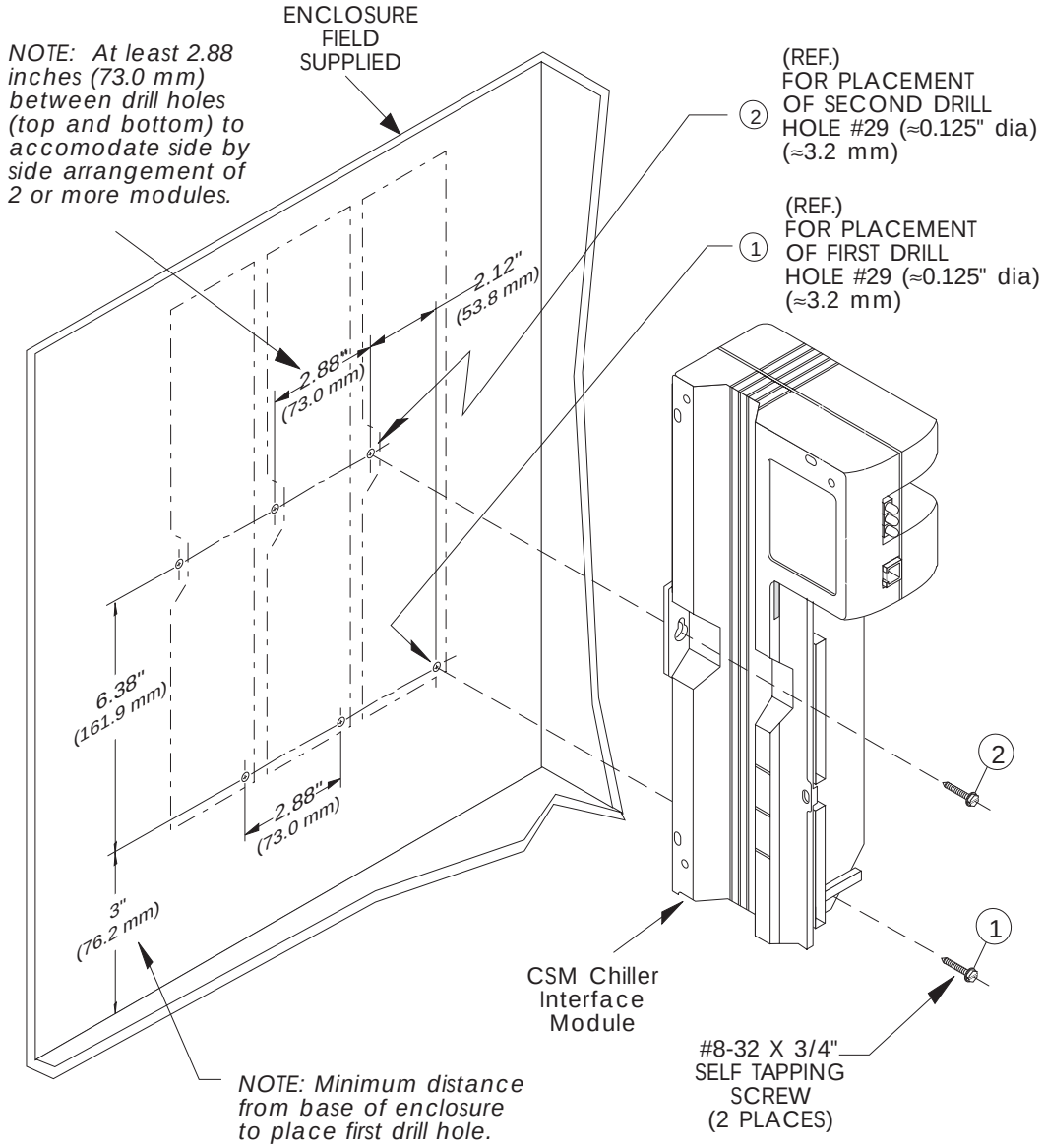
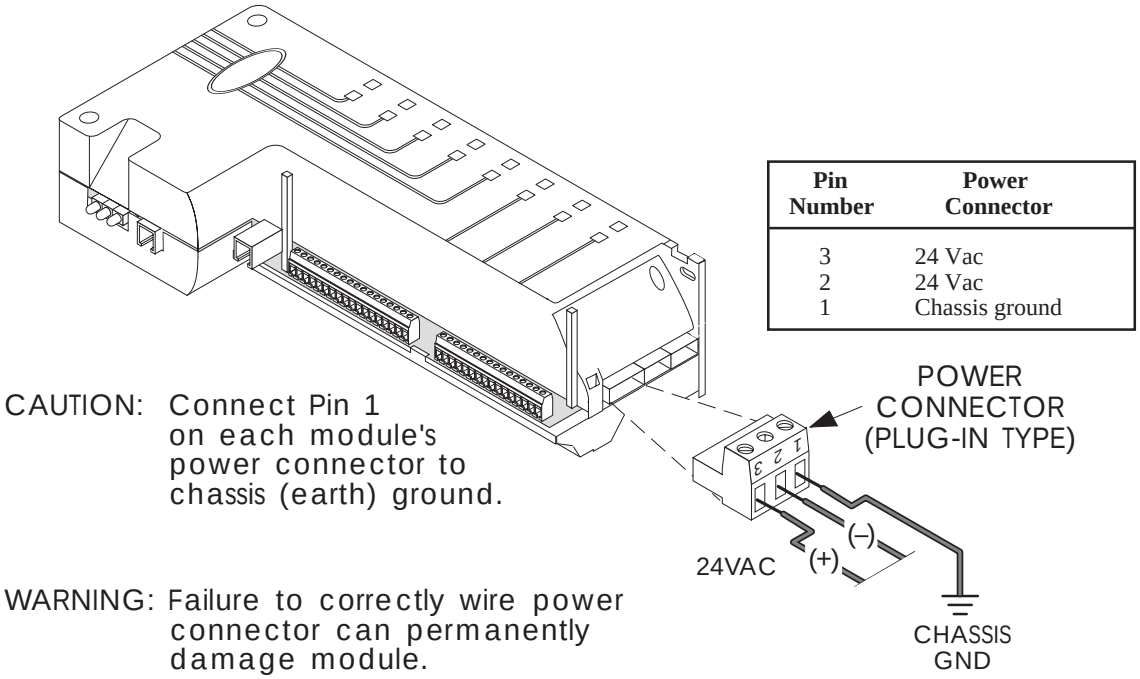
CSM Chiller Interface Installation Instructions

