Motor Controller Jumper Pin and Switch Options

Turntide motor controllers are designed for several applications. The jumpers and switches are used to configure the motor controller for a specific application.

Before connecting the controller to the Turntide motor, verify the controller configuration.

Jumper Pins (P04, P05, and SL120 Motor Controllers)

SL121 Motor Controller Switch Options

P06 Motor Controller Switch Options

Jumper Pins (P04, P05, and SL120 Motor Controllers)

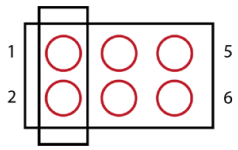
Digital Input Mode jumpers	Determine the inputs the motor controller recognizes.
Universal Input (UI) jumpers	Define the connected device type. • Currently UI1 and UI2 are used in applications with Supply and Return Air sensors. • Setting the respective jumpers across pins 1 & 2 configure the control to respond to the resistive load of the thermistor.

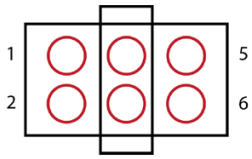
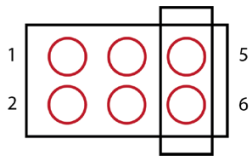
Input mode selection must be jumpers 1&2 and 3&4 or 1&2 and 5&6.

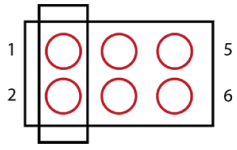
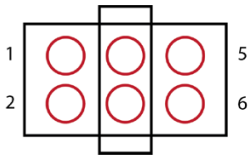
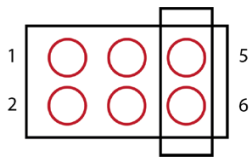
Go to **Table 1 Jumper Pin Options**

Table 1 Jumper Pin Options

Motor Controller Model	Modbus EOL Jumper	Digital Input Mode Jumper	Universal Input Mode Jumpers			
			UI1	UI2	UI3	UI4
P04W	J96	J96	J5125	J111	J112	J113
P05	J96	J96	J5125	J111	J112	J113
SL120	J10	J10	J11	J12	J13	J14

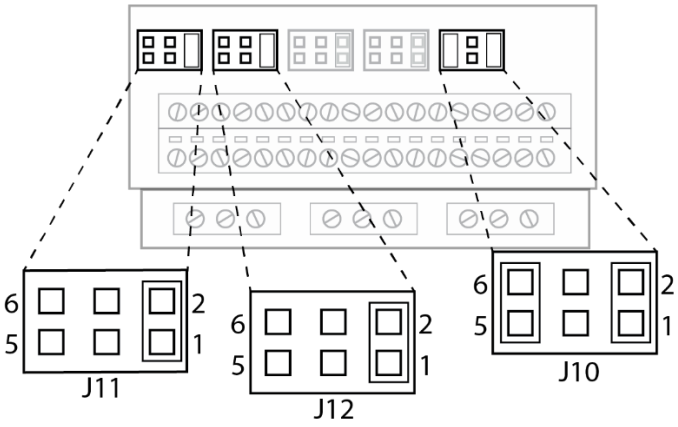
Modbus EOL Selection		
Pin Selections	**Mode**	**Examples**
1 & 2 	Installed: Enables EOL Resistor (End of line) Removed: Disables EOL Resistor (End of line)	Install if wiring to terminals D+/D is end of daisy chain.

Digital Input Mode Selection		
Pin Selections	**Mode**	**Examples**
3 & 4 	Enables digital inputs LOGIC or dry contact mode.	Install if **S1** through **S7** will be used to receive contact closures for control.
5 & 6 	Enables digital inputs 24VAC signaling mode.	Install if **S1** through **S7** will be used to receive 24VAC input signal from existing BMS or thermostat.

