLER PUMP 2 RELAY	
	↓	CL.HT	ON/OFF	COOLER/PUMP HEATER	
	↓	RMT.A	ON/OFF	REMOTE ALARM RELAY	
CMPA				CIRCUIT A COMPRESSOR TEST	
	ENTER	CC.A1	ON/OFF	COMPRESSOR A1 RELAY	
	↓	CC.A2	ON/OFF	COMPRESSOR A2 RELAY	
	↓	MLV	ON/OFF	MINIMUM LOAD VALVE RELAY	
CMPB				CIRCUIT B COMPRESSOR TEST	See Note
	ENTER	CC.B1	ON/OFF	COMPRESSOR B1 RELAY	
	↓	CC.B2	ON/OFF	COMPRESSOR B2 RELAY	
	↓	MLV	ON/OFF	MINIMUM LOAD VALVE RELAY	

NOTE: If the unit has a single circuit, the Circuit B items will not appear in the display, except the ability to configure circuit B will be displayed.

Table 12 — Temperature Mode and Sub-Mode Directory

SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENT
UNIT				ENT AND LEAVE UNIT TEMPS	
	ENTER	CEWT	XXX.X °F	COOLER ENTERING FLUID	
	↓	CLWT	XXX.X °F	COOLER LEAVING FLUID	
	↓	OAT	XXX.X °F	OUTSIDE AIR TEMPERATURE	
	↓	SPT	XXX.X °F	SPACE TEMPERATURE	
	↓	DLWT	XXX.X °F	LEAD/LAG LEAVING FLUID	
CIR.A				TEMPERATURES CIRCUIT A	
	ENTER	SCT.A	XXX.X °F	SATURATED CONDENSING TMP	
	↓	SST.A	XXX.X °F	SATURATED SUCTION TEMP	
	↓	RGT.A	XXX.X °F	COMPR RETURN GAS TEMP	
	↓	SH.A	XXX.X ^F	SUCTION SUPERHEAT TEMP	
CIR.B				TEMPERATURES CIRCUIT B	See Note
	ENTER	SCT.B	XXX.X °F	SATURATED CONDENSING TMP	See Note
	↓	SST.B	XXX.X °F	SATURATED SUCTION TEMP	See Note
	↓	RGT.B	XXX.X °F	COMPR RETURN GAS TEMP	See Note
	↓	SH.B	XXX.X ^F	SUCTION SUPERHEAT TEMP	See Note

NOTE: If the unit has a single circuit, the Circuit B items will not appear in the display, except the ability to configure circuit B will be displayed.

Table 13 — Pressure Mode and Sub-Mode Directory

SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENT
PRC.A				PRESSURES CIRCUIT A	
	ENTER	DP.A	XXX.X PSIG	DISCHARGE PRESSURE	
	↓	SP.A	XXX.X PSIG	SUCTION PRESSURE	
PRC.B				PRESSURES CIRCUIT B	See Note
	ENTER	DP.B	XXX.X PSIG	DISCHARGE PRESSURE	See Note
	↓	SP.B	XXX.X PSIG	SUCTION PRESSURE	See Note

NOTE: If the unit has a single circuit, the Circuit B items will not appear in the display, except the ability to configure circuit B will be displayed.

Table 14 — Set Point and Sub-Mode Directory

SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENT
COOL				COOLING SETPOINTS	
	ENTER	CSP.1	XXX.X °F	COOLING SETPOINT 1	Default: 44 F
	↓	CSP.2	XXX.X °F	COOLING SETPOINT 2	Default: 44 F
	↓	CSP.3	XXX.X °F	ICE SETPOINT	Default: 32 F
HEAD				HEAD PRESSURE SETPOINTS	
	ENTER	HD.P.A	XXX.X °F	CALCULATED HP SETPOINT A	Default: 113 F (Read Only)
	↓	HD.P.B	XXX.X °F	CALCULATED HP SETPOINT B	Default: 113 F (Read Only)
FRZ				BRINE FREEZE SETPOINT	
	ENTER	BR.FZ	XXX.X °F	BRINE FREEZE POINT	Default: 34 F

Table 15 — Inputs Mode and Sub-Mode Directory

SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENT
GEN.I				GENERAL INPUTS	
	ENTER	STST	STRT/STOP	START/STOP SWITCH	
	↓	FLOW	ON/OFF	COOLER FLOW SWITCH	
	↓	PM.F.1	OPEN/CLSE	COOLER PUMP 1 INTERLOCK	
	↓	LD.PM	X	Lead Pump	1 = Pump 1 2 = Pump 2 3 = No Pump
	↓	PM.F.2	OPEN/CLSE	COOLER PUMP 2 INTERLOCK	
	↓	HT.RQ	ON/OFF	HEAT REQUEST	
	↓	DLS1	ON/OFF	DEMAND LIMIT SWITCH 1	
	↓	DLS2	ON/OFF	DEMAND LIMIT SWITCH 2	
	↓	ICED	ON/OFF	ICE DONE	
	↓	DUAL	ON/OFF	DUAL SETPOINT SWITCH	
CRCT				CIRCUITS INPUTS	
	ENTER	FKA1	ON/OFF	COMPRESSOR A1 FEEDBACK	
	↓	FKA2	ON/OFF	COMPRESSOR A2 FEEDBACK	
	↓	FKB1	ON/OFF	COMPRESSOR B1 FEEDBACK	See Note
	↓	FKB2	ON/OFF	COMPRESSOR B2 FEEDBACK	See Note
4-20				4-20 MA INPUTS	
	ENTER	DMND	XX.X MA	4-20 MA DEMAND SIGNAL	
	↓	RSET	XX.X MA	4-20 MA RESET SIGNAL	
	↓	CSP	XX.X MA	4-20 MA COOLING SETPOINT	

Table 16 — Outputs Mode and Sub-Mode Directory

SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENT
GEN.O				GENERAL OUTPUTS	
	ENTER	FAN1	ON/OFF	FAN 1 RELAY	
	↓	FAN2	ON/OFF	FAN 2 RELAY	
	↓	C.WP1	ON/OFF	COOLER PUMP RELAY 1	
	↓	C.WP2	ON/OFF	COOLER PUMP RELAY 2	
	↓	CLHT	ON/OFF	COOLER/PUMP HEATER	
	↓	MLV.R	ON/OFF	MINIMUM LOAD VALVE RELAY	
CIR.A				OUTPUTS CIRCUIT A	
	ENTER	CC.A1	ON/OFF	COMPRESSOR A1 RELAY	
	↓	CC.A2	ON/OFF	COMPRESSOR A2 RELAY	
CIR.B				OUTPUTS CIRCUIT B	See Note
	ENTER	CC.B1	ON/OFF	COMPRESSOR B1 RELAY	
	↓	CC.B2	ON/OFF	COMPRESSOR B2 RELAY	

NOTE: If the unit has a single circuit, the Circuit B items will not appear in the display, except the ability to configure circuit B will be displayed.