The CSM Chiller Interface integrates non-Carrier chillers or older Carrier chillers without compatible PIC controls into a multiple system controlled by a CHILLERVISOR System Manager III. It contains data structures and I/O designed for this purpose.

Panel Mounting



Power Connector Location



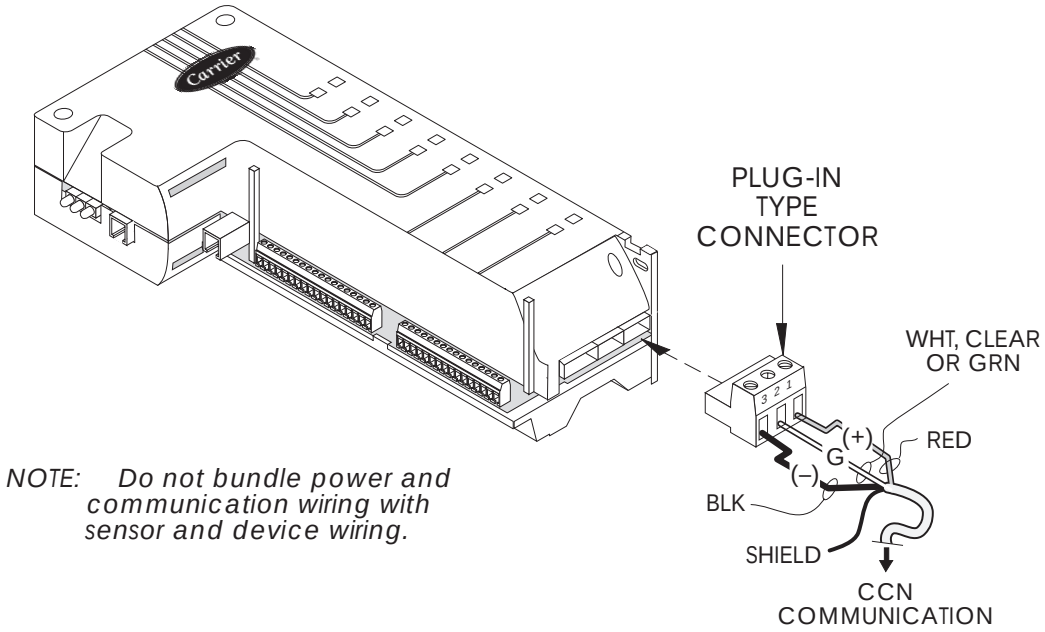
Pin Number	Power Connector
3	24 Vac
2	24 Vac
1	Chassis ground