Universal Input Mode Selection		
Pin Selections	**Mode**	**Examples**
1 & 2 	Resistive/LOGIC: Returns resistance of connected element or ON/OFF if declared as resistive or LOGIC mode respectively.	Resistive: 2 wire 10K Ω thermistor LOGIC: Dry contact closure = ON Dry contact open = OFF
3 & 4 	Voltage: 0-10V signal ended voltage input.	3-wire device with external power source that provides 0-10V signal. (1 signal, 1 common, 1 power)
5 & 6 	Current: 0-20mA current input.	3-wire device with external power source that provides a 0-20mA signal. (1 signal, 1 common, 1 power)

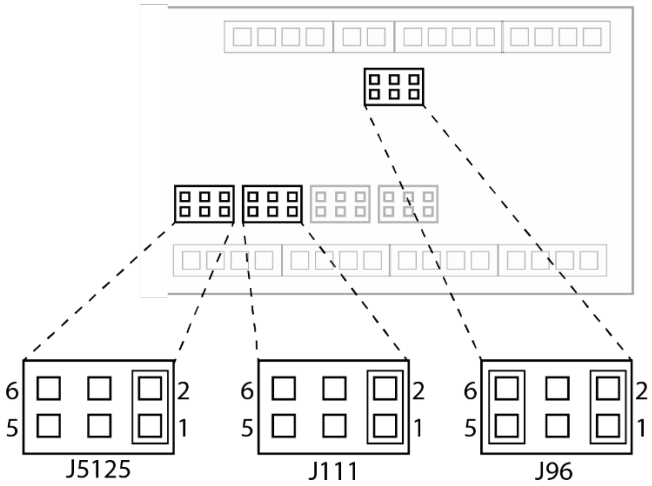
To ensure the motor controller jumper pins are set correctly for an RTU installation, consult the following:

Table 2 Motor Controller Jumper Pins (Image rotated 90 degrees)



SL120 Motor Controller Jumper Pins

- Confirm J11 and J12 jumper bridges are set on pins 1&2.
- Confirm J10 jumper bridges are set on pins 1&2 and 5&6.