Table 17 — Configuration Mode and Sub-Mode Directory

SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENT		
DISP				DISPLAY CONFIGURATION			
	ENTER	TEST	ON/OFF	TEST DISPLAY LEDS			
	↓	METR	ON/OFF	METRIC DISPLAY	Off = English; On = Metric		
	↓	LANG	X	LANGUAGE SELECTION	Default: 0 0 = English 1 = Espanol 2 = Francais 3 = Portuguese		
	↓	PAS.E	ENBL/DSBL	PASSWORD ENABLE			
	↓	PASS	xxxx	SERVICE PASSWORD			
UNIT	ENTER			UNIT CONFIGURATION			
	↓	SZA.1	XX	COMPRESSOR A1 SIZE	**Unit Size**	**60 Hz**	**50 Hz**
					010	10	11
					015	15	7
					018	9	9
					022	9	11
					025	13	13
					030	15	—
					032	—	8
					035	9	13
					040	13	—
					042	—	11
					045	10	13
					050	13	—
					055	15	—
	↓	SZA.2	XX	COMPRESSOR A2 SIZE	**Unit Size**	**60 Hz**	**50 Hz**
					015	—	7
					018	9	9
					022	13	11
					025	13	13
					030	15	—
					032	—	11
					035	13	13
					040	13	—
					042	—	11
					045	13	13
					050	13	—
					055	15	—
	↓	SZB.1	XX	COMPRESSOR B1 SIZE	**Unit Size**	**60 Hz**	**50 Hz**
					032	—	13
					035	15	13
					040	15	—
					042	—	11
					045	10	13
					050	13	—
					055	15	—
	↓	SZB.2	XX	COMPRESSOR B2 SIZE	**Unit Size**	**60 Hz**	**50 Hz**
					042	—	11
					045	13	13
					050	13	—
					055	15	—
	↓	SH.SP	XX.X ΔF	SUPERHEAT SETPOINT	Default: 15 °F		
	↓	REFG	X	REFRIGERANT	1 = R-22		
	↓	FAN.S		FAN STAGING SELECT	1 = One Fan (010-018) 2 = Two Fans (022-030) 3 = Three Fans (032-040) 4 = Four Fans (042-055)		

NOTE: If the unit has a single circuit, the Circuit B items will not appear in the display, except the ability to configure circuit B will be displayed.

Table 17 — Configuration Mode and Sub-Mode Directory (cont)

SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENT
OPT1				UNIT OPTIONS 1 HARDWARE	
	ENTER	FLUD	X	COOLER FLUID	Default: Water 1 = Water 2 = Medium Temperature Brine
	↓	MLV.S	YES/NO	MINIMUM LOAD VALVE SELECT	
	↓	MMR.S	YES/NO	MOTORMASTER SELECT	
	↓	RG.EN	ENBL/DSBL	RETURN GAS SENSOR ENABLE	Default: DISABLED
	↓	CPC	ON/OFF	COOLER PUMP CONTROL	Default: On
	↓	PM1E	YES/NO	COOLER PUMP 1 ENABLE	
	↓	PM2E	YES/NO	COOLER PUMP 2 ENABLE	
	↓	PM.P.S	YES/NO	COOLER PMP PERIODIC STRT	Default: No
	↓	PM.SL	X	COOLER PUMP SELECT	Default: Automatic 0 = Automatic 1 = Pump 1 Starts first 2 = Pump 2 Starts first
	↓	PM.DY	XX MIN	COOLER PUMP SHUTDOWN DLY	0 to 10 minutes, Default: 1 min.
	↓	PM.DT	XXXX HRS	PUMP CHANGEOVER HOURS	Default: 500 hours
	↓	ROT.P	YES/NO	ROTATE COOLER PUMPS NOW	User Entry
	↓	EMM	YES/NO	EMM MODULE INSTALLED	
OPT2				UNIT OPTIONS 2 CONTROLS	
	ENTER	CTRL	X	CONTROL METHOD	Default: Switch 0 = Enable/Off/Remote Switch 2 = Occupancy 3 = CCN Control
	↓	CCNA	XXX	CCN ADDRESS	Default: 1 Range: 1 to 239
	↓	CCNB	XXX	CCN BUS NUMBER	Default: 0 Range: 0 to 239
	↓	BAUD	X	CCN BAUD RATE	Default: 9600 1 = 2400 2 = 4800 3 = 9600 4 = 19,200 5 = 38,400
	↓	LOAD	X	LOADING SEQUENCE SELECT	Default: Equal 1 = Equal 2 = Staged
	↓	LLCS	X	LEAD/LAG CIRCUIT SELECT	Default: Automatic 1 = Automatic 2 = Circuit A Leads 3 = Circuit B Leads
	↓	LCWT	XX.X ΔF	HIGH LCW ALERT LIMIT	Default: 60 Range: 2 to 60 °F
	↓	DELY	XX	MINUTES OFF TIME	Default: 0 Minutes Range: 0 to 15 Minutes
	↓	ICE.M	ENBL/DSBL	ICE MODE ENABLE	Default: Disable
	↓	CLS.C	ENBL/DSBL	CLOSE CONTROL SELECT	Default: Disable
	↓	LS.MD	X	LOW SOUND MODE SELECT	Default: 0 0 = Mode Disable 1 = Fan Noise Only 2 = Fan/Compressor Noise
	↓	LS.ST	00:00	LOW SOUND START TIME	Default: 00:00
	↓	LS.ND	00:00	LOW SOUND END TIME	Default: 00:00
	↓	LS.LT	XXX %	LOW SOUND CAPACITY LIMIT	Default: 100% Range: 0 to 100%
RSET				RESET COOL TEMP	
	ENTER	CRST	X	COOLING RESET TYPE	Default: No Reset 0 = No Reset 1 = 4 to 20 mA Input 2 = Outdoor Air Temperature 3 = Return Fluid 4 = Space Temperature
	↓	MA.DG	XX.X ΔF	4-20 - DEGREES RESET	Default: 0.0 ΔF Range: –30 to 30 ΔF
	↓	RM.NO	XXX.X °F	REMOTE - NO RESET TEMP	Default: 125 F (51.7 C) Range: 0° to 125 F

Table 17 — Configuration Mode and Sub-Mode Directory (cont)

SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENT
RSET (cont)	↓	RM.F	XXX.X °F	REMOTE - FULL RESET TEMP	Default: 0.0° F (-17.8 C) Range: 0° to 125 F
	↓	RM.DG	XX.X °F	REMOTE - DEGREES RESET	Default: 0.0° F Range: –30 to 30 F
	↓	RT.NO	XXX.X ΔF	RETURN - NO RESET TEMP	Default: 10.0 ΔF (5.6 ΔC) Range: 0° to 125 F COOLER ΔT
	↓	RT.F	XXX.X ΔF	RETURN - FULL RESET TEMP	Default: 0.0 ΔF (0.0 ΔC) Range: 0° to 125 F COOLER ΔT
	↓	RT.DG	XX.X °F	RETURN - DEGREES RESET	Default: 0.0° F Range: –30 to 30 F (–34.4 to -1.1 C)
	↓	DMDC	X	DEMAND LIMIT SELECT	Default: None 0 = None 1 = Switch 2 = 4 to 20 mA Input 3 = CCN Loadshed
	↓	DM20	XXX %	DEMAND LIMIT AT 20 MA	Default: 100% Range: 0 to 100%
	↓	SHNM	XXX	LOADSHED GROUP NUMBER	Default: 0 Range: 0 to 99
	↓	SHDL	XXX %	LOADSHED DEMAND DELTA	Default: 0% Range: 0 to 60%
	↓	SHTM	XXX	MAXIMUM LOADSHED TIME	Default: 60 minutes Range: 0 to 120 minutes
	↓	DLS1	XXX %	DEMAND LIMIT SWITCH 1	Default: 80% Range: 0 to 100%
	↓	DLS2	XXX %	DEMAND LIMIT SWITCH 2	Default: 50% Range: 0 to 100%
	↓	LLEN	ENBL/DSBL	LEAD/LAG CHILLER ENABLE	Default: Disable
	↓	MSSL	SLVE/MAST	MASTER/SLAVE SELECT	Default: Master
	↓	SLVA	XXX	SLAVE ADDRESS	Default: 2 Range: 0 to 239
	ENTER	LLBL	X	LEAD/LAG BALANCE SELECT	Default: Master Leads 0 = Master Leads 1 = Slave Leads 2 = Automatic
	↓	LLBD	XXX	LEAD/LAG BALANCE DELTA	Default: 168 hours Range: 40 to 400 hours
	↓	LLDY	XXX	LAG START DELAY	Default: 5 minutes Range: 0 to 30 minutes
	↓	PARA	YES	PARALLEL CONFIGURATION	Default: YES (CANNOT BE CHANGED)
SLCT				SETPOINT AND RAMP LOAD	
	ENTER	CLSP	X	COOLING SETPOINT SELECT	Default: Single 0 = Single 1 = Dual Switch 2 = Dual CCN Occupied 3 = 4 to 20 mA Input (requires EMM)
	↓	RL.S	ENBL/DSBL	RAMP LOAD SELECT	Default: Enable
	↓	CRMP	X.X	COOLING RAMP LOADING	Default: 1.0 Range: 0.2 to 2.0
	↓	SCHD	XX	SCHEDULE NUMBER	Default: 1 Range: 1 to 99
	↓	Z.GN	X.X	DEADBAND MULTIPLIER	Default: 2.0 Range: 1.0 to 4.0
SERV				SERVICE CONFIGURATION	
	ENTER	EN.A1	ENBL/DSBL	ENABLE COMPRESSOR A1	Unit dependent
	↓	EN.A2	ENBL/DSBL	ENABLE COMPRESSOR A2	Unit dependent
	↓	EN.B1	ENBL/DSBL	ENABLE COMPRESSOR B1	Unit dependent
	↓	EN.B2	ENBL/DSBL	ENABLE COMPRESSOR B2	Unit dependent
BCST				BROADCAST CONFIGURATION	
	ENTER	T.D.BC	ON/OFF	CCN TIME/DATE BROADCAST	
	↓	OAT.B	ON/OFF	CCN OAT BROADCAST	
	↓	G.S.BC	ON/OFF	GLOBAL SCHEDULE BROADCAST	
	↓	BC.AK	ON/OFF	CCN BROADCAST ACK'ER	