CAUTION: Connect Pin 1 on each module's power connector to chassis (earth) ground.

WARNING: Failure to correctly wire power connector can permanently damage module.

Communication Connector Location

The figure below shows the location of the communication connector and a detailed view:



NOTE: Do not bundle power and communication wiring with sensor and device wiring.

Default Address and Baud Rate

The CSM Chiller Interface's default address is 0,99 (bus number, system element number). Default baud rate is 9600 bps. You can set the address and baud rate using Address Search in Network Service Tool IV.

Input Wiring

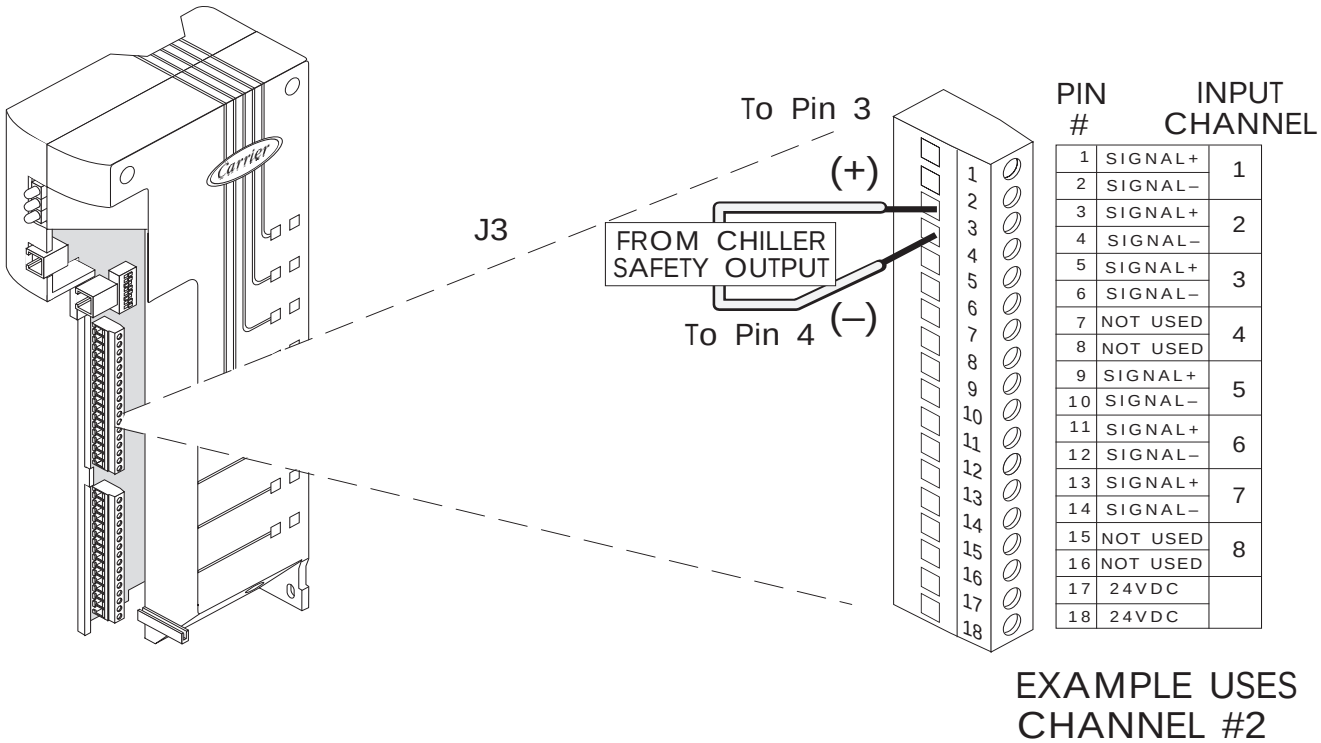
The CSM Chiller Interface supports all inputs required for chiller interface functions. The table below lists the input channel assignments.

