

SIEMENS



TEC Controller

Extended I/O Application 2497 with Slave Mode Application 2489

Application Note

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Overview



NOTE:

For information on applications with Firmware Revision Bx40 or earlier, see InfoLink and/or Asset Portal for documentation.

Application 2497 TEC Extended I/O Controller runs on TEC Part Number 540-863JN and expands its IO capability.

The slave mode (2489) 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 (CTLR ADDRESS, APPLICATION, and so on.).

Its purpose is to allow point extension in the TEC.



NOTE:

Application 2497 cannot support a digital room unit with setpoint adjustment because RM STPT DIAL is on Point 5. However, the slave mode Application 2489 does support a digital room unit because RM STPT DIAL is on Point 13.

Hardware Inputs

Analog

- Room temperature sensor
- Room temperature setpoint dial
- Temperature sensor (two 100K thermistor) or digital inputs
- Analog sensor (0-10 Vdc or 4-20 mA)

Digital

- *(Optional)* Night mode override
- Digital inputs (DI 2, DI 6)

Hardware Outputs

Analog

- Spare AO 1, AO 2, and AO 3 (0-10 Vdc)

Digital

- Digital Outputs (6 spare) (DOs)

Using the Controller as a Point Extension Device

The controller is used only as a point extension device, with no embedded control application in effect. Points may be unbundled at the field panel.


NOTE:

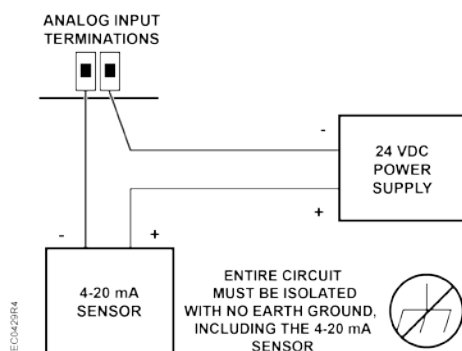
Application 2497 allows the inputs at AI 3, AI 4, and AI 5, which are normally analog, to be used as spare DIs if desired (DI 3, DI 4, and DI 5).

Wiring Diagram


NOTE:

The controller's DOs control 24 Vac loads only. The maximum rating is 12 VA for each DO. An external interposing relay is required for any of the following:

- VA requirements higher than the maximum
 - 110 or 220 Vac requirements
 - DC power requirements
 - Separate transformers used to power the load
- (for example, part number 540-147, Terminal Equipment Controller Relay Module)



Wiring for AI with a 4 to 20 mA Sensor.

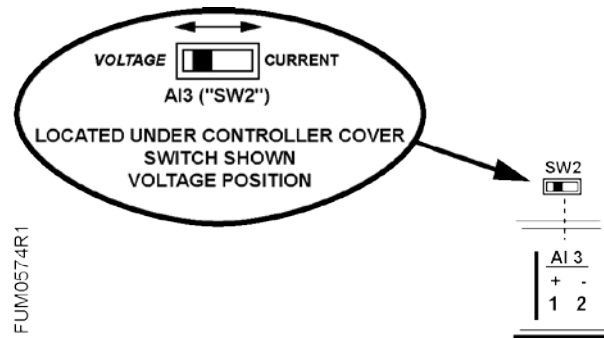

CAUTION

Each 4-20 mA sensor requires a **SEPARATE** dedicated power limited 24 Vdc power supply.