Table 18 — Time Clock Mode and Sub-Mode Directory

SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	SUB-ITEM	DISPLAY	ITEM EXPANSION	COMMENT
TIME						TIME OF DAY	
	ENTER	HH.MM	XX.XX			HOUR AND MINUTE	Military (00:00 – 23:59)
DATE						MONTH,DATE,DAY AND YEAR	
	ENTER	MNTH	XX			MONTH OF YEAR	1-12 (1 = January, 2 = February, etc)
	↓	DOM	XX			DAY OF MONTH	Range: 01-31
	↓	DAY	X			DAY OF WEEK	1-7 (1 = Sunday, 2 = Monday, etc)
	↓	YEAR	XXXX			YEAR OF CENTURY	
DST						DAYLIGHT SAVINGS TIME	
	ENTER	STR.M	XX			MONTH	Default: 4, Range 1 – 12
	↓	STR.W	X			WEEK	Default: 1, Range 1 – 5
	↓	STR.D	X			DAY	Default: 7, Range 1 – 7
	↓	MIN.A	XX			MINUTES TO ADD	Default: 60, Range 0 – 99
	↓	STP.M	XX			MONTH	Default: 10, Range 1 – 12
	↓	STP.W	XX			WEEK	Default: 5, Range 1 – 5
	↓	STP.D	XX			DAY	Default: 7, Range 1 – 7
	↓	MIN.5	XX			MINUTES TO SUBTRACT	Default: 60, Range 0 – 99
SCH.N			XX			SCHEDULE NUMBER	Default: 1, Range 1 – 99
SCH.L						LOCAL OCCUPANCY SCHEDULE	
	ENTER	PER.1				OCCUPANCY PERIOD 1	
	ENTER			OCC.1	XX:XX	PERIOD OCCUPIED TIME	Military (00:00 – 23:59)
	↓			UNC.1	XX.XX	PERIOD UNOCCUPIED TIME	Military (00:00 – 23:59)
	↓			MON.1	YES/NO	MONDAY IN PERIOD	
	↓			TUE.1	YES/NO	TUESDAY IN PERIOD	
	↓			WED.1	YES/NO	WEDNESDAY IN PERIOD	
	↓			THU.1	YES/NO	THURSDAY IN PERIOD	
	↓			FRI.1	YES/NO	FRIDAY IN PERIOD	
	↓			SAT.1	YES/NO	SATURDAY IN PERIOD	
	↓			SUN.1	YES/NO	SUNDAY IN PERIOD	
	↓			HOL.1	YES/NO	HOLIDAY IN PERIOD	
	ENTER	PER.2				OCCUPANCY PERIOD 2	
	ENTER			OCC.2	XX:XX	PERIOD OCCUPIED TIME	Military (00:00 – 23:59)
	↓			UNC.2	XX.XX	PERIOD UNOCCUPIED TIME	Military (00:00 – 23:59)
	↓			MON.2	YES/NO	MONDAY IN PERIOD	
	↓			TUE.2	YES/NO	TUESDAY IN PERIOD	
	↓			WED.2	YES/NO	WEDNESDAY IN PERIOD	
	↓			THU.2	YES/NO	THURSDAY IN PERIOD	
	↓			FRI.2	YES/NO	FRIDAY IN PERIOD	
	↓			SAT.2	YES/NO	SATURDAY IN PERIOD	
	↓			SUN.2	YES/NO	SUNDAY IN PERIOD	
	↓			HOL.2	YES/NO	HOLIDAY IN PERIOD	

Table 18 — Time Clock Mode and Sub-Mode Directory (cont)

SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	SUB-ITEM	DISPLAY	ITEM EXPANSION	COMMENT
SCH.L (cont)	ENTER	PER.3				OCCUPANCY PERIOD 3	
	ENTER			OCC.3	XX:XX	PERIOD OCCUPIED TIME	Military (00:00 – 23:59)
	↓			UNC.3	XX.XX	PERIOD UNOCCUPIED TIME	Military (00:00 – 23:59)
	↓			MON.3	YES/NO	MONDAY IN PERIOD	
	↓			TUE.3	YES/NO	TUESDAY IN PERIOD	
	↓			WED.3	YES/NO	WEDNESDAY IN PERIOD	
	↓			THU.3	YES/NO	THURSDAY IN PERIOD	
	↓			FRI.3	YES/NO	FRIDAY IN PERIOD	
	↓			SAT.3	YES/NO	SATURDAY IN PERIOD	
	↓			SUN.3	YES/NO	SUNDAY IN PERIOD	
	↓			HOL.3	YES/NO	HOLIDAY IN PERIOD	
	ENTER	PER.4				OCCUPANCY PERIOD 4	
	ENTER			OCC.4	XX:XX	PERIOD OCCUPIED TIME	Military (00:00 – 23:59)
	↓			UNC.4	XX.XX	PERIOD UNOCCUPIED TIME	Military (00:00 – 23:59)
	↓			MON.4	YES/NO	MONDAY IN PERIOD	
	↓			TUE.4	YES/NO	TUESDAY IN PERIOD	
	↓			WED.4	YES/NO	WEDNESDAY IN PERIOD	
	↓			THU.4	YES/NO	THURSDAY IN PERIOD	
	↓			FRI.4	YES/NO	FRIDAY IN PERIOD	
	↓			SAT.4	YES/NO	SATURDAY IN PERIOD	
	↓			SUN.4	YES/NO	SUNDAY IN PERIOD	
	↓			HOL.4	YES/NO	HOLIDAY IN PERIOD	
	ENTER	PER.5				OCCUPANCY PERIOD 5	
	ENTER			OCC.5	XX:XX	PERIOD OCCUPIED TIME	Military (00:00 – 23:59)
	↓			UNC.5	XX.XX	PERIOD UNOCCUPIED TIME	Military (00:00 – 23:59)
	↓			MON.5	YES/NO	MONDAY IN PERIOD	
	↓			TUE.5	YES/NO	TUESDAY IN PERIOD	
	↓			WED.5	YES/NO	WEDNESDAY IN PERIOD	
	↓			THU.5	YES/NO	THURSDAY IN PERIOD	
	↓			FRI.5	YES/NO	FRIDAY IN PERIOD	
	↓			SAT.5	YES/NO	SATURDAY IN PERIOD	
	↓			SUN.5	YES/NO	SUNDAY IN PERIOD	
	↓			HOL.5	YES/NO	HOLIDAY IN PERIOD	
	ENTER	PER.6				OCCUPANCY PERIOD 6	
	ENTER			OCC.6	XX:XX	PERIOD OCCUPIED TIME	Military (00:00 – 23:59)
	↓			UNC.6	XX.XX	PERIOD UNOCCUPIED TIME	Military (00:00 – 23:59)
	↓			MON.6	YES/NO	MONDAY IN PERIOD	
	↓			TUE.6	YES/NO	TUESDAY IN PERIOD	
	↓			WED.6	YES/NO	WEDNESDAY IN PERIOD	