Channel	Terminal (+, -)	Description	Type
1	1, 2	Local/CCN switch (required)	DI dry contacts
2	3, 4	Safety chain input (required)	DI dry contacts
3	5, 6	Load recycle input (optional)	DI dry contacts
4	7, 8	Not used	Not used
5	9, 10	Entering CHW temp (optional)	5 K or 10 K thermistor
6	11, 12	Leaving CHW temp (optional)	5 K or 10 K thermistor
7	13, 14	Motor current (required)	0–10 V or 4–20 mA
8	15, 16	Not used	Not used

The safety input can be connected to the chiller's safety fault output (preferred method), or to a field-installed relay wired into the safety chain. A dry contact must be supplied.

The recycle input can be connected to the chiller's low load recycle indicator output (preferred method), to a field installed relay wired across the compressor, or not used, as determined by the configured Recycle Input Type. A dry contact must be supplied.

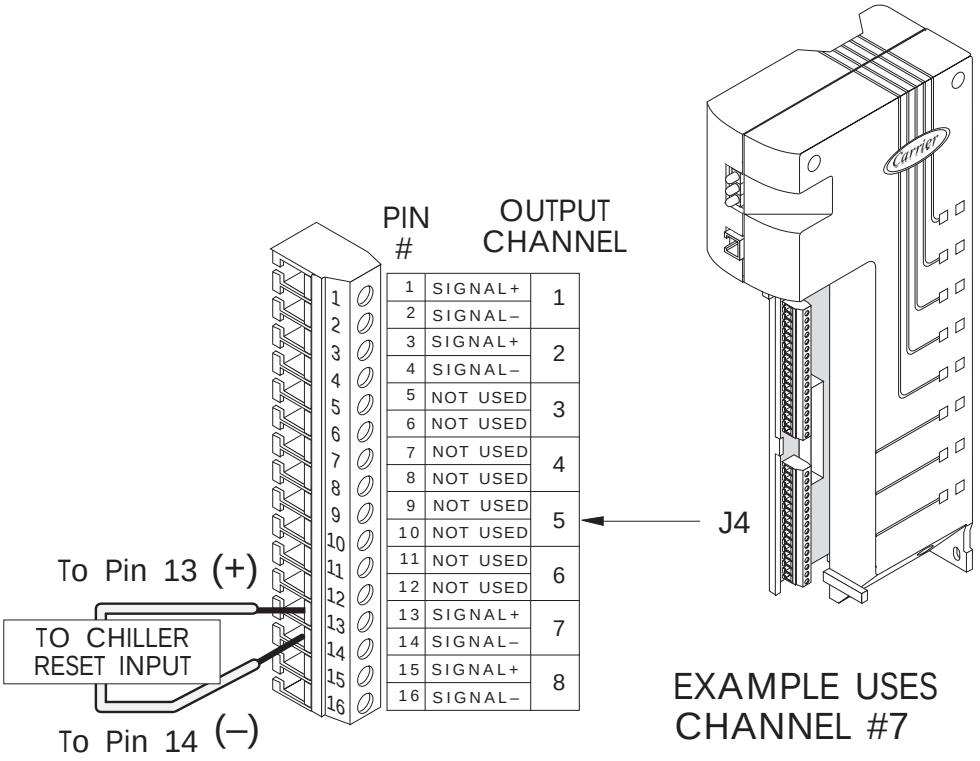
Entering and leaving chilled water temperature sensors are optional. If used, they provide monitoring capability and inputs to the low load recycle status determination (LCW) and the CSM III's emergency temperature averaging algorithm. If not used, the value –40.0˚ F is displayed in these locations.



Output Wiring

The CSM Chiller Interface supports all outputs required for chiller interface functions. The table below lists the output channel assignments.

