



AMPST-X Multi-Position Socket Tray



User Manual

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1. Introduction

The AIMCO AMPST series socket trays are designed to assist in the selection of parameter sets (also known as applications, p-sets, or selects). A 4-position (AMPST-4) tray is used as the example within this document. Functionality is consisted within the range for all AMPST-X trays, 2, 4, 6, or 8 positions.

This is accomplished through the use of proximity sensors mounted in such a way as to sense the presence of a socket in close proximity. A machineable "puck" is configurable to the form of the driving socket providing a relatively unique location where it should reside when not in use.

The system is designed to ensure that the controller will allow the assembly tool to operate when one, and only one, socket has been pulled from the socket tray, so that all but one socket still remains present in the tray.

If any other condition exists (more than one socket pulled or all sockets in position) then the socket tray will send a signal or combination of signals to alert the controller of a socket error condition.

This is achieved in one of two ways, depending on the configuration of the socket tray dip switches, located on the circuit board inside the socket tray:

1. A digital signal is turned on to enable or disable the tool (brand-specific)
2. A series of digital signals is turned on to select an "unused" parameter set. For tool controllers that do not allow for a remote enable or disable, the strategy is to activate a parameter set that is not programmed, which will effectively disable the tool through the controller.

2. System Setup

2.1 SOCKET TRAY SETUP

It is the responsibility of the end-user to ensure the following:

- A. The socket tray pucks have been machined in such a way that sockets can fit only in one particular socket tray position. See "Appendix 1: Puck Drilling Sheet" on page 7.
- B. The actual socket to be used for a given application has been appropriately tied to a particular application.
- C. The software and system configurations necessary to allow successful communication between the socket tray and the tool controller have been properly set.

2.2 CONNECTIONS

Connect the 10-pin cable provided to connector shown and to the controller IO connector.