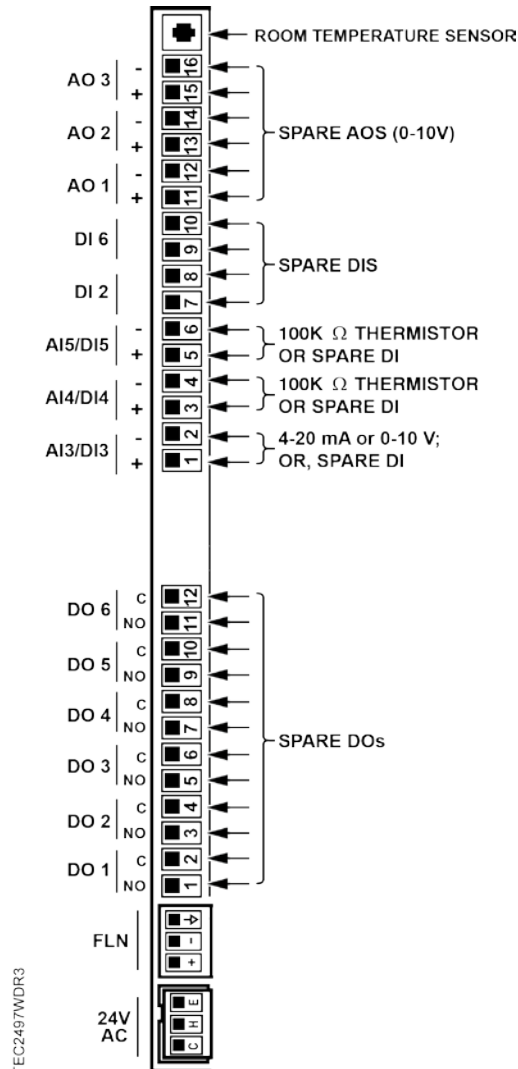
DO NOT use the same transformer to power both the sensor and the controller.


NOTE:

If the voltage/current switch is set to current and a 4 to 20 mA sensor is connected to an AI, then special wiring requirements must be followed.



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TEC2497WDR3

Application 2497 – Extended I/O Controller.

*A voltage/current switch for AI 3 is located under the controller's cover on the circuit board (behind AI 3). It must be set either to voltage or current position according to function.

NOTE: If the voltage/current switch is set to current and a 4 to 20 mA sensor is connected to AI 3, then special wiring requirements must be followed. See *Wiring for AI 3 with a 4 to 40 mA Sensor* drawing.

Application 2497 Point Database

Point Number	Descriptor	Factory Default (SI Units)	Eng Units (SI Units)	Slope (SI Units)	Intercept (SI Units)	On Text	Off Text
01	CTLR ADDRESS	99	--	1	0	--	--
02	APPLICATION	2497	--	1	0	--	--
{04}	ROOM TEMP	74.0 (23.4888)	DEG F (DEG C)	0.250 (0.140)	48.000 (8.889)	--	--
{05}	RM STPT DIAL	74.0 (23.4888)	DEG F (DEG C)	0.250 (0.140)	48.000 (8.889)	--	--
{19}	DI OVRD SW	OFF	--	--	--	ON	OFF
{29}	DAY.NGT	DAY	--	--	--	NIGHT	DAY
40	DO DIR.REV	0	--	1	0	--	--
{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
{47}	DI 2	OFF	--	--	--	ON	OFF
{48}	DI 3	OFF	--	--	--	ON	OFF
{49}	DI 4	OFF	--	--	--	ON	OFF
{50}	DI 5	OFF	--	--	--	ON	OFF
{51}	DI 6	OFF	--	--	--	ON	OFF
{52}	AI 3	0	PCT	0.4	0	--	--
{53}	AI 4	74.0 (23.47)	DEG F (DEG C)	0.5 (0.28)	37.5 (3.06)	--	--
{54}	AI 5	74.0 (23.47)	DEG F (DEG C)	0.5 (0.28)	37.5 (3.06)	--	-
{56}	AOV 1	0	VOLTS	0.01	0	--	--
{57}	AOV 2	0	VOLTS	0.01	0	--	--
{58}	AOV 3	0	VOLTS	0.01	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.

Application 2489 Point Database

Point Number	Descriptor	Factory Default (SI Units)	Eng Units (SI Units)	Slope (SI Units)	Intercept (SI Units)	On Text	Off Text
01	CTLR ADDRESS	99	--	1	0	--	--
02	APPLICATION	2489	--	1	0	--	--
{04}	ROOM TEMP	74.0 (23.4888)	DEG F (DEG C)	0.250 (0.140)	48.000 (8.889)	--	--
{13}	RM STPT DIAL	74.0 (23.4888)	DEG F (DEG C)	0.250 (0.140)	48.000 (8.889)	--	--
{19}	DI OVRD SW	OFF	--	--	--	ON	OFF
{29}	DAY.NGT	DAY	--	--	--	NIGHT	DAY
40	DO DIR.REV	0	--	1	0	--	--
{41}	DO 1	OFF	--	--	--	ON	OFF
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