



On-Board Display System Quick Start Guide

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1. Introduction

This guide provides information to setup and run IADS as an on-board display system. Using the standard version IADS and additional off-the-shelf equipment, a system can be built for use as engineering workstations or a remote display and control system for the Pilot cabin.

2. Background

The IADS Real Time Station product can be used to connect directly to onboard instrumentation systems to gather data, perform engineering unit conversion, archive, and perform data display and analysis. This capability can be used for engineering workstations or along with additional add-on equipment form the basis of a pilot display system. The advantage of using IADS is a wide range of display choices and user flexibility that comes with a general purpose display package. The use of an external keypad and a dual-monitor capable PC can form the basis of a Pilot display package that enables quick display changes using a COTS numeric keypad.

2.1. Notional System Diagram

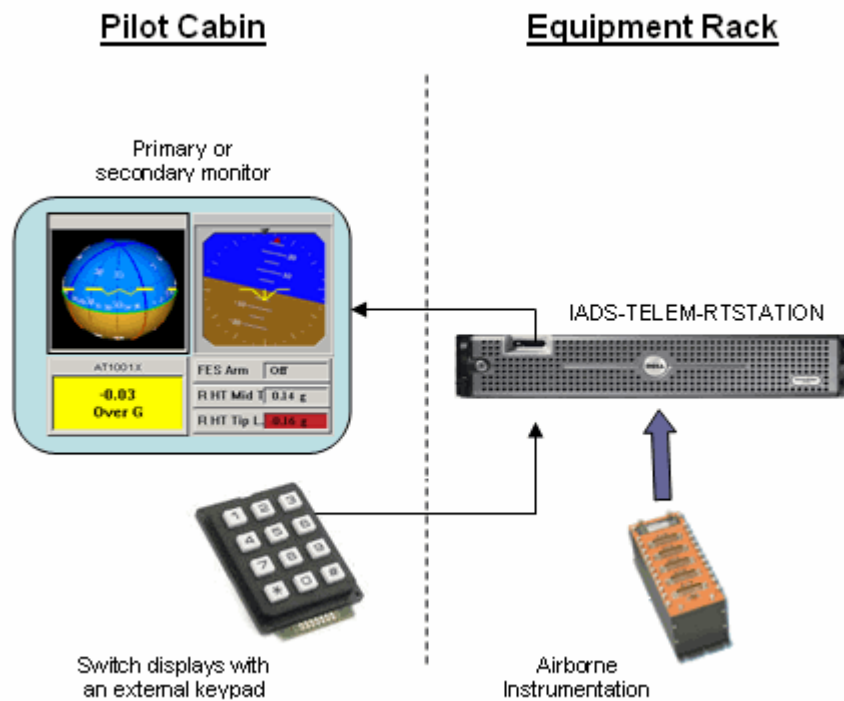


Figure 2-1 Notional System Diagram

2.2. System Components

- 1) IADS RT Station (product code: IADS-TELEM-RTSTATION)
- 2) On-board computer, either a rack mount PC or Laptop
- 3) External USB Keyboard (optional, for remote display changes)
- 4) Secondary Monitor (optional, for remote display changes)
- 5) Example IADS Configuration file to demonstrate setup; available for download at: <http://iads.symvionics.com/prodlit.html>

3. Installation

The software is contained on the disk labeled: IADS-TELEM-RTSTATION, and is used to install IADS on the on-board PC. The IadsKeypadInterface.dll is included in IADS and registers automatically upon installation of the IADS application.

Note: Hardware installation of the PC, optional remote monitors and keypad are site specific.

To assist in display page development, a configuration file is provided to demonstrate how to switch between Analysis Windows or display pages (tabs) using the keypad interface. See section 5- Instruction for Use.

4. Setup

Note: To start using the IadsKeypadInterface with the demonstration configuration file provided by IADS, see Section 5 - Instructions for Use.

4.1. To create the KeypadInput derived parameter:

- 1) On the Dashboard click the **Configuration** button.
- 2) Open the **Data** folder, then click Parameter Defaults.
- 3) Copy and paste an existing parameter.
- 4) In the *Parameter* column, enter the name KeypadInput.
- 5) In the *Data Source Type* column, select **Derived**.
- 6) In the *Data Source Argument* column enter:
GetCursorPosX(), IadsKeypadInterface.KeyPad2(1.0)
- 7) Click a Save option.

