PANTHER
INDUSTRIES

OPERATION AND MAINTENANCE MANUAL

EXTERNAL HOST INTERFACING SIGNALS

PRODUCTS SUPPORTED:
PREDATOR
PHANTOM

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OVERVIEW

This document details the available external host interfacing signals that Panther Industries provides on the Predator and Phantom product lines. These signals can be utilized either through the use of a hardwired, discrete interface or via Ethernet communications.

The use of discrete I/O communication requires the purchase of an additional hardware option for all the previously mentioned Panther product lines. Some of these signals are only available via Ethernet I/O (these signals will be indicated as such). The currently available Ethernet communication methods are EtherNet/IP or Modbus-TCP.

For additional information regarding Ethernet I/P communication with a Panther Predator or Phantom, please reference the *Panther Predator – Phantom EthernetIP Connection Setup* document. Information regarding communication via Modbus TCP can be found in the *Panther Predator – Phantom Modbus TCP Structure* document.

OUTPUT INTERFACE SIGNALS

The following output signals are transmitted from the Panther label applicator for host status monitoring.

Items marked with an asterisk (*) are only available via Ethernet I/O. All other signals are available on both Ethernet networks and the discrete signal option.

Print Engine Power *
This signal provides the status for the ON/OFF state of the print engine module installed in the label applicator. The signal is in a HIGH state when the print engine is powered ON and the label applicator is receiving a +24vdc input from the print engine.

Print Engine Error *
The print engine is in an error state. The print engine display must be referenced for the current error condition, with the exceptions of *Label Out* and *Ribbon Out*. The signal is HIGH when the print engine is in an error as provided by the print engine's error signal.

Ribbon Low
The thermal transfer ribbon in the print engine is low. This is a warning notification to the host that the ribbon will need to be changed soon. This signal is HIGH when the ribbon is low as indicated by the print engine's ribbon low output signal.

Label Out *
The print engine has completely run out of label material and new label materials need to be installed. This error signal is HIGH when the print engine activates its label out signal.

Online/Data Ready
The print engine has received data into its memory buffer. This signal is HIGH after data has been received into the print engine's internal memory buffer, and is ready to print the data onto a label.

Ribbon Out *
The print engine has complete run out of thermal transfer ribbon and new ribbon needs to be installed. This error signal is HIGH when the print engine turns on its ribbon out signal.

RFID Error *
The print engine has unsuccessfully encoded an RFID label during printing. This error signal is HIGH when the print engine indicates to the Panther system that it has failed to successfully encode an RFID label.

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Panther Fault
The Panther system is in an error state. This signal is LOW when an error condition has occurred. For specific information regarding the current error condition, reference the system's HMI or the error code output (described below). This signal will be HIGH when the system is operating normally.

Cycle Complete
A label application has taken place and the applicator has returned to its home position. This signal is a HIGH PULSE following the completion of the application cycle and the applicator has returned to its home position. A reset either from the host or HMI will also trigger this bit to activate. The length of this pulse is adjustable via the **Timers** menu

Applicator Home
The applicator is in the home position. This signal is HIGH when the applicator is home and is directly tied to the applicator home sensor. When the applicator is home and the sensor is functioning properly, the sensor will have an illuminate LED.

Low Label
Indicates the label material is running low. This is a warning notification to the host that the label material is low and will need to be changed soon. The Panther label applicator will continue to operate until a *Label Out* signal is received. The signal is HIGH when the labels, on the let-off assembly, have reached the set point on the low label sensor. The LED in this sensor will become illuminated when the labels are low.

Label on Tamp and Ready (LOTAR)
Indicates a printed label is on the tamp head and awaiting an application to the product. The signal is HIGH when the print engine has completed printing a label and the label is waiting to be applied to the product. This signal also indicates the Panther label applicator is ready to receive a cycle trigger input. This input can come from either the host or product trigger sensor.

Scanner/Camera Good Read *
Indicates the scanner or camera has performed a successful read. This signal is HIGH when the optional scanner or camera that is discretely integrated with the Panther system has indicated a successful read based on its configuration.

Scanner/Camera Bad Read *
Indicates the scanner or camera has failed to read. This signal is HIGH with the optional scanner or camera, that is discretely integrated with the Panther system has failed to provide a successful read based on its configuration.

Bypass On *
Bypass Mode on the Panther system has been enabled. This signal is HIGH when the Bypass mode for the system has been enabled. This signal serves as a confirmation that the Bypass input has been received from the host, or that the *Bypass Mode* has been enabled via the HMI or *Slide Home* sensor input.

Heartbeat *
Displays a real-time connection with the Panther system. This signal alternates between HIGH and LOW in 0.5 second intervals providing a real-time update when the Panther label applicator is connected to the host via one of the Ethernet communication methods.

Current Error Code *
This displays the current code error in the system. When there is no error in the system this value will be 0. For more information regarding error codes, see the *Error Code List* document. NOTE: This value is a whole word and not a bit.

Apply Cycle Time *
This displays the value in milliseconds of the last application cycle. This records the time from when the Panther system tells the applicator to move until it returns back to the home position.

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Print Cycle Time *
This displays the value in milliseconds of the last print cycle. This records the time from when the Panther system tells the printer to print until the printer indicates it has completed the printing of the label.

INPUT INTERFACE SIGNALS

The following input signals are received by the Panther label applicator for host control.

Trigger 1
Triggers the Panther system to begin the first application cycle. When this signal is received, and a HIGH state for the LOTAR signal is seen, a label application cycle will be started. The use of the *Applicator 1 Delay* and *Applicator 1 Dwell* timers, located in the **Timers** menu, will control the application of the label to the product. If the LOTAR signal is LOW when this signal is received from the host, a *Product Early* error condition will occur. Also, if this input is seen by the Panther system for more than the time indicated by the *Product Jam* timer, a *Product Jam* error condition will occur.

Trigger 2
Triggers the Panther system to begin the second application cycle. This operation is identical to *Trigger 1*, but with the use of *Applicator 2 Delay* and *Applicator 2 Dwell* timers, located in the **Timers** menu. *Trigger 2* is only applicable to certain Panther applicator types.

Reset
Remotely resets any clearable error conditions. When this signal is seen by the Panther system, any error conditions that are clearable will be resolved. Error conditions will be maintained if the cause of the fault is not resolved prior to the system receiving this signal. The system's HMI should be referenced to note the error condition and resolution steps prior to the rest signal being sent.

Bypass
The Panther system will not respond to trigger signals when enabled. When this signal is seen by the Panther system, it will not respond to any trigger signals for the duration of time that the signal is seen. When the signal is LOW the system will function in a normal state.

Carton Height Submit *
Confirms the submission of the host carton height data. When received, this signal submits the carton height data supplied to the Panther system by the host. *Product Height Measuring* must be enabled in the **Settings** menu and Host Carton Height must be enabled in the Height Compensations Settings submenu.

Carton Height *
This is the value of the next box height to which a label will be applied. This is used in the Predator systems to allow the applicator to adapt to the height of the carton. This value must be input prior to the *Carton Height Submit* bit is triggered. For additional information regarding the adaptive tamp system in the Predator system, please reference the Predator manual.

For additional information regarding any of the timers, settings or menus mentioned above, please reference the Operations and Maintenance Manual for your specific system.