Table 18 — Time Clock Mode and Sub-Mode Directory (cont)

SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	SUB-ITEM	DISPLAY	ITEM EXPANSION	COMMENT
SCH.L (cont)	↓			THU.6	YES/NO	THURSDAY IN PERIOD	
	↓			FRI.6	YES/NO	FRIDAY IN PERIOD	
	↓			SAT.6	YES/NO	SATURDAY IN PERIOD	
	↓			SUN.6	YES/NO	SUNDAY IN PERIOD	
	↓			HOL.6	YES/NO	HOLIDAY IN PERIOD	
	ENTER	PER.7				OCCUPANCY PERIOD 7	
	ENTER			OCC.7	XX:XX	PERIOD OCCUPIED TIME	Military (00:00 – 23:59)
	↓			UNC.7	XX.XX	PERIOD UNOCCUPIED TIME	Military (00:00 – 23:59)
	↓			MON.7	YES/NO	MONDAY IN PERIOD	
	↓			TUE.7	YES/NO	TUESDAY IN PERIOD	
	↓			WED.7	YES/NO	WEDNESDAY IN PERIOD	
	↓			THU.7	YES/NO	THURSDAY IN PERIOD	
	↓			FRI.7	YES/NO	FRIDAY IN PERIOD	
	↓			SAT.7	YES/NO	SATURDAY IN PERIOD	
	↓			SUN.7	YES/NO	SUNDAY IN PERIOD	
	↓			HOL.7	YES/NO	HOLIDAY IN PERIOD	
	ENTER	PER.8				OCCUPANCY PERIOD 8	
	ENTER			OCC.8	XX:XX	PERIOD OCCUPIED TIME	Military (00:00 – 23:59)
	↓			UNC.8	XX.XX	PERIOD UNOCCUPIED TIME	Military (00:00 – 23:59)
	↓			MON.8	YES/NO	MONDAY IN PERIOD	
	↓			TUE.8	YES/NO	TUESDAY IN PERIOD	
	↓			WED.8	YES/NO	WEDNESDAY IN PERIOD	
	↓			THU.8	YES/NO	THURSDAY IN PERIOD	
	↓			FRI.8	YES/NO	FRIDAY IN PERIOD	
	↓			SAT.8	YES/NO	SATURDAY IN PERIOD	
	↓			SUN.8	YES/NO	SUNDAY IN PERIOD	
	↓			HOL.8	YES/NO	HOLIDAY IN PERIOD	
OVR						SCHEDULE OVERRIDE	
	ENTER	OVR.T	X			TIMED OVERRIDE HOURS	Default: 0, Range 0-4 hours
	↓	OVR.L	X			OVERRIDE TIME LIMIT	Default: 0, Range 0-4 hours
	↓	T.OVR	YES/NO			TIMED OVERRIDE	User Entry

Table 19 — Operating Mode and Sub-Mode Directory

SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENT
MODE				MODES CONTROLLING UNIT	
	ENTER	MD01	ON/OFF	FSM CONTROLLING CHILLER	
	↓	MD02	ON/OFF	WSM CONTROLLING CHILLER	
	↓	MD03	ON/OFF	MASTER/SLAVE CONTROL	
	↓	MD05	ON/OFF	RAMP LOAD LIMITED	
	↓	MD06	ON/OFF	TIMED OVERRIDE IN EFFECT	
	↓	MD07	ON/OFF	LOW COOLER SUCTION TEMPA	
	↓	MD08	ON/OFF	LOW COOLER SUCTION TEMPB	
	↓	MD09	ON/OFF	SLOW CHANGE OVERRIDE	
	↓	MD10	ON/OFF	MINIMUM OFF TIME ACTIVE	
	↓	MD13	ON/OFF	DUAL SETPOINT	
	↓	MD14	ON/OFF	TEMPERATURE RESET	
	↓	MD15	ON/OFF	DEMAND/SOUND LIMITED	
	↓	MD16	ON/OFF	COOLER FREEZE PROTECTION	
	↓	MD17	ON/OFF	LOW TEMPERATURE COOLING	
	↓	MD18	ON/OFF	HIGH TEMPERATURE COOLING	
	↓	MD19	ON/OFF	MAKING ICE	
	↓	MD20	ON/OFF	STORING ICE	
	↓	MD21	ON/OFF	HIGH SCT CIRCUIT A	
	↓	MD22	ON/OFF	HIGH SCT CIRCUIT B	
	↓	MD23	ON/OFF	MINIMUM COMP ON TIME	
	↓	MD24	ON/OFF	PUMP OFF DELAY TIME	
	↓	MD25	ON/OFF	LOW SOUND MODE	
	↓	MD26	ON/OFF	SHORT LOOP OVERRIDE	

LEGEND

FSM — Flotronic™ System Manager
SCT — Saturated Condensing Temperature
WSM — Water System Manager

Table 20 — Alarms Mode and Sub-Mode Directory

SUB-MODE	KEYPAD ENTRY	ITEM	ITEM EXPANSION	COMMENT
CRNT	ENTER	AXXX OR TXXX	CURRENTLY ACTIVE ALARMS	Alarms are shown as AXXX. Alerts are shown as TXXX.
RCRN	ENTER	YES/NO	RESET ALL CURRENT ALARMS	
HIST	ENTER	AXXX OR TXXX	ALARM HISTORY	Alarms are shown as AXXX. Alerts are shown as TXXX.