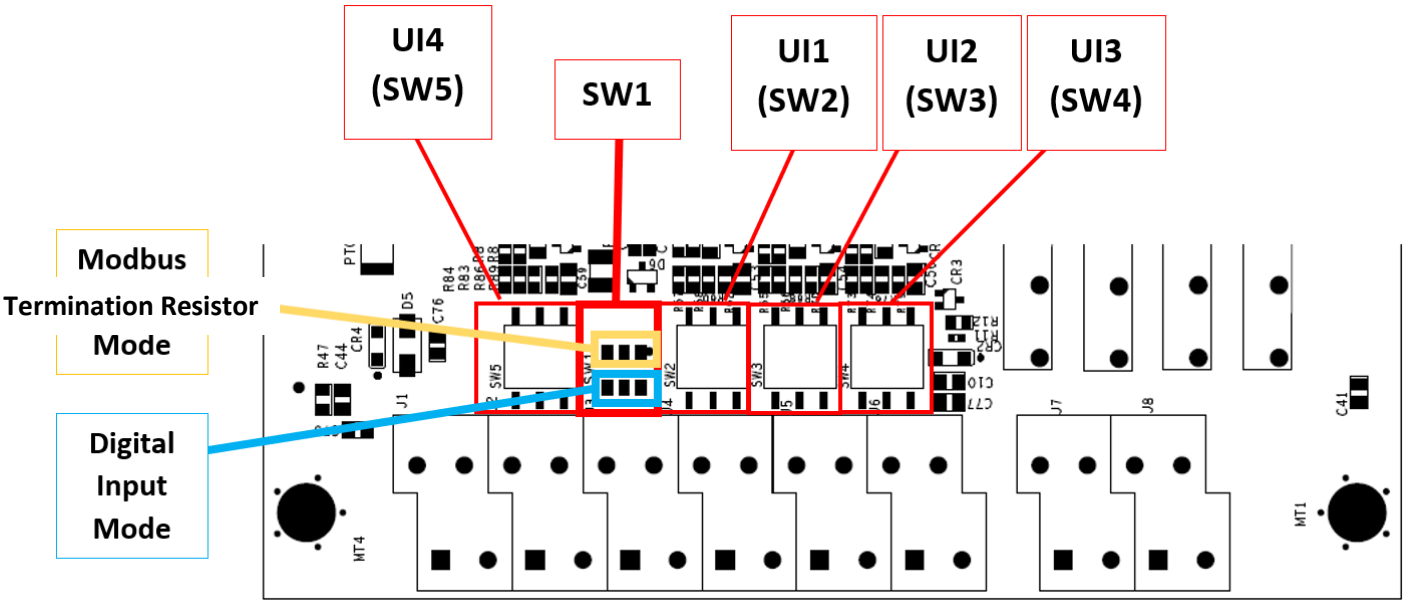


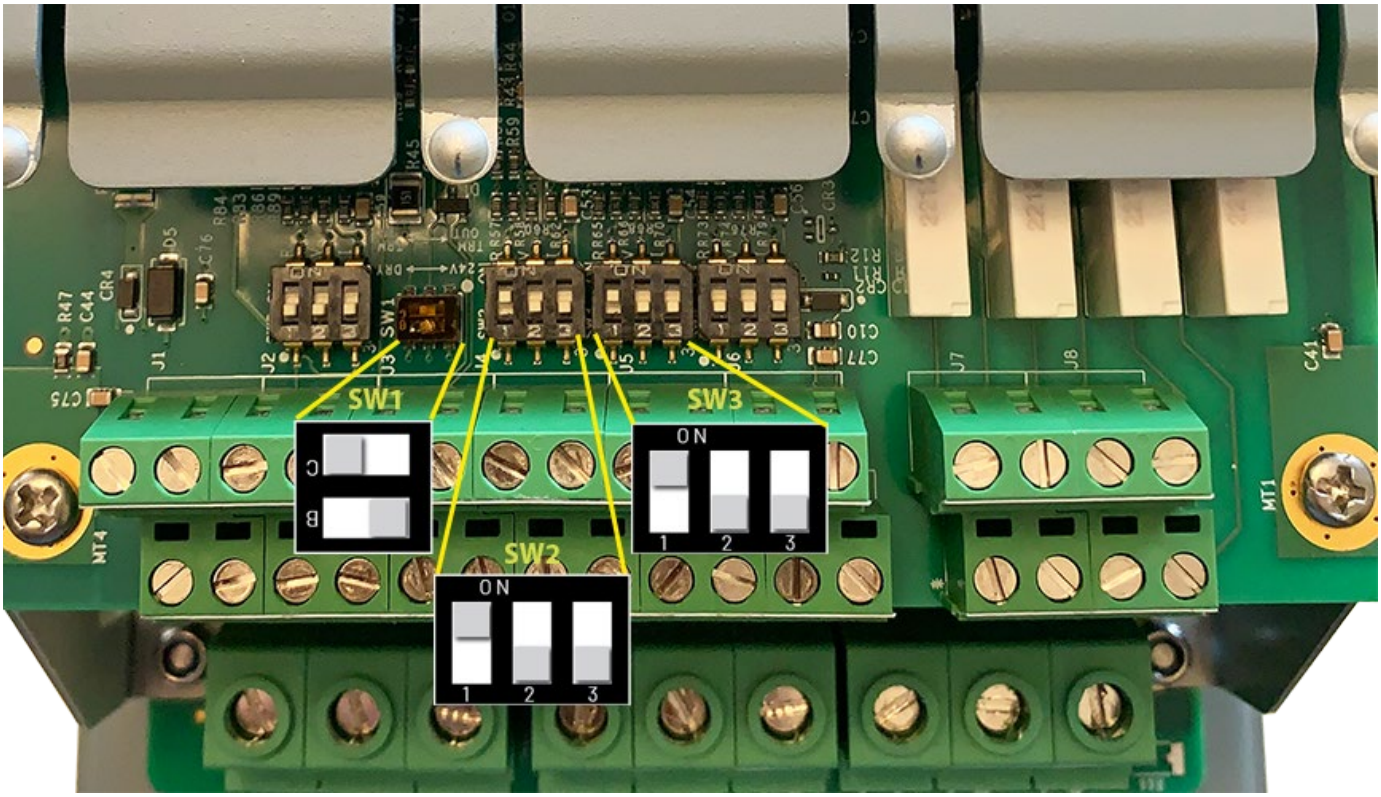
P05 Motor Controller Jumper Pins

- Confirm J5125 jumper bridges are set on pins 1&2.
- Confirm J111 bridges are set on 1&2 and J96 bridges on pins 1&2 and 5&6.