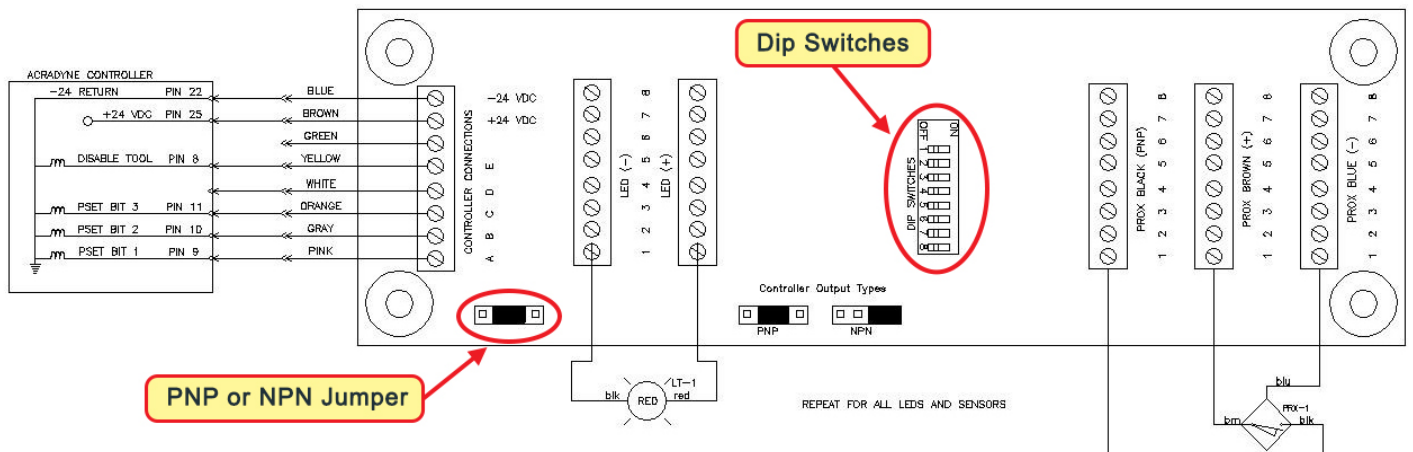


2.3 PRECAUTIONARY MEASURES

Every brand and series of tool controller has unique operational features. It is important that the user be familiar with these features, and be vigilant in planning for lost communications / socket tray failures. For instance, with some brands / series of controllers, the controller will default to parameter set 1 when no inputs are received from the socket tray. In this scenario, it is possible that if the socket tray lost power, the operator could unknowingly pull sockets and assemble products with the controller continually set to parameter set 1. It is therefore recommended that these scenarios be considered prior to operation of the socket tray, so as to ensure proper use of the programmed parameters. In the scenario described above, it might be considered prudent to leave parameter set 1 "empty," which would prevent the tool from running in the absence of a socket tray input.

2.4 DIP SWITCH SETTINGS

Prior to shipment, AIMCO AMPST-X trays are configured with the dip switches correct for either the AcraDyne brand controllers or Uryu brand controllers. Should it be desired to use an AMPTS-X socket tray with an alternative brand, AIMCO Technical Support should be contacted by an individual with knowledge of the alternative brands controller configurations.



2.5 DIP SWITCH FUNCTIONS

Switch Functions			
Switch	Function	Off Position	On Position
1	No. of Sockets	See below	See below
2	No. of Sockets	See below	See below
3	No. of Sockets	See below	See below
4	Binary Number Type	Binary	Binary +1
5	LED Mode	LEDs On with Socket Out	LEDs Off with Socket Out
6	Disable Method	All PS Bits On	Output for Enable/Disable
7	Enable Mode *	Enable High	Enable Low
8	Spare		

* Switch 6 must be set to "On" for switch 7 to function properly.

2.5.1 Setting the Number of Sockets in the Tray

# of Sockets	Switch 1	Switch 2	Switch 3
2	0	0	0
3	1	0	0
4	0	1	0
5	1	1	0
6	0	0	1
7	1	0	1
8	0	1	1

2.5.2 Binary Number Type

Binary number produced is either pure binary or binary +1. (Example: 111 in pure Binary is 7. In Binary +1, 111 is 8)

2.5.3 LED Mode

OFF When socket is removed, the associated LED light comes on.

ON When socket is removed, the LED light goes out.

2.5.4 Disable Method

OFF When a socket error condition exists, all parameter set bits are turned on

ON When a socket error condition exists, a single output is energized to disable the tool through the controller.

2.5.5 Enable Mode

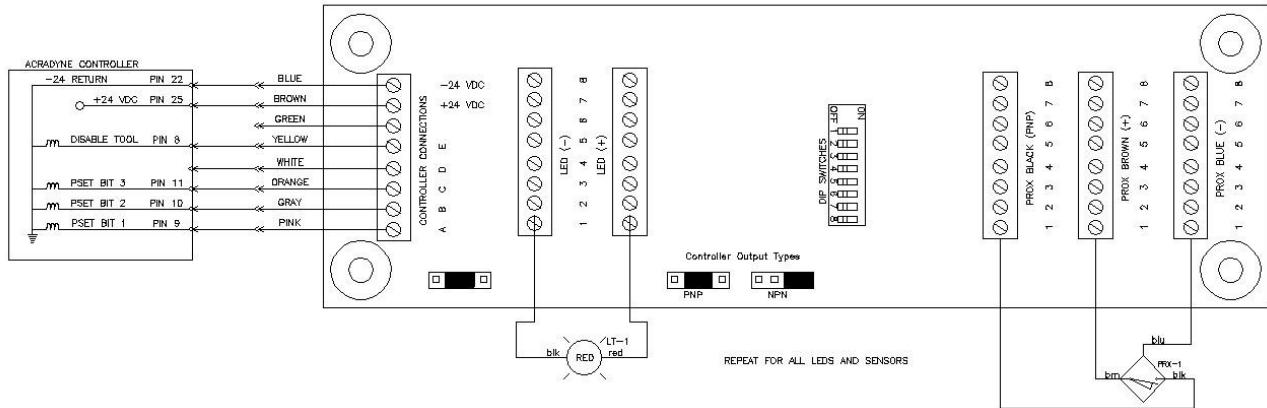
Switch 6 must be set to on for this function to apply.