Channel	Terminal (+, -)	Description	Type
1	1, 2	Chiller start/stop	DO 24 Vdc, 80 mA
2	3, 4	Alarm output	DO 24 Vdc, 80 mA
3	5, 6	Not used	Not used
4	7, 8	Not used	Not used
5	9, 10	Not used	Not used
6	11, 12	Not used	Not used
7	13, 14	CHW reset	AO 4–20 mA or 0–10 V
8	15, 16	Demand limit	AO 4–20 mA or 0–10 V



808-298
03/03

I/O Type Switch Settings

You specify input or output type using switch SW1, which is located behind connector J6 on the module.

I/O Channel	Type	SW1 Position	Switch Setting
Input			
7	4-20 mA	1	ON
7	0-10 V or 0-5 Vdc	1	OFF
8	Not used		
8	Not used		
Output			
7	AO 4-20 mA	3	OFF
		4	ON
		5	OFF
7	AO 0-10 V	3	OFF
		4	ON
		5	ON
8	AO 4-20 mA	6	OFF
		7	ON
		8	OFF
8	AO 0-10 V	6	OFF
		7	ON
		8	ON

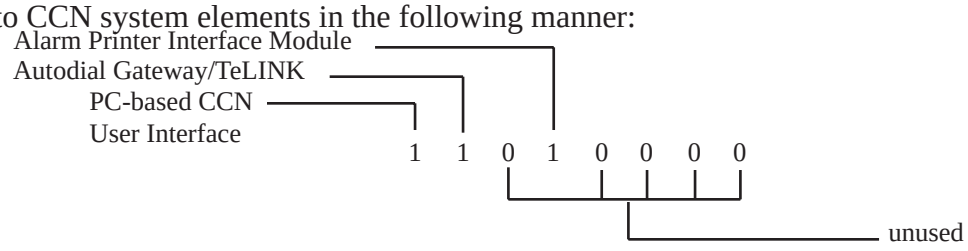
Service Configuration Tables

Alarm Service Configuration Table decisions are described below.

Alarm Control

Alarm Routing

This decision determines which CCN system elements will receive and process alarms sent by the CSM Chiller Interface. Input for the decision consists of eight digits, each of which can be set to either *0* or *1*. Setting a digit to *1* specifies that alarms will be sent to the system element that corresponds to that digit. Setting all digits to *0* disables alarm processing. Digits in this decision correspond to CCN system elements in the following manner:



Note: If your CCN does not contain a PC-based CCN user interface (such as ComfortWORKS/ ComfortVIEW), an Autodial Gateway or TeLINK, or an APIM to serve as an alarm acknowledger, you should set all digits in this decision to *0* in order to prevent unnecessary activity on the CCN Communication Bus.

Allowable Entries	00000000 to 11111111 0 = Disabled, 1 = Enabled
Default Value	1 1 0 1 0 0 0 0

Re-Alarm Time

Use this decision to specify the amount of time that will be allowed to elapse between re-alarms. A re-alarm occurs when the condition that caused the initial alarm continues to persist for the number of minutes specified in this decision. Re-alarming will continue at the specified interval until the condition causing the alarm is corrected.

Allowable Entries	0 = Re-alarming disabled 1-1440 minutes
Default Value	0

ECW/LCW Temperature

Low Limit

Use this decision to indicate the lowest desirable temperature for the sensor. If the sensor temperature reading falls below this limit, the CSM Chiller Interface will generate an alarm or alert to warn you that the sensor value is too low.

Allowable Entries	-40 to 245^{0}F	(-40 to 118.3 ^{0}C)	
Default Value	-40.0	(-40.0)	

High Limit
Use this decision to indicate the highest desirable temperature for the sensor. If the sensor temperature reading rises above this limit, the CSM Chiller Interface will generate an alarm or alert to warn you that the sensor value is too high.

Allowable Entries	-40 to 245^{0}F	(-40 to 118.3 ^{0}C)
Default Value	245	(118.3)

Service Configuration Table decisions are described below.

Chiller Status/Capacity
Current Transducer Type
Use this decision to enter the input type of the transducer mounted on the chiller. The module's DIP switches must also be set accordingly.

Allowable Entries	1 = 4–20 mA 2 = 0–10 Vdc 3 = 0–5 Vdc
Default Value	1

Current Transducer Amps
Use this decision to enter the rated amps at the maximum transducer output for the transducer. If you do not enter this value, chiller status will be UNAVAIL.

Allowable Entries	0–9999
Default Value	100

Chiller Off Amps
Use this decision to enter the machine amps value at off load, which is used to determine the chiller's OFF (AVAIL)/RUNNING status.