SL121 Motor Controller Switch Options

Figure 1 User-Selectable Switches SL121





SW1 for Modbus Termination Resistor and Digital Input Mode

SW1 is used for both the Modbus Termination Resistor and Digital Input Mode settings selection. Digital or Discrete Inputs initiate a programmed response of the motor controller based on parameter settings.

UI1 to UI4

The Universal inputs define the connected device type. The Universal inputs may be configured in one of **three modes (I, V, R)** via DIP Switches.

- **Voltage (V):** 0-10V (may be used to control the inverter directly or used to monitor CO2 or other sensors in HVAC systems)
- **Current (I):** 0-20mA or 4-20mA (may be used for direct current loop control of the motor controller)
- **Resistive (R):** Thermistor temperature sensors (may be used to monitor ambient air, return air, and supply air temperatures in HVAC systems)

Notes:

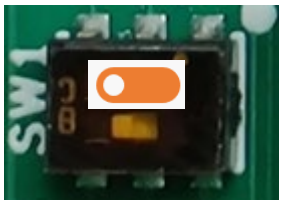
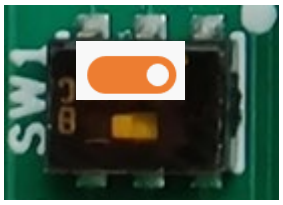
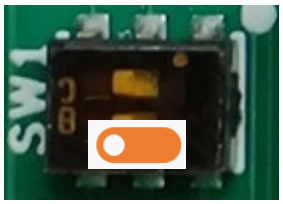
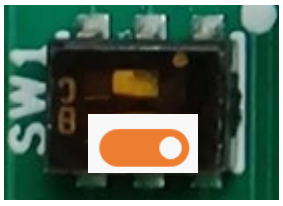
- Position 1 ON is the **resistive mode**
- Position 2 ON is the **voltage mode**
- Position 3 ON is the **current mode.**

ONLY one switch position should be ON at a time.

SL121 Motor Controller User-Selectable Switch Options Usage & Example

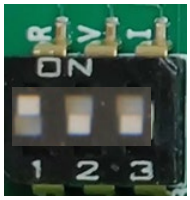
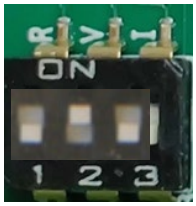
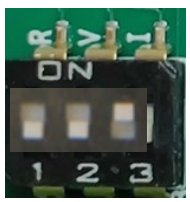
Table 3 SL121 Motor Controller User-Selectable Switch Options Usage & Examples

Motor Controller Model	Modbus Termination Resistor Switch	Digital Input Mode Switch	Universal Input Mode Switches			
			UI1	UI2	UI3	UI4
SL121	SW1	SW1	SW2	SW3	SW4	SW5

Modbus Termination Resistor Selection		
Switch Position	**Mode**	**Examples**
Top LEFT position 	Modbus termination resistor is **enabled**	Set if wiring to terminals D+/D is end of daisy chain.
Top RIGHT position 	Modbus termination resistor is **disabled**	
Digital Input Mode Selection		
Switch Position	**Mode**	**Examples**
Bottom LEFT position 	Enables digital inputs LOGIC or dry contact mode.	Set if **DI1** through **DI7** will be used to receive contact closures for control.
Bottom RIGHT position 	Enables digital inputs 24VAC signaling mode.	Set if **DI1** through **DI7** will be used to received 24VAC input signal from existing BMS or thermostat.

Motor Controller Model	Modbus Termination Resistor Switch	Digital Input Mode Switch	Universal Input Mode Switches			
			UI1	UI2	UI3	UI4
SL121	SW1	SW1	SW2	SW3	SW4	SW5

Universal Input Mode Selection

UI1 to UI4 DIP Switch ON	Mode	Examples
Caution: ONLY one switch position should be ON at a time; otherwise, may cause damage to the motor controller. **R** 	Resistive/LOGIC: Returns resistance of connected element or ON/OFF if declared as resistive or LOGIC mode respectively.	Resistive: 2 wire 10K Ω thermistor LOGIC: Dry contact closure = ON Dry contact open = OFF
Caution: ONLY one switch position should be ON at a time; otherwise, may cause damage to the motor controller. **V** 	Voltage: 0-10V signal ended voltage input.	3-wire device with external power source that provides 0-10V signal. (1 signal, 1 common, 1 power)
Caution: ONLY one switch position should be ON at a time; otherwise, may cause damage to the motor controller. **I** 	**Current:** 0-20mA current input.	3-wire device with external power source that provides a 0-20mA signal. (1 signal, 1 common, 1 power)

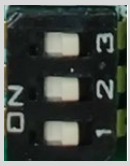
P06 Motor Controller Switch Options

The Universal inputs define the connected device type. The Universal inputs may be configured in one of **three modes (I, V, R)** via DIP Switches.