OFF Signal goes high the enable a tool which is normally disabled.

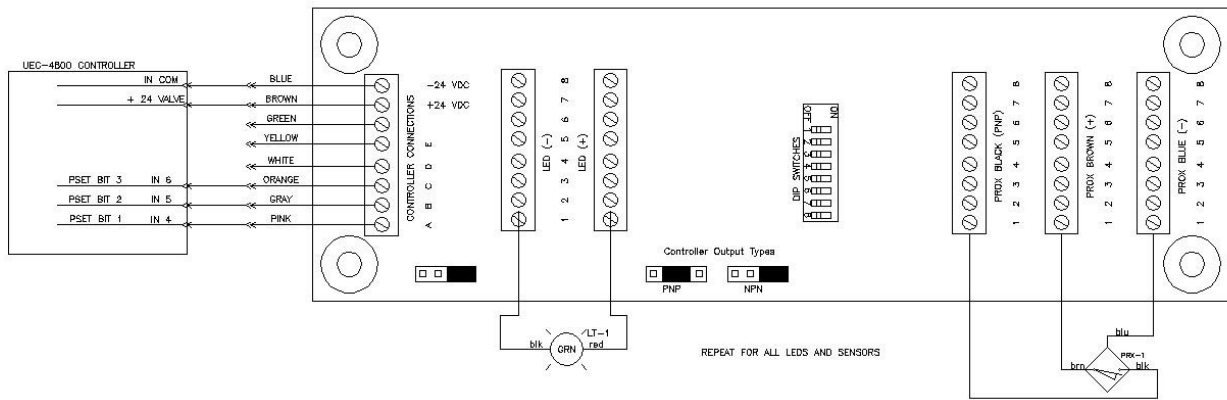
ON Signal goes low to remove the disable signal from the tool.

