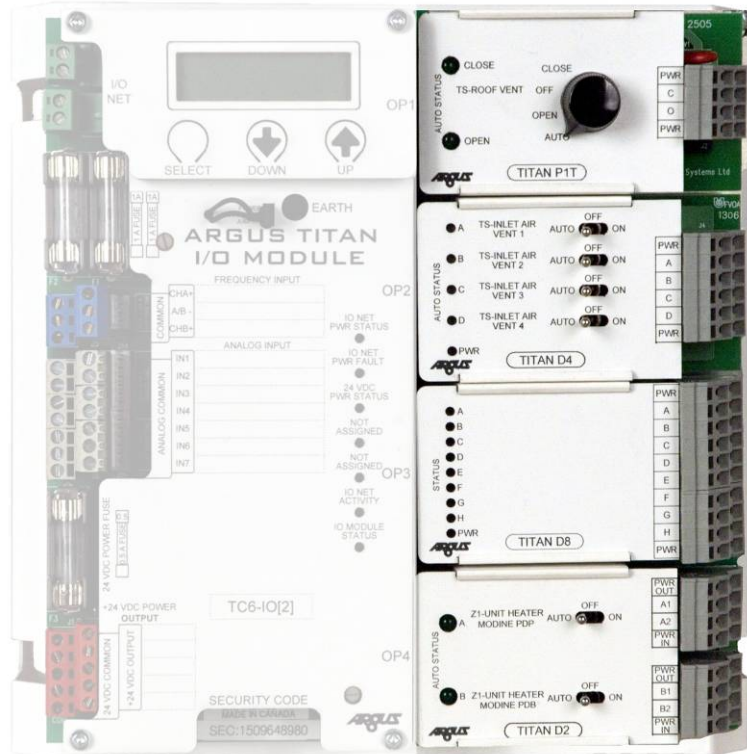


Titan System Output Relay Boards

The Argus Titan system provides specialized output signals tailored to the equipment being controlled. Output relay boards are selected and configured according to the application.

Output Relay boards connect directly to the Titan I/O Module. Each I/O module can accommodate up to 4 interchangeable relay boards providing for simple and efficient configuration of the output signals required by different types of equipment. These boards include the appropriate field wire terminations, status indicators lights, and most include manual overrides for testing and emergency operation.

All output control on the Titan system is designed to operate as Class-2 low-voltage equipment. This maximizes safety, reduces wiring costs, and is compatible with most greenhouse control equipment. Separate line voltage interfacing equipment is also available to convert low voltage control signals into line voltage power (for more information please see the Argus Line Voltage Interface Equipment Data Sheet).



Interchangeable Output Relay Boards connect directly to the Titan I/O Module

Output Relay Signal Types Include:

Digital Control - This includes standard ON/OFF control and equipment that is operated by low frequency digital pulsing strategies such as pulse width modulation and pulse period modulation. Form 'A' and Form 'C' contact configurations are available. For simple digital applications such as irrigation valves, special relay boards are available to increase the number of addressable On/Off outputs to up to 32 per I/O module.

2-speed Fans – A special output relay board is available to provide mechanically interlocked low and high-speed control signals for 2-speed fans and motors.



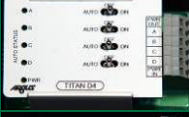
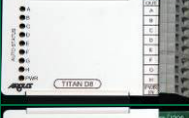





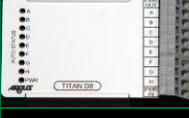

Tri-State Floating Control - These relays provide safe, proportional, reversing motor control for equipment such as motorized roof vents, louvers, and shade curtains.

Analog Control - Argus provides an extremely versatile high resolution analog output module for equipment that requires variable current, voltage, or frequency signals to control proportional equipment such as analog valves, speed controllers (VFD), etc.

Special Applications – Other output boards are available for specialized control applications such as sensor multiplexing.

See the Output Relay Selection Table on the next page...