Table 21 — Dual Chiller Configuration (Master Chiller Example)

SUB-MODE	ITEM	KEYPAD ENTRY	DISPLAY	ITEM EXPANSION	COMMENTS
DISP					
UNIT					
OPT1					
OPT2		ENTER	CTRL	CONTROL METHOD	
	CTRL	ENTER	0	SWITCH	DEFAULT 0
		ESCAPE	CTRL		
		ENTER	CCNA		
	CCNA	ENTER	1	CCN ADDRESS	DEFAULT 1
		ESCAPE	CCNA		
		↓	CCNB		
	CCNB	ENTER	0	CCN BUS NUMBER	DEFAULT 0
		ESCAPE	CCNB		
		ESCAPE	OPT2		
		↓	RSET		PROCEED TO SUBMODE **RESET**
RSET		ENTER	CRST	COOLING RESET TYPE	
		↓	LLEN	LEAD/LAG CHILLER ENABLE	↓ 15 ITEMS
	LLEN	ENTER	DSBL		SCROLLING STOPS
		ENTER	DSBL		VALUE FLASHES
		↑	ENBL		SELECT ENBL
	LLEN	ENTER	ENBL	LEAD/LAG CHILLER ENABLE	CHANGE ACCEPTED
		ESCAPE	LLEN		
		↓	MSSL	MASTER /SLAVE SELECT	
	MSSL	ENTER	MAST	MASTER /SLAVE SELECT	DEFAULT MAST
		ESCAPE	MSSL		
		↓	SLVA	SLAVE ADDRESS	
	SLVA	ENTER	0		SCROLLING STOPS
		ENTER	0		VALUE FLASHES
		↑	2		SELECT 2
	SLVA	ENTER	2	SLAVE ADDRESS	CHANGE ACCEPTED
		ESCAPE	SLVA		
		↓	LLBL	LEAD/LAG BALANCE SELECT	
	LLBL	ENTER	0		SCROLLING STOPS
		ENTER	0		VALUE FLASHES
		↑	2		SELECT 2 - Automatic

Table 21 — Dual Chiller Configuration (Master Chiller Example) (cont)

SUB-MODE	ITEM	KEYPAD ENTRY	DISPLAY	ITEM EXPANSION	COMMENTS
RSET	LLBL	ENTER	2	LEAD/LAG BALANCE SELECT	CHANGE ACCEPTED
		ESCAPE	LLBL		
		↓	LLBD	LEAD/LAG BALANCE DELTA	
	LLBD	ENTER	168	LEAD/LAG BALANCE DELTA	DEFAULT 168
		ESCAPE	LLBD		
		↓	LLDY	LAG START DELAY	
	LLDY	ENTER	5		SCROLLING STOPS
		ENTER	5		VALUE FLASHES
		↑	10		SELECT 10
	LLDY	ENTER	10	LAG START DELAY	CHANGE ACCEPTED
		ESCAPE	LLDY		
		ESCAPE	RSET		
	PARA	ENTER	YES		MASTER COMPLETE

NOTES:
1. Master Control Method (CTRL) can be configured as 0-Switch, 2-Occupancy or 3-CCN.
2. Parallel Configuration (PARA) cannot be changed.

Table 22 — Dual Chiller Configuration (Slave Chiller Example)

SUB-MODE	ITEM	KEYPAD ENTRY	DISPLAY	ITEM EXPANSION	COMMENTS
DISP					
UNIT					
OPT1					
OPT2		ENTER	CTRL	CONTROL METHOD	
	CTRL		0	SWITCH	DEFAULT 0
		ESCAPE	CTRL		
	CTRL	↓	CCNA		
	CCNA	ENTER	1	CCN ADDRESS	SCROLLING STOPS
		ENTER	1		VALUE FLASHES
		↑	2		SELECT 2 (SEE NOTE 1)
	CCNA	ENTER	2	CCN ADDRESS	CHANGE ACCEPTED
		ESCAPE	CCNA		
		↓	CCNB		
	CCNB	ENTER	0	CCN BUS NUMBER	DEFAULT 0 (SEE NOTE 2)
		ESCAPE	CCNB		
		ESCAPE	OPT2		
		↓	RSET		PROCEED TO SUBMODE **RSET**
RSET		ENTER	CRST	COOLING RESET TYPE	
		↓	LLEN	LEAD/LAG CHILLER ENABLE	↓ 15 ITEMS
	LLEN	ENTER	DSBL		SCROLLING STOPS
		ENTER	DSBL		VALUE FLASHES
		↑	ENBL		SELECT ENBL
	LLEN	ENTER	ENBL	LEAD/LAG CHILLER ENABLE	CHANGE ACCEPTED
		ESCAPE	LLEN		
		↓	MSSL	MASTER /SLAVE SELECT	
	MSSL	ENTER	MAST		SCROLLING STOPS
		ENTER	MAST		VALUE FLASHES
		↑	SLVE		SELECT SLVE
	MSSL	ENTER	SLVE	MASTER /SLAVE SELECT	CHANGE ACCEPTED
		ESCAPE	MSSL		
		ESCAPE	RSET		SLAVE COMPLETE

NOTES:
1. Slave Control Method (CTRL) must be configured for 0.
2. Slave CCN Address (CCNA) must be different than Master.
3. Slave CCN Bus Number (CCNB) must be the same as Master
4. Slave does not require SLVA, LLBL, LLBD, or LLDY to be configured.

Table 23 — Operating Modes

MODE NO.	ITEM EXPANSION	DESCRIPTION
01	FSM CONTROLLING CHILLER	Flotronic™ System Manager (FSM) is controlling the chiller.
02	WSM CONTROLLING CHILLER	Water System Manager (WSM) is controlling the chiller.
03	MASTER/SLAVE CONTROL	Dual Chiller control is enabled.
05	RAMP LOAD LIMITED	Ramp load (pull-down) limiting in effect. In this mode, the rate at which leaving fluid temperature is dropped is limited to a predetermined value to prevent compressor overloading. See Cooling Ramp Loading (CRMP) [Configuration, SLCT]. The pull-down limit can be modified, if desired, to any rate from 0.2° F to 2° F (0.1° to 1° C)/minute.
06	TIMED OVERRIDE IN EFFECT	Timed override is in effect. This is a 1 to 4 hour temporary override of the programmed schedule, forcing unit to Occupied mode. Override can be implemented with unit under Local (Enable) or CCN (Carrier Comfort Network) control. Override expires after each use.
07	LOW COOLER SUCTION TEMPA	Circuit A cooler Freeze Protection mode. At least one compressor must be on, and the Saturated Suction Temperature is not increasing greater than 1.1° F (0.6° C) in 10 seconds. If the saturated suction temperature is less than the Brine Freeze Point (BR.FZ) [Set Point, FRZ] minus 3° F (1.7° C) and less than the leaving fluid temperature minus 14° F (7.8° C) for 2 minutes, a stage of capacity will be removed from the circuit. Or, If the saturated suction temperature is less than the Brine Freeze Point (BR.FZ) [Set Point, FRZ] minus 14° F (7.8 º C), for 90 seconds, a stage of capacity will be removed from the circuit. The control will continue to decrease capacity as long as either condition exists.
08	LOW COOLER SUCTION TEMPB	Circuit B cooler Freeze Protection mode. At least one compressor must be on, and the Saturated Suction Temperature is not increasing greater than 1.1° F (0.6° C) in 10 seconds. If the saturated suction temperature is less than the Brine Freeze Point (BR.FZ) [Set Point, FRZ] minus 3° F (1.7° C) and less than the leaving fluid temperature minus 14° F (7.8° C) for 2 minutes, a stage of capacity will be removed from the circuit. Or, If the saturated suction temperature is less than the Brine Freeze Point (BR.FZ) [Set Point, FRZ] minus 14° F (7.8° C), for 90 seconds, a stage of capacity will be removed from the circuit. The control will continue to decrease capacity as long as either condition exists.
09	SLOW CHANGE OVERRIDE	Slow change override is in effect. The leaving fluid temperature is close to and moving towards the control point.
10	MINIMUM OFF TIME ACTIVE	Chiller is being held off by Minutes Off Time (DELY) [Configuration, OPT2].
13	DUAL SETPOINT	Dual Set Point mode is in effect. Chiller controls to Cooling Set Point 1 (CSP.1) [Set Point, COOL] during occupied periods and Cooling Set Point 2 (CSP.2) [Set Point, COOL] during unoccupied periods.
14	TEMPERATURE RESET	Temperature reset is in effect. In this mode, chiller is using temperature reset to adjust leaving fluid set point upward and is currently controlling to the modified set point. The set point can be modified based on return fluid, outdoor-air-temperature, space temperature, or 4 to 20 mA signal.
15	DEMAND/SOUND LIMITED	Demand limit is in effect. This indicates that the capacity of the chiller is being limited by demand limit control option. Because of this limitation, the chiller may not be able to produce the desired leaving fluid temperature. Demand limit can be controlled by switch inputs or a 4 to 20 mA signal.
16	COOLER FREEZE PROTECTION	Cooler fluid temperatures are approaching the Freeze point (see Alarms and Alerts section for definition). The chiller will be shut down when either fluid temperature falls below the Freeze point.
17	LOW TEMPERATURE COOLING	Chiller is in Cooling mode and the rate of change of the leaving fluid is negative and decreasing faster than -0.5° F per minute. Error between leaving fluid and control point exceeds fixed amount. Control will automatically unload the chiller if necessary.
18	HIGH TEMPERATURE COOLING	Chiller is in Cooling mode and the rate of change of the leaving fluid is positive and increasing. Error between leaving fluid and control point exceeds fixed amount. Control will automatically load the chiller if necessary to better match the increasing load.
19	MAKING ICE	Chiller is in an unoccupied mode and is using Cooling Set Point 3 (CSP.3) [Set Point, COOL] to make ice. The ice done input to the Energy Management Module (EMM) is open.
20	STORING ICE	Chiller is in an unoccupied mode and is controlling to Cooling Set Point 2 (CSP.2) [Set Point COOL]. The ice done input to the Energy Management Module (EMM) is closed.
21	HIGH SCT CIRCUIT A	Chiller is in a Cooling mode and the Saturated Condensing Temperature (SCT) is greater than the calculated maximum limit. No additional stages of capacity will be added. Chiller capacity may be reduced if SCT continues to rise to avoid high-pressure switch trips by reducing condensing temperature.
22	HIGH SCT CIRCUIT B	Chiller is in a Cooling mode and the Saturated Condensing Temperature (SCT) is greater than the calculated maximum limit. No additional stages of capacity will be added. Chiller capacity may be reduced if SCT continues to rise to avoid high-pressure switch trips by reducing condensing temperature.
23	MINIMUM COMP ON TIME	Cooling load may be satisfied, however control continues to operate compressor to ensure proper oil return. May be an indication of oversized application, low fluid flow rate or low loop volume.
24	PUMP OFF DELAY TIME	Cooling load is satisfied, however cooler pump continues to run for the number of minutes set by the configuration variable Cooler Pump Shutdown Delay (PM.DY) [Configuration, OPT1].
25	LOW SOUND MODE	Chiller operates at higher condensing temperature and/or reduced capacity to minimize overall unit noise during evening/night hours (user-configurable).
26	SHORT LOOP OVERRIDE	Chiller is monitoring how fast compressor(s) is being cycled to maintain the desired leaving fluid temperature. Control is limiting the rate of compressor cycling when this mode is active to ensure proper oil return and also to prevent premature compressor failure. Low loop volume, low cooler flow and/or low chiller load are the primary causes for this mode.

