DIXELL
DIGITAL CONTROLLER OPERATION

This manual is specific to the operation and diagnostic guides of the Dixell digital controller used in Glastender self-contained back bar coolers.

Dixell

To view the manual specific to the Full Gauge digital controller used in Glastender self-contained back bar coolers visit:
http://www.glastender.com/PDF/Full_Gauge_digital_controller_operation.pdf

Full Gauge

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The operating temperature range is preset at the factory according to the table below and can be adjusted up or down within the limits shown.

To see the set point - push and immediately release the SET button. The set point will be displayed.

To return to normal visualization - Push and immediately release the SET button or wait five seconds.

To change the set point - push and hold the SET button for more than two seconds. When the ° F display begins flashing, push the up arrow or down arrow buttons to adjust the set point to the desired value.

To save the new set point and return to the temperature display mode - push and release the SET button or wait ten seconds.

	Factory Settings		Range of Adjustment	
	Set Point	**Operating Range†**	**Minimum Set Point**	**Maximum Set Point**
Standard Cooler Setting	34º F	34º F to 39º F	33º F	65º F
Two Zone Cooler Settings*				
B = Beer	34º F	34º F to 39º F	33º F	65º F
W = White Wine	50º F	50º F to 55º F	33º F	65º F
R = Red Wine	60º F	60º F to 65º F	33º F	65º F

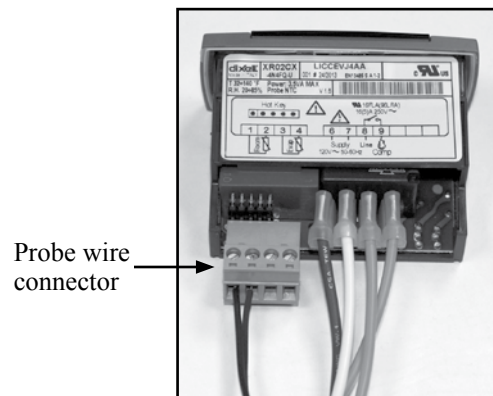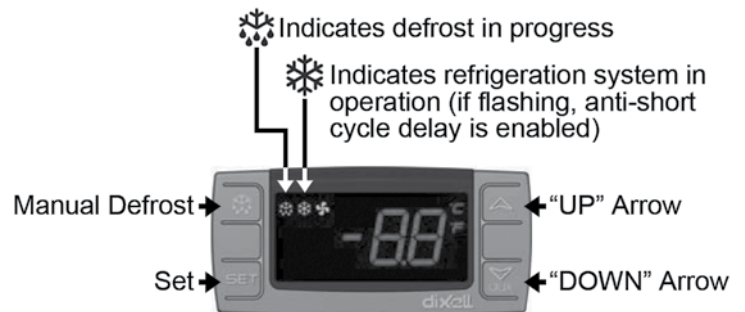† Adjusting the factory set point will also adjust the operating range by the same amount

* To determine a Two Zone Cooler refrigeration configuration, refer to the 2 digits immediately preceding the first hyphen of the model number found on the cooler data tag. These 2 digits will always be BW (Beer/White Wine), BR (Beer/Red Wine), or WR (White Wine/Red Wine). Example: MODEL: BB60**BR**-L1-XS(LR).

The refrigerator is programmed to automatically defrost four times daily for approximately twenty minutes. During defrost, the fan inside the cooler will remain on and the refrigeration system will turn off. To initiate defrost manually, push and hold the DEFROST button for more than two seconds.

The thermostat controller does not have an "OFF" function. To turn refrigerator off, the unit must be unplugged or power to the electrical branch circuit has to be turned off via a circuit breaker or switch.

Models BB, ND, LP, FV, MFV, UCR Self Contained Coolers using Dixell digital thermostat controller
The thermostat control probe wire connector may become disconnected when the compressor compartment cover and/or grill are removed. This will result in thermostat P1 code. While the P1 code is flashing the compressor will cycle 5 minutes on and 5 minutes off and may cause icing of the evaporator coil. Service calls to reconnect the probe wiring are not covered by factory warranty.