Output Relay Board Selection Table

Part Number	Dimensions for all Modules: 4" x 2" x 1 1/2" (LxWxH)	Description	Control Signal Type	Manual Override Positions	Contact Ratings	Shared Common Buss	Field Isolation	Typical Applications
TTN-D2-1.0/C		Digital (2 x Form A) Dry or Wet contacts	ON/OFF; PWM+/-; PPM+/- (1 second Pulse Resolution)	ON OFF AUTO	3.2 A @24V AC/DC 5 A @12V AC/DC	✗	5000V	Independent control of up to 2 ON/OFF devices. Control of equipment that can be digitally modulated using Pulse Width Modulation, Pulse Period Modulation, or Soft Start Pulsing
TTN-D2C-1.0/C		Digital (2 x Form C) Dry or Wet contacts	ON/OFF (Open/Close)	ON OFF AUTO	3.2 A @24V AC/DC 5 A @12V AC/DC	✗	5000V	NC or NO signals for control of up to 2 ON/OFF Devices. Interlocked signals for up to 2 Power Open/Power Close valves or drive motors.
TTN-D4-1.0/C		Digital (4 x Form A) Wet contacts	ON/OFF	ON OFF AUTO	3A Max @ 24V AC/DC (max 4.2 amps per board)	✓	5000V	Independent control of up to 4 ON/OFF devices i.e. lights, Irrigation valves. (From one common power source)
TTN-D8-1.0/C		Digital (8 x Form A) Wet contacts	ON/OFF	✗	3A Max @ 24V AC/DC (max 4.2 amps per board)	✓	5000V	Independent control of up to 8 ON/OFF devices i.e. lights, Irrigation valves (no on-board manual overrides). (From 1 power source)
TTN-D1S-1.0/C		Digital 2 Speed Electrically Interlocked	ON/OFF	HIGH LOW OFF AUTO	3.2 amps @ 24V 5 amps @ 12V AC/DC	✓	5000V	Control of one 2-speed fan or motor
TTN-P1T/C		Digital 2x Form A Electrically Interlocked	Tri-State Floating	CLOSE OFF OPEN AUTO	3.2 amps @ 24V 5 amps @ 12V AC/DC	✓	5000V	Control of one Tri-State Floating (OPEN/CLOSE/STOP) reversing motor (i.e. vents, shade curtains, mixing valves)
TTN-P1T-1.0/C		Digital 2x Form A 1 (Isolated common)	Tri-State Floating	CLOSE OFF OPEN AUTO	3.2 amps @ 24V 5 amps @ 12V AC/DC	✗	5000V	Control of one Tri-State Floating (OPEN/CLOSE/STOP) reversing motor (i.e. vents, shade curtains, mixing valves)
TTN-P1A-1.2/C		Analog 1x	0-20 ma current 0-10V 0-5V Frequency PWM (0.001 second Pulse Resolution)	Manual (0-100%) AUTO	Sinking: External 24 VDC (isolated) Sourcing: On-board 24 VDC (isolated)	✓	1500V	Modulating Analog control of proportional output equipment
TTN-D8/MUX-8X1		Digital Input Multiplexer 8 x 1 Dry contacts	ON/OFF	✗	10 microamps to 3A Max @ 24V AC/DC	✓	5000V	Multiplexed sensor applications: 8 dry contact relay inputs sequentially multiplexed into a single output.
TTN-D8/MUX-4X2		Digital Input Multiplexer 4 x 2 Dry contacts	ON/OFF	✗	10 microamps to 3A Max @ 24V AC/DC	✓	5000V	Multiplexed sensor applications: 4 independent groups of 2 dry contact inputs sequentially multiplexed into 2 outputs.
TTN-D8/MUX-3VV		Digital Input Multiplexer 8 x 1 3V Power Dry contacts	ON/OFF	✗	10 microamps to 3A Max @ 24V AC/DC	✓	5000V	Multiplexed sensor applications: 8 relay inputs provide 3V VDC on-board excitation for sequential switching of up to 8 SEN-SMP/EC-5 moisture probes or other sensors into a single multiplexed output.

For more information, please refer to the individual data sheets for each part.



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