Table 24 — Example of Reading and Clearing Alarms

SUB-MODE	KEYPAD ENTRY	ITEM	ITEM EXPANSION	COMMENT
CRNT	ENTER	AXXX or TXXX	CURRENTLY ACTIVE ALARMS	ACTIVE ALARMS (AXXX) OR ALERTS (TXXX) DISPLAYED.
CRNT	ESCAPE			
RCRN	▼	NO		Use to clear active alarms/alerts
	ENTER	NO		NO Flashes
	▲	YES		Select YES
	ENTER	NO		Alarms/alerts clear, YES changes to NO

Table 25A — 4-20 mA Reset

SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENT
RSET	ENTER	CRST	1	COOLING RESET TYPE	0 = no reset 1 = 4 to 20 mA input 2 = Outdoor air temp 3 = Return Fluid 4 = Space Temperature
	▼	CRT1	4.0	NO COOL RESET TEMP	Default: 125 F (51.7 C) Range: 0° to 125 F
	▼	CRT2	20.0	FULL COOL RESET TEMP	Default: 0° F (–17.8 C) Range: 0° to 125 F
	▼	DGRC	5.0 F (2.8 C)	DEGREES COOL RESET	Default: 0° F (0° C) Reset at 20 mA Range: –30 to 30 F (–16.7 to 16.7 C)

NOTE: The example above shows how to configure the chiller for 4-20 mA reset. No reset will occur at 4.0 mA input, and a 5.0 F reset will occur at 20.0 mA. An EMM is required.

Table 25B — Menu Configuration of 4 to 20 mA Cooling Set Point Control

MODE (RED LED)	KEYPAD ENTRY	SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENT
CONFIGURATION	ENTER	DISP					
	▼	UNIT					
	▼	OPT1					
	▼	OPT2					
	▼	RSET					
	▼	SLCT	ENTER	CLSP	0	COOLING SETPOINT SELECT	
			ENTER		0		Scrolling Stops
			ENTER		0		Flashing ‘0’
			▲		4		Select ‘4’
			ENTER		4		Change Accepted

Table 26A — Configuring Outdoor Air and Space Temperature Reset

MODE (RED LED)	KEYPAD ENTRY	SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY		ITEM EXPANSION	COMMENT
					Outdoor Air	Space		
CONFIGURATION	ENTER	DISP						
	▼	UNIT						
	▼	OPT1						
	▼	OPT2						
	▼	RSET	ENTER	CRST	2	4	COOLING RESET TYPE	2 = Outdoor-Air Temperature 4 = Space Temperature (Connect to TB5-5,6)
			▼	RM.NO*	85 °F	72 °F	REMOTE - NO RESET TEMP	Default: 125.0 F (51.7 C) Range: 0° to125 F
			▼	RM.F	55 °F	68 °F	REMOTE - FULL RESET TEMP	Default: 0.0° F (-17.7 C) Range: 0° to 125 F
			▼	RM.DG	15 °F	6 °F	REMOTE - DEGREES RESET	Default: 0° F (0° C) Range: –30 to 30 F (–34.4 to -1.1 °C)

*4 items skipped in this example.

Table 26B — Configuring Return Temperature Reset

MODE (RED LED)	KEYPAD ENTRY	SUB-MODE	KEYPAD ENTRY	ITEM	DISPLAY	ITEM EXPANSION	COMMENT
CONFIGURATION	ENTER	DISP	ENTER	TEST	ON/OFF	TEST DISPLAY LEDs	
	▼	UNIT	ENTER	TYPE	X	UNIT TYPE	
	▼	OPT1	ENTER	FLUD	X	COOLER FLUID	
	▼	OPT2	ENTER	CTRL	X	CONTROL METHOD	
	▼	RSET	ENTER	CRST	X	COOLING RESET TYPE	0 = No Reset 1 = 4 to 20 mA Input (EMM required) (Connect to EMM TB6-2,3) 2 = Outdoor-Air Temperature 3 = Return Fluid 4 = Space Temperature (Connect to TB5-5,6)
			▼	RT.NO*	XXX.X ΔF	RETURN FLUID - NO RESET TEMP	Default: 10.0 ΔF (5.6 ΔC) Range: 0° to125 F COOLER ΔT
			▼	RT.F	XXX.X ΔF	RETURN FLUID - FULL RESET TEMP	Default: 0 ΔF (–17.8 ΔC) Range: 0° to 125 F COOLER ΔT
			▼	RT.DG	XX.X ΔF	RETURN - DEGREES RESET	Default: 0 ΔF (0 ΔC) Range: –30 to 30°F (–16.7 to 16.7 C)

*4 items skipped in this example.