- **Voltage (V):** 0-10V (may be used to control the inverter directly or used to monitor CO2 or other sensors in HVAC systems)
- **Current (I):** 0-20mA or 4-20mA (may be used for direct current loop control of the motor controller)
- **Resistive (R):** Thermistor temperature sensors (may be used to monitor ambient air, return air, and supply air temperatures in HVAC systems)

Notes:

- Position 1 ON is the **resistive mode**
- Position 2 ON is the **voltage mode**
- Position 3 ON is the **current mode.**

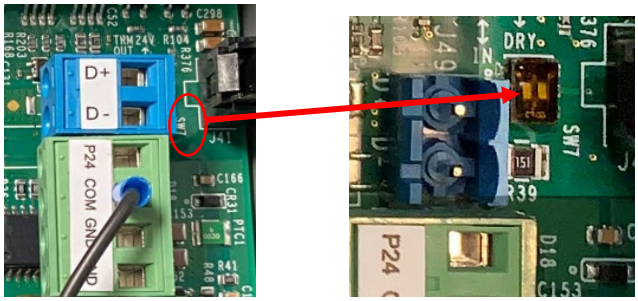


ONLY one switch position should be ON at a time.

SW7 for Modbus Termination Resistor and Digital Input Mode

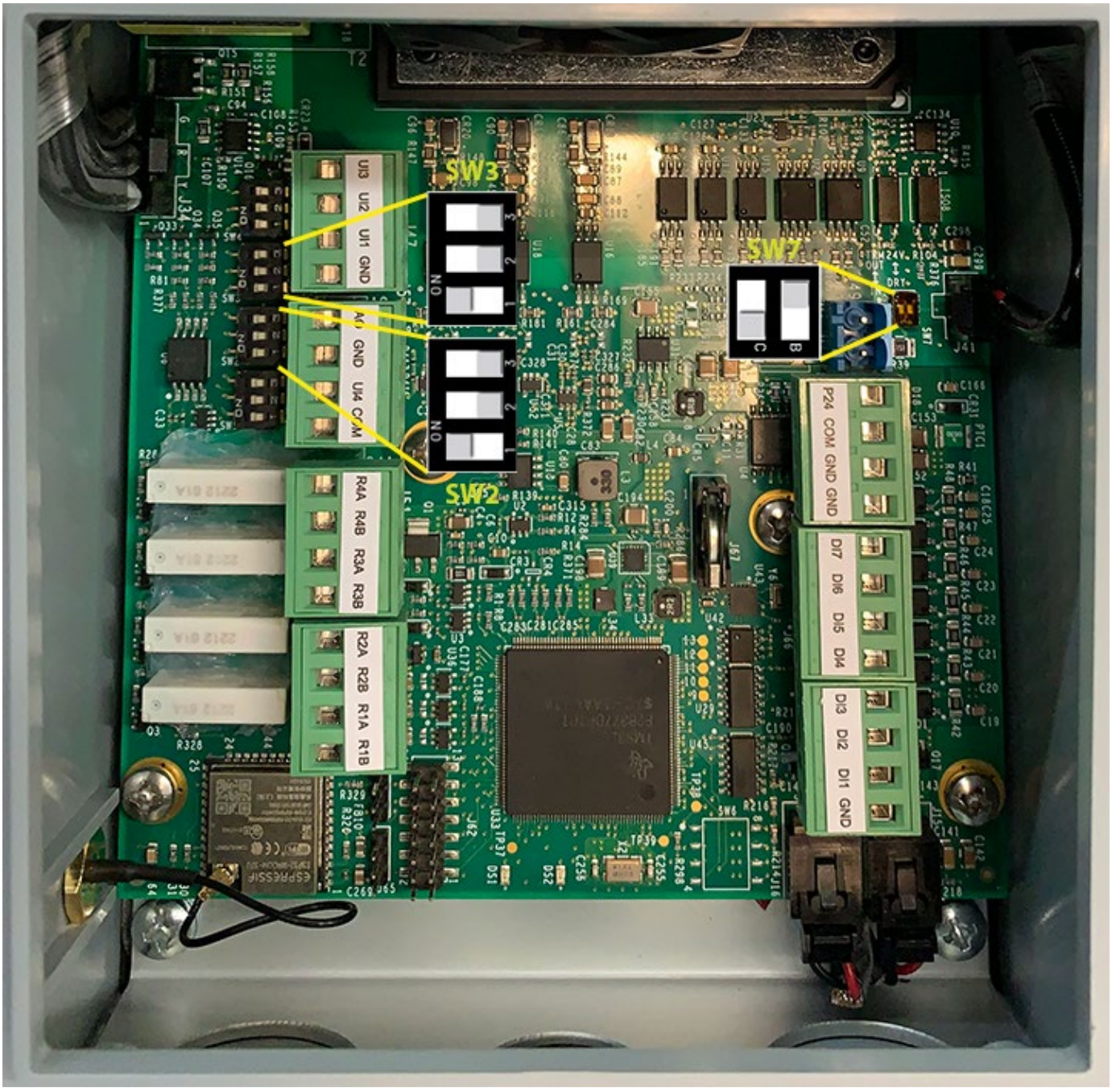
SW7 is used for both the Modbus Termination Resistor and Digital Input mode settings selection. Digital or Discrete Inputs initiate a programmed response of the motor controller based on parameter settings.

