

SIEMENS



TEC Controller

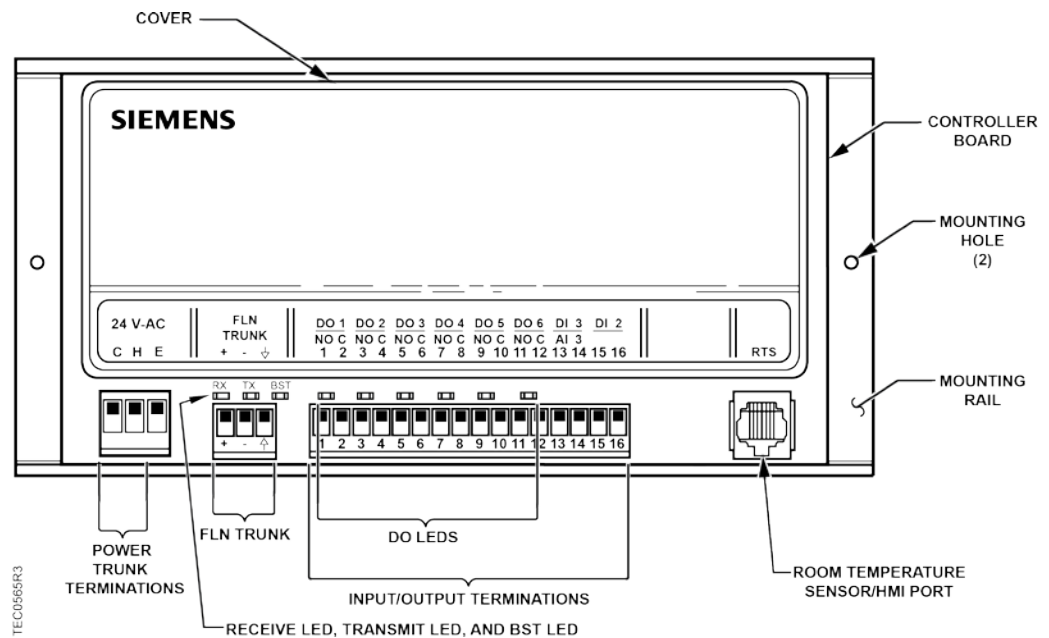
Heat Pump - Single Stage Slave Mode, Application 2090

Application Note

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Overview



Generic Controller I/O Layout. See *Wiring Diagram* for application specific details.

Application 2090 is the slave mode application for the Siemens TEC Heat Pump Controller Single Stage (540-105N). Slave mode is the default application that comes up when power is first applied to the controller. Slave mode provides no control. Instead, it allows the operator to perform equipment checkout before a control application is put into effect and to set some basic controller parameters (CTRLR ADDRESS, APPLICATION, etc.).

Hardware Inputs

Analog

- Room temperature sensor
- Room temperature setpoint dial
- Mixed air temperature sensor

Digital

- DI override switch
- One or two Digital Inputs

Hardware Outputs

Analog

None

Digital

Damper actuator (DO 1/DO 2)

Electric heat (DO 3)

Heating Compressor (DO 4) (or Motor 2 Compressor (DO 3/DO 4))

Cooling Compressor (DO 5)

Fan (DO 6)

Using Auxiliary Points

It is possible to have extra points available in addition to the ones used by the current application that is running in the controller. If these extra points will be controlled by a field panel, they must be unbundled.

Using the Controller as a Point Extension Device

If the controller is used only as a point extension device, with no control application in effect, its application must be set to slave mode and the points must be unbundled at the field panel. All of these points must be controlled from the field panel in order to be used. See the *Point Database* for more information.

All DOs may be used as separate DOs. The first six may also be used in pairs, (DO 1 and DO 2) and (DO 3 and DO 4), and DO 5 and DO 6), to control a motor as shown in the example.

For other combinations of DOs and motors, see the *Start-up Procedures* for complete motor enable/reverse procedures.



NOTE:

If using either a motor or DOs as auxiliary points, be sure to set MTR SETUP to the correct value. If using a pair of DOs to control a motor, the DOs cannot be unbundled or commanded separately. Only MTR1 COMD, MTR2 COMD, and MTR3 COMD can be unbundled to control the motors.

Motor Enable/Reverse Values for MTR SETUP. (For Floating-Type Dampers Only).		
Motor 1 Not Used	Motor 1 Enabled	Motor 1 Enabled and Reversed
0	1	3

Example

If using DO 1 and DO 2 as the physical terminations for a direct acting motor, follow these steps:

1. Set MTR SETUP to **1** to enable the motor.
2. Unbundle MTR1 COMD (DMPR COMD) at the field panel to command the motor from the field panel.



NOTE:

If more than one Motor needs to be set up, see the *Start-up Procedures* for complete MTR SETUP information.

Application 2090 Point Database

Point Number	Descriptor	Factory Default (SI Units)	Eng Units (SI Units)	Slope (SI Units)	Intercept (SI Units)	On Text	Off Text
1	CTLR ADDRESS	99	--	1	0	--	--
2	APPLICATION	2090	--	1	0	--	--
{04}	ROOM TEMP	74.0 (23.45)	DEG F (DEG C)	0.25 (0.14)	48.0(8.89)	--	--
{13}	RM STPT DIAL	74.0 (23.45)	DEG F (DEG C)	0.25 (0.14)	48.0(8.89)	--	--
{15}	AUX TEMP	74.0 (23.496)	DEG F (DEG C)	0.5 (0.28)	37.5(3.056)	--	--
18	WALL SWITCH	NO	--	--	--	YES	NO
{19}	DI OVRD SW	OFF	--	--	--	ON	OFF
{24}	DI 2	OFF	--	--	--	ON	OFF
{25}	DI 3	OFF	--	--	--	ON	OFF
{29}	DAY.NGT	DAY	--	--	--	NIGHT	DAY
{41}	DO 1	OFF	--	--	--	ON	OFF
{42}	DO 2	OFF	--	--	--	ON	OFF
{43}	DO 3	OFF	--	--	--	ON	OFF
{44}	DO 4	OFF	--	--	--	ON	OFF
{45}	DO 5	OFF	--	--	--	ON	OFF
{46}	DO 6	OFF	--	--	--	ON	OFF
{48}	MTR1 COMD	0	PCT	0.4	0	--	--
{49}	MTR1 POS	0	PCT	0.4	0	--	--
51	MTR1 TIMING	130	SEC	1	0	--	--
{52}	MTR2 COMD	0	PCT	0.4	0	--	--
{53}	MTR2 POS	0	PCT	0.4	0	--	--
55	MTR2 TIMING	130	SEC	1	0	--	--
56	DPR1 ROT ANG	90	--	1	0	--	--
57	DPR2 ROT ANG	90	--	1	0	--	--
58	MTR SETUP	0	--	1	0	--	--
59	DO DIR.REV	0	--	1	0	--	--
96	CAL TIMER	12	HRS	1	0	--	--
{99}	ERROR STATUS	0	--	1	0	--	--

- 1) Points not listed are not used in this application.
- 2) A single value in a column means that the value is the same in English units and in SI units.
- 3) Point numbers that appear in brackets { } may be unbundled at the field panel.

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