Temperature Reset — The control system is capable of handling leaving-fluid temperature reset based on return cooler fluid temperature. Because the change in temperature through the cooler is a measure of the building load, the return temperature reset is in effect an average building load reset method. The control system is also capable of temperature reset based on outdoor-air temperature (OAT), space temperature (SPT), or from an externally powered 4 to 20 mA signal. Accessory sensors must be used for SPT reset (33ZCT55SPT). The Energy Management Module (EMM) must be used for temperature reset using a 4 to 20 mA signal. See Tables 25A and 25B.

IMPORTANT: Care should be taken when interfacing with other control systems due to possible power supply differences: full wave bridge versus half wave rectification. Connection of control devices with different power supplies may result in permanent damage. *Comfort*Link™ controls incorporate power supplies with half wave rectification. A signal isolation device should be utilized if the signal generator incorporates a full wave bridge rectifier.

To use Outdoor Air or Space Temperature reset, four variables must be configured. In the Configuration mode under the sub-mode RSET, items CRST, RM.NO, RM.F and RT.DG must be properly set. See Table 26A — Configuring Outdoor Air and Space Temperature Reset. The outdoor air reset example provides 0° F (0° C) chilled water set point reset at 85.0 F (29.4 C) outdoor-air temperature and 15.0 F (8.3 C) reset at 55.0 F (12.8 C) outdoor-air temperature. The space temperature reset example provides 0° F (0° C) chilled water set point reset at 72.0 F (22.2 C) space temperature and 6.0 F (3.3 C) reset at 68.0 F (20.0 C) space temperature. The variable CRST should be configured for the type of reset desired. The variable RM.NO should be set to the temperature that no reset should occur. The variable RM.F should be set to the temperature that maximum reset is to occur. The variable RM.DG should be set to the maximum amount of reset desired.

To use Return reset, four variables must be configured. In the Configuration mode under the sub-mode RSET, items CRST, RT.NO, RT.F and RT.DG must be properly set. See Table 26B — Configuring Return Temperature Reset. This example provides 5.0 F (2.8 C) chilled water set point reset at

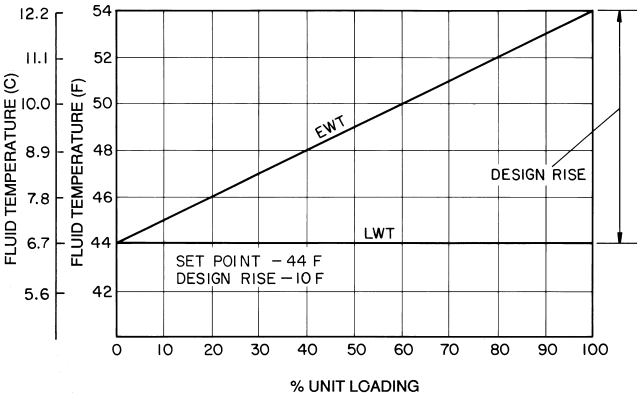
2.0 F (1.1 C) cooler ΔT and 0° F (0° C) reset at 10.0 F (5.6 C) cooler ΔT. The variable RT.NO should be set to the cooler temperature difference (ΔT) where no chilled water temperature reset should occur. The variable RT.F should be set to the cooler temperature difference where the maximum chilled water temperature reset should occur. The variable RM.DG should be set to the maximum amount of reset desired.

To verify that reset is functioning correctly proceed to Run Status mode, sub-mode VIEW, and subtract the active set point (SETP) from the control point (CTPT) to determine the degrees reset.

Under normal operation, the chiller will maintain a constant leaving fluid temperature approximately equal to the chilled fluid set point. As the cooler load varies, the entering cooler fluid will change in proportion to the load as shown in Fig. 18. Usually the chiller size and leaving-fluid temperature set point are selected based on a full-load condition. At part load, the fluid temperature set point may be colder than required. If the leaving fluid temperature was allowed to increase at part load, the efficiency of the machine would increase.

Return temperature reset allows for the leaving temperature set point to be reset upward as a function of the return fluid temperature or, in effect, the building load.

Figures 19 and 20 are examples of outdoor air and space temperature resets.



LEGEND

EWT — Entering Water (Fluid) Temperature
LWT — Leaving Water (Fluid) Temperature

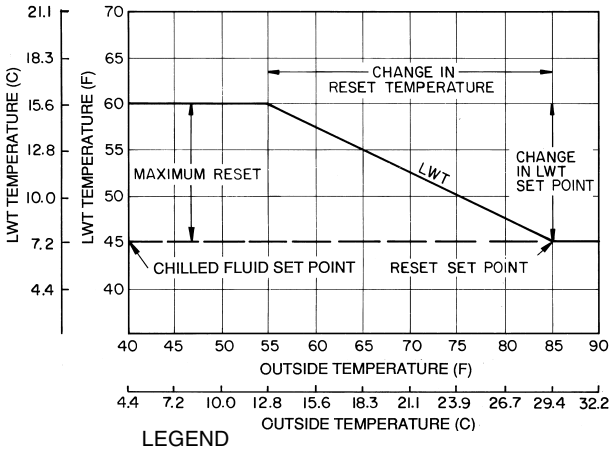
Fig. 18 — Standard Chilled Fluid Temperature Control — No Reset

Demand Limit — Demand Limit is a feature that allows the unit capacity to be limited during periods of peak energy usage. There are 3 types of demand limiting that can be configured. The first type is through 2-stage switch control, which will reduce the maximum capacity to 2 user-configurable percentages. The second type is by 4 to 20 mA signal input which will reduce the maximum capacity linearly between 100% at a 4 mA input signal (no reduction) down to the user-configurable level at a 20 mA input signal. The third type uses the CNN Loadshed module and has the ability to limit the current operating capacity to maximum and further reduce the capacity if required.

NOTE: The 2-stage switch control and 4- to 20-mA input signal types of demand limiting require the Energy Management Module (EMM).

To use Demand Limit, select the type of demand limiting to use. Then configure the Demand Limit set points based on the type selected.

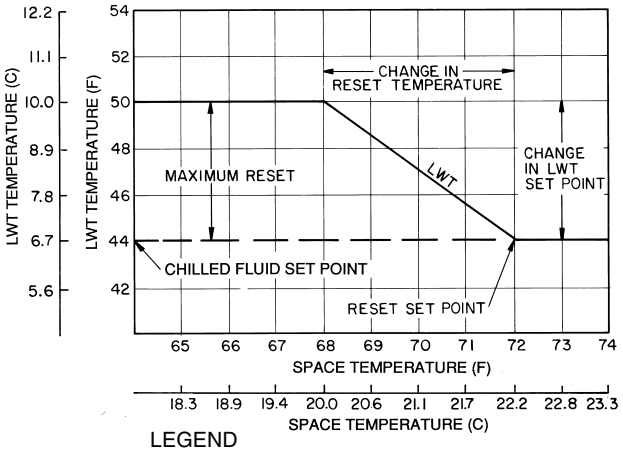
DEMAND LIMIT (2-Stage Switch Controlled) — To configure Demand Limit for 2-stage switch control set the Demand Limit Select (DMDC) [Configuration, RSET] to 1. Then



LEGEND

LWT — Leaving Water (Fluid) Temperature

Fig. 19 — Outdoor-Air Temperature Reset



LEGEND

LWT — Leaving Water (Fluid) Temperature

Fig. 20 — Space Temperature Reset

configure the 2 Demand Limit Switch points (DLS1 and DLS2) [Configuration, RSET] to the desired capacity limit. See Table 27. Capacity steps are controlled by 2 relay switch inputs field wired to TB6 as shown in Fig. 4-6.