3. Wiring Diagrams

3.1 WIRING FOR AN ACRADYNE CONTROLLER

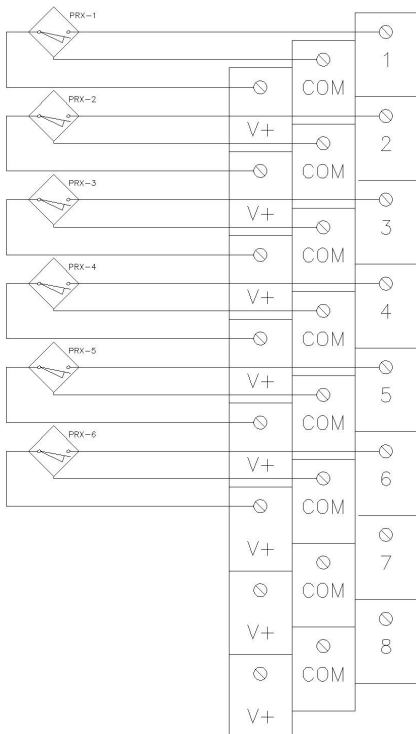


3.2 WIRING FOR AN URYU UEC CONTROLLER



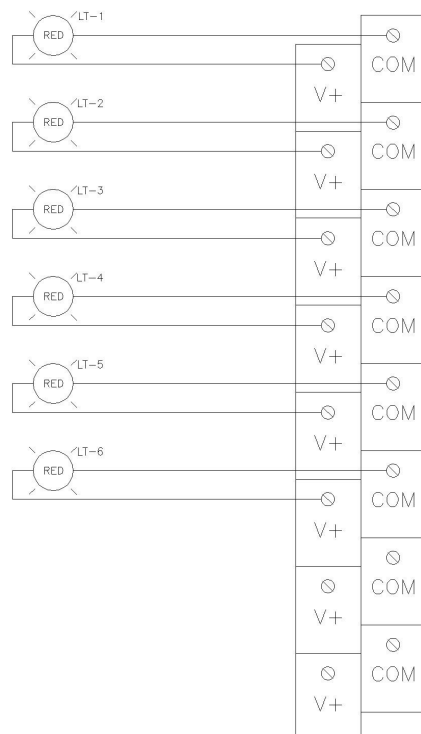
3.3 BOARD INPUTS

(6-position shown)

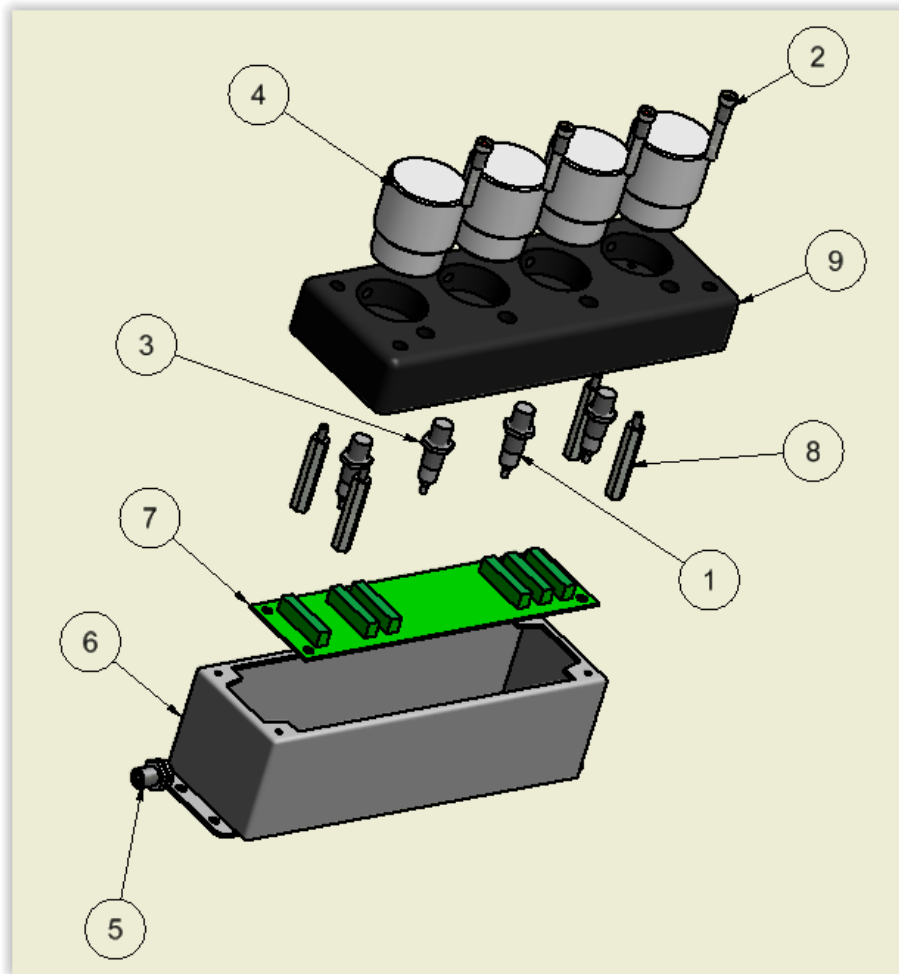


3.4 BOARD OUTPUTS

(6-position shown)