❄ Indicates defrost in progress

❅ Indicates refrigeration system in operation (if flashing, anti-short cycle delay is enabled)

Manual Defrost →

Set →

→ "UP" Arrow

→ "DOWN" Arrow

Probe wire connector

Warning: **Performance and reliability issues that result from the controller parameters being changed from the factory default settings are not covered under warranty.**

Controller error codes:
- ➢ P1- Room Probe Failure
  - • Check to make sure the probe is connected to the controller
  - • Check the probe resistance (see "Checking the probe resistance" below)
- ➢ P2- Evaporator Probe Failure
  - • This error should only occur on MFV units. Verify that the unit is an MFV model.
  - • Check to make sure the probe is connected to the controller
  - • Check the probe resistance (see "Checking the probe resistance" below)
- ➢ dF- Indicates that the unit is in defrost
  - • Normal Scheduled defrosts can last up to 20 minutes at the factory default values
  - • If abnormal defrosts are suspected see "Resetting the program to factory default settings" below
- ➢ HA- Maximum Temperature Alarm
  - • The box temperature has exceeded the 75° maximum for more than 30 minutes
  - • See diagnostic flow charts below
- ➢ LA- Minimum Temperature Alarm
  - • The box temperature has deceeded the 25° minimum (-15° for MFV) for more than 30 minutes
  - • See diagnostic flow charts below

Checking the controller set point:
- ➢ Press the set button once to display the controller set point. Press again to return to the temp display.

Changing the controller set point:
- ➢ Hold the SET key for 3 seconds, release, and use the arrow keys to change the set point. The set point can be changed from 33° to 65° on coolers and 0° to 28° on MFV's
  - • Factory Default set points are as follows: MFV 10°, Beer 34°, White Wine 50°, Red Wine 60°
  - • There is a 5° (8° for MFV) differential between cut in and cut out temps. If the controller set point is 35° the range will be 35° to 40°. (MFV controller set point 10°, range will be 10° to 18°)

Checking the probe resistance:
- ➢ Verify the probe resistance is accurate at the box temperature
  - • Use a calibrated thermometer to check the cooler's temperature at the evap inlet where the probe is located
  - • Disconnect the probe from the controller
  - • Use a calibrated Ohm meter to measure the resistance of the probe at the box temperature
  - • The resistance of the probe should match the associated box temperature of the following table

Table 1									
Temp Deg F	Ohms Resistance	Temp Deg F	Ohms Resistance	Temp Deg F	Ohms Resistance	Temp Deg F	Ohms Resistance	Temp Deg F	Ohms Resistance
-4	67770	22	34852	42	21596	64	13246	86	8313
-2	64579	23	33900	44	20687	66	12668	88	8008
0	61388	24	33164	46	19778	68	12090	90	7703
2	58197	26	31693	48	18869	70	11626	92	7398
5	53410	28	30222	50	17960	72	11161	94	7093
8	49763	30	28751	52	17233	74	10697	95	6940
10	47332	32 (Ice Water)	27280	54	16507	76	10232	96	6816
12	44901	34	26118	56	15780	77	10000	98	6569
14	42470	36	24956	58	15053	78	9813	100	6322
16	40566	38	23793	59	14690	80	9438	102	6074
18	38661	40	22631	60	14401	82	9063	104	5827

- ➢ Fill a cup full of ice water (use a lot of ice), put the probe into the ice bath, stir for 1 minute, then measure the resistance with a calibrated Ohm meter. Make sure to keep the probe in the center of the cup.
  - • The probe should have 27,280 Ohms of resistance in the ice bath. Replace the probe if it is not within 2 degrees Ohms range from Table 1 above.

Checking the controller display temperature accuracy:

- ➢ After verifying the probe resistance to the box temperature, plug the probe into the controller and check the temperature displayed
  - • The controller should display the associated temperature of Table 1 above when compared to the resistance measured
    - Note: the probe cannot be plugged into the controller when measuring resistance
- ➢ Fill a cup full of ice water (use a lot of ice), put the Ohm verified probe into the ice bath, stir for 1 minute. Make sure to keep the probe in the center of the cup.
  - • The controller should display 32°

Checking the controller compressor relay:

Does the controller relay open and close at the operating range specified on the data tag?
- • If the controller is calling for cooling, the compressor relay (terminals 8 & 9) will have continuity
  - Note: there is a 1 minute anti-short cycle delay programmed into the controller. The snowflake will flash on the display indicating this delay. When the snowflake is solid, the controller is calling for cooling and the relay will be closed.