The blue D+ D- cap is easily removed to improve access to SW7.



P06 Motor Controller User-Selectable Switch Options Diagram

Figure 2 User-Selectable Switches on P06



P06 Motor Controller User-Selectable Switch Options Usage & Examples

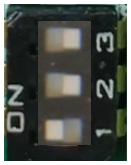
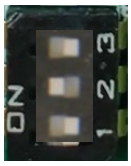
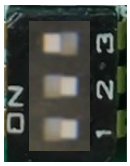
Table 4 P06 User-Selectable Switch Options

Motor Controller Model	Modbus Termination Resistor Switch	Digital Input Mode Switch	Universal Input Mode Switches			
			UI1	UI2	UI3	UI4
P06	SW7	SW7	SW2	SW3	SW4	SW5

Modbus Termination Resistor Selection		
Switch Position	**Mode**	**Examples**
Left DOWN position 	Modbus termination resistor is **enabled**	Set if wiring to terminals D+/D is end of daisy chain.
Left UP position 	Modbus termination resistor is **disabled**	
Digital Input Mode Selection		
Switch Position	**Mode**	**Examples**
Right DOWN position 	Enables digital inputs LOGIC or dry contact mode.	Set if **DI1** through **DI7** will be used to receive contact closures for control.
Right UP position 	Enables digital inputs 24VAC signaling mode.	Set if **DI1** through **DI7** will be used to receive 24VAC input signal from existing BMS or thermostat.

Motor Controller Model	Modbus Termination Resistor Switch	Digital Input Mode Switch	Universal Input Mode Switches			
			UI1	UI2	UI3	UI4
P06	SW7	SW7	SW2	SW3	SW4	SW5

Universal Input Mode Selection

UI1 to UI4 DIP Switch ON	Mode	Examples
Caution: ONLY one switch position should be ON at a time; otherwise, may cause damage to the motor controller. **R** 	Resistive/LOGIC: Returns resistance of connected element or ON/OFF if declared as resistive or LOGIC mode respectively.	Resistive: 2 wire 10K Ω thermistor LOGIC: Dry contact closure = ON Dry contact open = OFF
Caution: ONLY one switch position should be ON at a time; otherwise, may cause damage to the motor controller. **V** 	Voltage: 0-10V signal ended voltage input.	3-wire device with external power source that provides 0-10V signal. (1 signal, 1 common, 1 power)
Caution: ONLY one switch position should be ON at a time; otherwise, may cause damage to the motor controller. **I** 	**Current:** 0-20mA current input.	3-wire device with external power source that provides a 0-20mA signal. (1 signal, 1 common, 1 power)