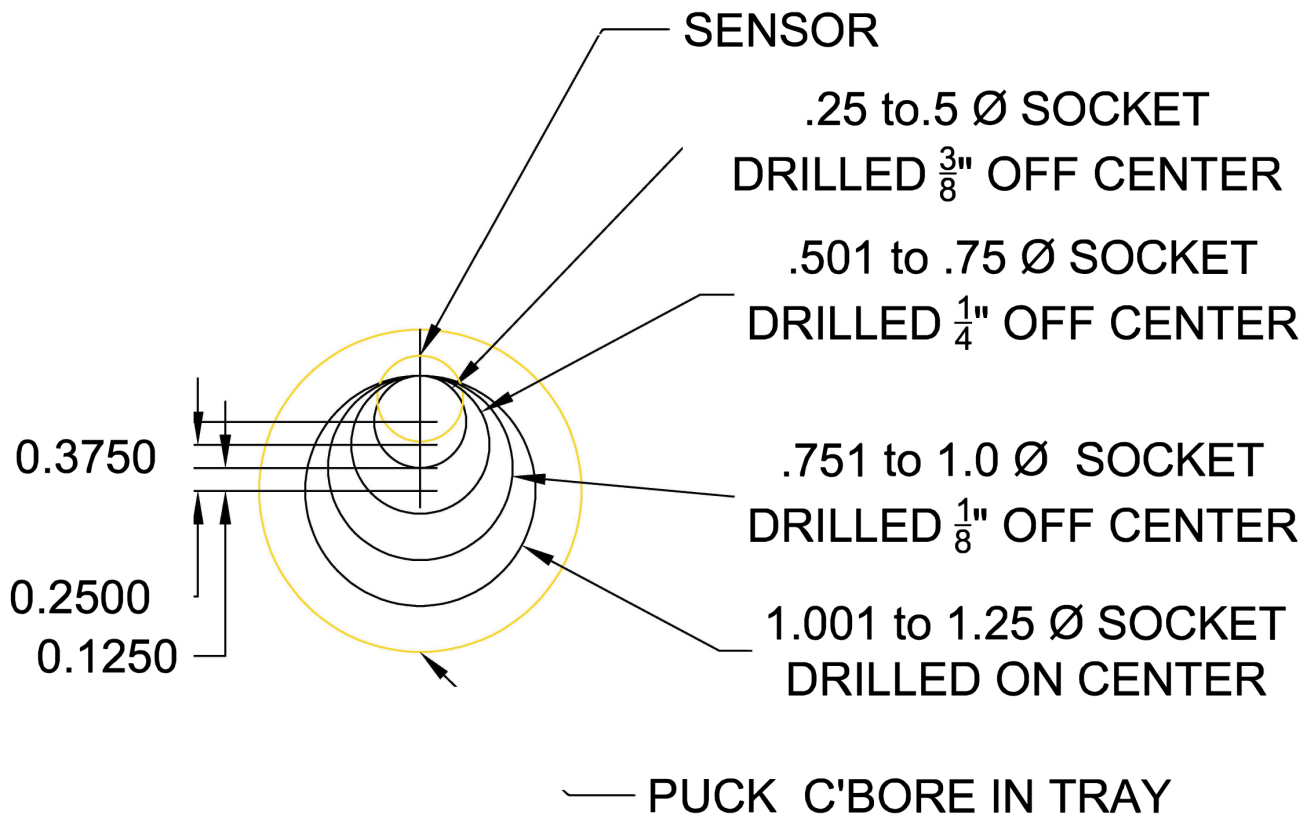
4. Parts List



Item	Qty	Part #
1	4	B12-G12X-AP6X
2	4	83F7621
3	4	B12-G12X-AP6X-NUT
4	4	Small Puck
5	1	FS 10-.5
6	1	PB4
7	1	GAT 2585-24V-8 REV2
8	4	93620A179
9	1	Socket Tray 4 x 1

Appendix 1: Puck Drilling Sheet

NOTE: DIMENSIONS ARE FOR REFERENCE ONLY
PUCK SHOULD BE DRILLED TO INSURE
50% OF THE SENSOR IS COVERED





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