Resetting the program to factory default settings:

- ➢ Hold the SET and DOWN ARROW for 3-4 seconds until the display changes and release; the display will either read "rE" or "d2" and the °F symbol will be flashing. Immediately hold the SET and DOWN ARROW for another 7-8 seconds until the display changes to L2, release the buttons and Hy will be displayed; this is the controllers hidden menu where you can set the parameters of the chart below.
  - Note: The SET and DOWN ARROW must be pressed at the same time. If one is accidentally released, the process will need to be restarted.
  - Note: If no keys are pressed, the hidden menu access will time out after 15 seconds and revert to normal operation.
- • Use the arrow keys to scroll to the desired set point
  - • Press set to access the value
  - • Use the arrow keys to change the value
  - • Press set again to lock in the value

The chart below represents the factory default settings of MFV, Beer, White and Red Wine controllers
Set the values to the associated product for the proper control of the unit

Label	Description	MFV	Beer	Wht Wine	Red Wine	Label	Description	MFV	Beer	Wht Wine	Red Wine
		0-35	34-40	50-55	60-65			0-35	34-40	50-55	60-65
Regulation						Defrost					
Hy	Differential	8	5	5	5	td	Defrost type	in			
LS	Min Set Point	0	33	33	33	dE	Defrost Termination Temp	75	50	50	50
US	Max Set Point	35	65	65	65	id	Interval Between Defrost Cycles	4	6	6	6
ot	First Probe Calibration	0	0	0	0	Md	Max Length For Defrost	20	20	20	20
P2	Second Probe Presence	y	n	n	n	dd	Start Defrost Delay	0			
oE	Second Probe Calibration	0	0	0	0	dF	Display During Defrost	dE	dE	dE	dE
od	Delay At Startup	0	0	0	0	dt	Drip Time	2			
AC	Anti-short Cycle Delay	1	1	1	1	dP	Defrost at Power On	n			
Cy	Comp On Time Faulty Probe	5	5	5	5	Alarms					
Cn	Comp Off Time Faulty Probe	8	5	5	5	AU	Max Temp Alarm	75	75	75	75
Display						AL	Min Temp Alarm	-15	25	25	25
CF	Units of Measure	°F	°F	°F	°F	Ad	Temp Alarm Delay	30	30	30	30
rE	Resolution (For °C Only)	in	in	in	in	dA	Exclusion Of Temp Alarm At Startup	99	99	99	99
Ld	Default Display	P1	P1	P1	P1	Other					
dy	Display Delay	0	0	0	0	tb	tb		y	y	y
						d1	Thermostat Probe Display	Reads input			
						d2	Evap Probe Display	Reads input	nP	nP	nP
						Pt	Parameter Code Table	1	5	5	5
						rL	Firmware Release	1.5	1.5	1.5	1.5

Diagnostic flow charts:

HA → Is the box temp cycling at the set point plus the differential? See **Checking the controller Set point** — YES → Is the "AU" Set point programmed for factory default? See **Resetting the program to factory default settings** — YES → Does the probe resistance match the associated temperature of **Table 1**?

- No → See **Warm Box** Diagnostic Flow Chart
- No → Reprogram See **Resetting the program to factory default settings**
- No → Replace the Probe
- Yes → Replace the Controller

LA → Is the refrigeration system running? — YES → Is the box temp cycling at the set point plus the differential? See **Checking the controller Set point** — YES → Is the "AL" Set point programmed for factory default? See **Resetting the program to factory default settings**

- No → Does the probe resistance match the associated temperature of **Table 1**
  - No → Replace the Probe
  - Yes → Replace the Controller
- No → Is the controller relay stuck closed? See **Checking the Controller compressor relay**
  - Yes → Replace the Controller
  - No → Reprogram See **Resetting the program to factory default settings**
- No → Reprogram See **Resetting the program to factory default settings**
- Yes → Does the probe resistance match the associated temperature of **Table 1**?
  - Yes → Replace the Controller
  - No → Replace the Probe

Warm Box → Is the controller calling for cooling? A snowflake will appear on the display — YES → Are the compressor and all fans running? — YES → Is the controller set at the desired set point? See **Checking the Controller set point** — YES → Is the probe touching the evaporator?

- No → Does the probe resistance match the associated temperature of **Table 1**?
  - No → Replace the Probe
  - Yes → Replace the Controller
- No → Is there continuity across the controller compressor relay? See **Checking the controller compressor relay**
  - No → Replace the Controller
  - Yes → Check for bad compressor, fans, or wiring
- No → Reprogram See **Changing the controller set point**
- Yes → Reposition the probe
- No → Check for refrigeration issues or air infiltration