For Demand Limit by 2-stage switch control, closing the first stage demand limit contact will put the unit on the first demand limit level. The unit will not exceed the percentage of capacity entered as Demand Limit Switch 1 set point. Closing contacts on the second demand limit switch prevents the unit from exceeding the capacity entered as Demand Limit Switch 2 set point. The demand limit stage that is set to the lowest demand takes priority if both demand limit inputs are closed. If the demand limit percentage does not match unit staging, the unit will limit capacity to the closest capacity stage.

To disable demand limit configure the DMDC to 0. See Table 27.

EXTERNALLY POWERED DEMAND LIMIT (4 to 20 mA Controlled) — To configure Demand Limit for 4 to 20 mA control set the Demand Limit Select (DMDC) [Configuration, RSET] to 2. Then configure the Demand Limit at 20 mA (DM20) [Configuration, RSET] to the maximum loadshed value desired. Connect the output from an externally powered 4 to 20 mA signal to terminal block TB6, terminals 1 and 5. Refer to the unit wiring diagram for these connections to the optional/accessory Energy Management Module and terminal block. The control will reduce allowable capacity to this level for the 20 mA signal. See Table 27 and Fig. 21A.

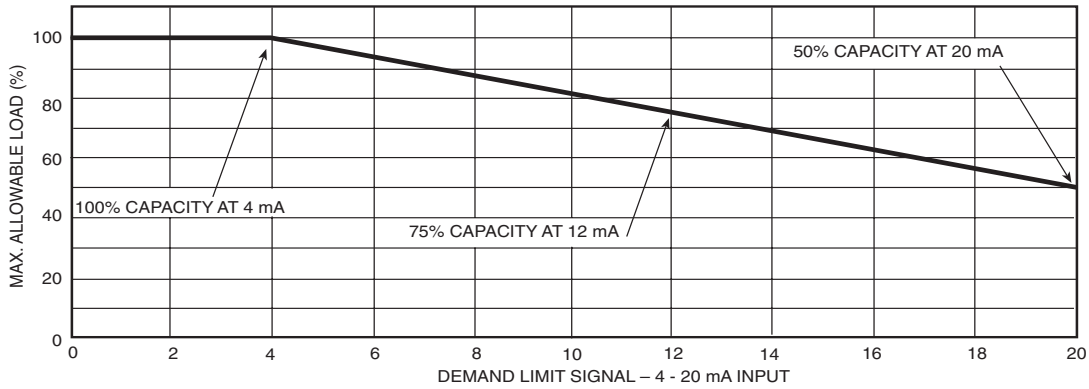


Fig. 21A — 4- to 20-mA Demand Limiting

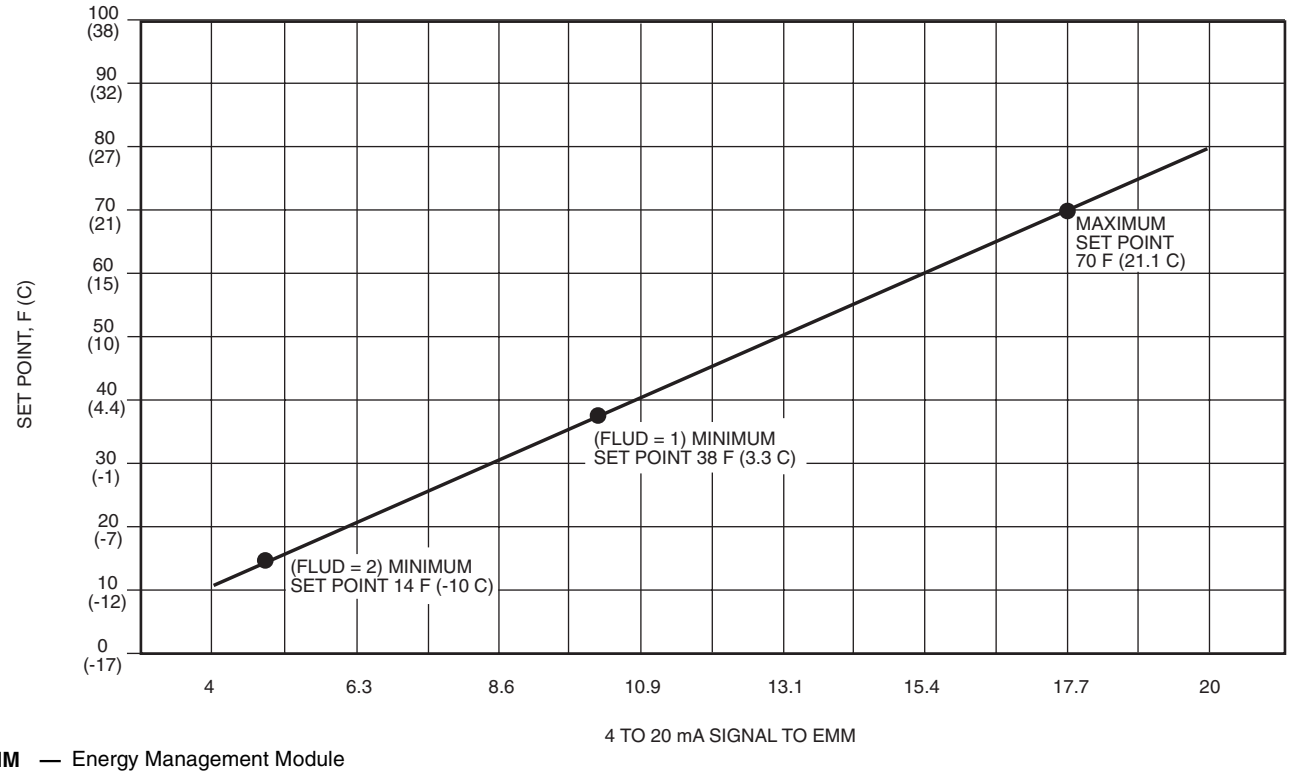
⚠ CAUTION

Care should be taken when interfacing with other manufacturer's control systems, due to possible power supply differences, full wave bridge versus half wave rectification. The two different power supplies cannot be mixed. *Comfort*Link™ controls use half wave rectification. A signal isolation device should be utilized if a full wave bridge signal generating device is used.

DEMAND LIMIT (CCN Loadshed Controlled) — To configure Demand Limit for CCN Loadshed control set the Demand Limit Select (DMDC) [Configuration, RSET] to 3. Then configure the Loadshed Group Number (SHNM), Loadshed Demand Delta (SHDL), and Maximum Loadshed Time (SHTM) [Configuration, RSET]. See Table 27.

The Loadshed Group number is established by the CCN system designer. The *Comfort*Link control will respond to a Redline command from the Loadshed control. When the Redline command is received, the current stage of capacity is set to the maximum stages available. Should the loadshed control send a Loadshed command, the *Comfort*Link control will reduce the current stages by the value entered for Loadshed Demand delta. The Maximum Loadshed Time is the maximum length of time that a loadshed condition is allowed to exist. The control will disable the Redline/Loadshed command if no Cancel command has been received within the configured maximum loadshed time limit.

Cooling Set Point (4 to 20 mA) — A field supplied and generated, externally powered 4 to 20 mA signal can be used to provide the leaving fluid temperature set point. Connect the signal to TB6-3,5 (+,–). See Table 27 for instructions to enable the function. Figure 21B shows how the 4 to 20 mA signal is linearly calculated on an overall 10 F to 80 F range for fluid types (FLUD) 1 or 2 [Configuration, OPT1]. The set point will be limited by the fluid (FLUD) type. Be sure that the chilled water loop is protected at the lowest temperature.



EMM — Energy Management Module

Fig. 21B — Cooling Set Point (4 to 20 mA)