Allowable Entries	0–9999
Default Value	10

No Load Amps
Use this decision to enter the machine amps value at zero load, which is the value at which the chiller provides no mechanical cooling.

Allowable Entries 0–9999

Default Value 20

Note: The default is for centrifugal chillers; for reciprocating chillers, set this value to 0.

Full Load Amps
Use this decision to enter the machine amps value at full cooling load.

Allowable Entries 0–9999

Default Value 90

Demand Limit Function
Output Type
Use this decision to enter the output point type for the Demand Limit function. The module's DIP switches must be set accordingly.

Allowable Entries
0 = Not used
1 = 4–20 mA
2 = 0–10 Vdc

Default Value 1

Point Logic
Use this decision to enter the point logic type for the Demand Limit function.

Note: If the Output Type decision is set to 0, this decision is not used.

Allowable Entries
Normal – 4 mA (0 V) = 0% output, 20 mA (10 V) = 100% output
Invert – 20 mA (10 V) = 0% output, 4 mA (0 V) = 100% output

Default Value Normal

CHW Reset Function

Output Type

Use this decision to enter the output point type for the Setpoint Reset function. The module's DIP switches must be set accordingly.

Allowable Entries	0 = Not used 1 = 4–20 mA 2 = 0–10 Vdc
Default Value	1

Point Logic

Use this decision to enter the point logic type for the Setpoint Reset function.

Note: If the Output Type decision is set to 0, this decision is not used.

Allowable Entries	Normal – 4 mA (0 V) = 0% output, 20 mA (10 V) = 100% output Invert – 20 mA (10 V) = 0% output, 4 mA (0 V) = 100% output
Default Value	Normal

Max Reset Value

Use this decision to enter the maximum value for the Setpoint Reset function.

Note: If the Output Type decision is set to 0, this decision is not used.

Allowable Entries	0.0–20.0^F
Default Value	10.0

Native CHW Setpoint

Use this decision to enter the native chiller CHW control setpoint value, which is used in Local or standalone mode. This decision is used to calculate the Setpoint Reset value.

Allowable Entries	0.0–212.0˚F
Default Value	40.0

Load Recycle Input

Input Type

Use this decision to enter the chiller's recycle input connection type, if used. The recycle input can be connected either to the native chiller's recycle indicator output, which is preferred, or to a field installed relay wired across the compressor. A dry contact recycle indicator output must be supplied.

Allowable Entries	0 = Not used 1 = Direct recycle indication 2 = Compressor status
Default Value	0

ECW Temperature
Sensor Type
Use this decision to enter the type of the optional entering chilled water temperature sensor. Water temperature sensors can be installed for monitoring, alarms, and to support the CHILLERVISOR System Manager III's emergency backup function.

Allowable Entries	0 = None (water temperature display = –40.0˚F) 1 = 5K 2 = 10K
Default Value	0

Sensor Trim
This decision determines the offset to be added to the actual temperature value before its storage/ display. This can be useful when a sensor has a constant offset, to compensate for the error.

Allowable Entries	-18.0–18.0^F	(-10.0–10.0^C)
Default Value	0.0	(0.0)

LCW Temperature
Sensor Type
Use this decision to enter the type of the optional leaving chilled water temperature sensor. Water temperature sensors can be installed for monitoring, alarms, and to support the CHILLERVISOR System Manager III's emergency backup function.

Allowable Entries	0 = None (water temperature display = –40.0˚F) 1 = 5K 2 = 10K
Default Value	0

Sensor Trim
This decision determines the offset to be added to the actual temperature value before its storage/ display. This can be useful when a sensor has a constant offset, to compensate for the error.

Allowable Entries	-18.0–18.0^F	(-10.0–10.0^C)
Default Value	0.0	(0.0)

Power Fail Restart
PFR Restart Timer
Use this decision to enter the duration of power fail restart mode, which is set after power on reset. The mode is cleared if the chiller's status changes to RUNNING, or if restart mode reaches the PFR Restart Time maximum configured in the CHILLERVISOR System Manager.

Allowable Entries	1–60 minutes
Default Value	5

Related Documentation

For more information, see the *CHILLERVISOR System Manager III Overview and Configuration Manual* (808-957).