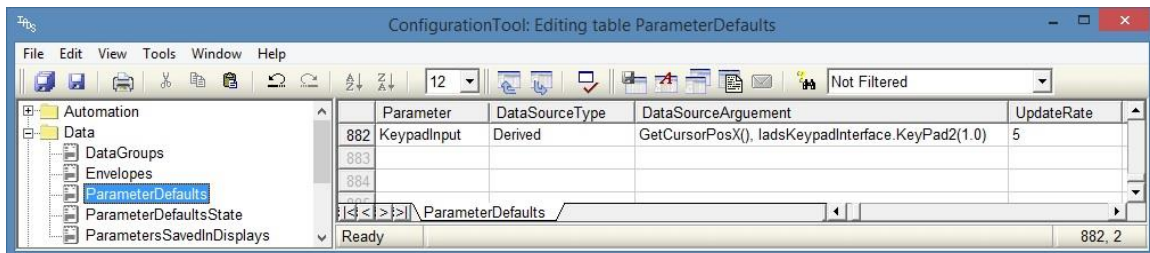



Figure 4-1 Keypad Interface Derived Function

4.2. To build the Keypad Controller Analysis Window:

- 1) On the Dashboard click the **Display Builder** button.
- 2) Drag and drop an Analysis Window (AW) onto your Desktop and name it *DisplayControllerWindow*.
- 3) Right-click in the title-bar of the AW > **Displays > Run While Window Minimized** and select this option (check-mark).
- 4) Create an Alphanumeric display, for example, and add the *KeypadInput* parameter to it to view the input of the keypad.
- 5) Click the **ActiveX Controls** tab on the Display Builder. Drag an Action object  onto the *DisplayControllerWindow*. In the next step the Action object is setup to switch Analysis Windows based on a data value (see figure 4-4).

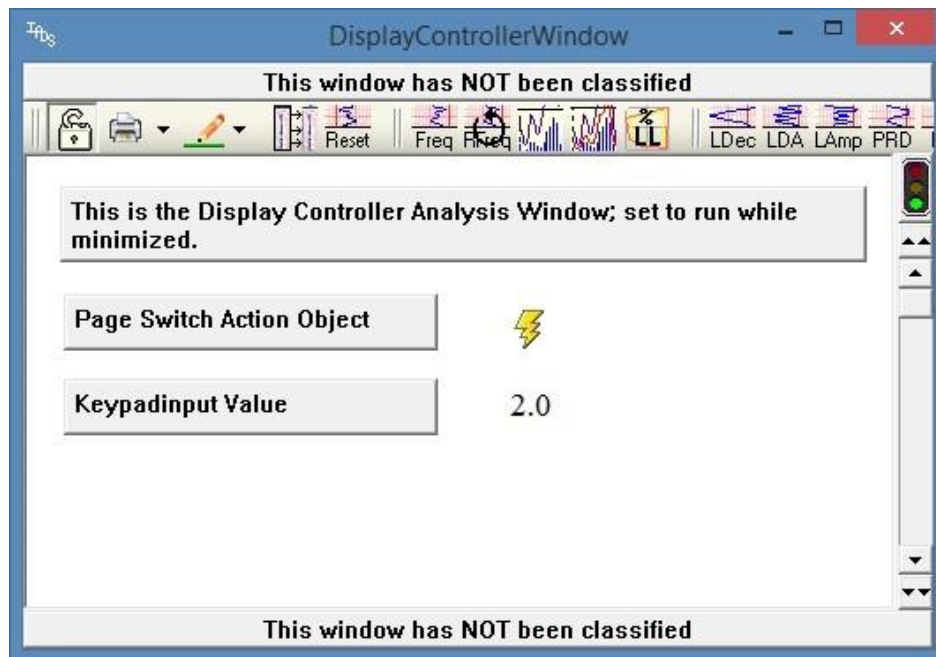


Figure 4-2 Display Controller Analysis Window

4.3. To setup the Action object on the Keypad Controller AW:

- 1) Right-click on the action object > **Properties**.
- 2) Using the Parameter Tool, drop the *KeypadInput* parameter onto the “*ExecuteAction*” property. Click the “*ActionType*” property (above it) and select **GoToWindow** from the drop down.
- 3) Drop the *KeypadInput* parameter onto the “*ActionArgument*” property.

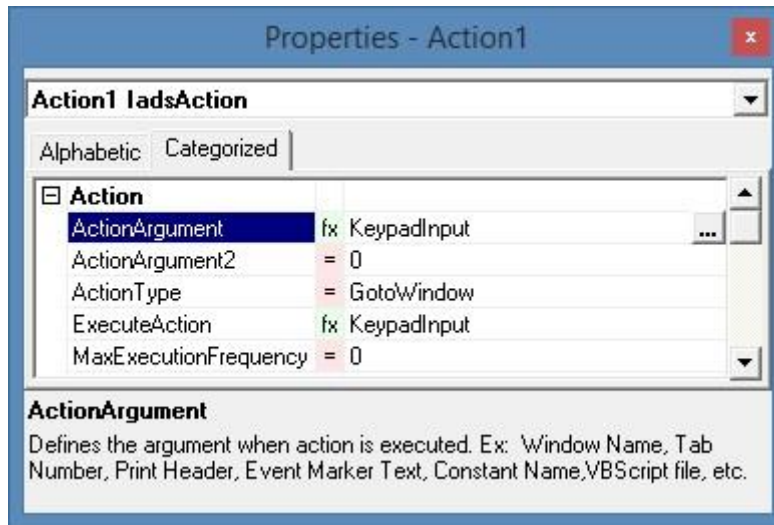


Figure 4-3 Action Object Property Dialog

- 4) Click the ellipses button to the very right of the “ActionArgument” property to set the property dynamics.
- 5) In the Dynamics Wizard click the **Range of Data** option > **Next**.
- 6) Click the Add Range Entry button to add a “row”; repeat as necessary. Set the *Min*, *Max* and *Property Value* entries as shown in the example below (add your project Analysis Window names) and click Finish.

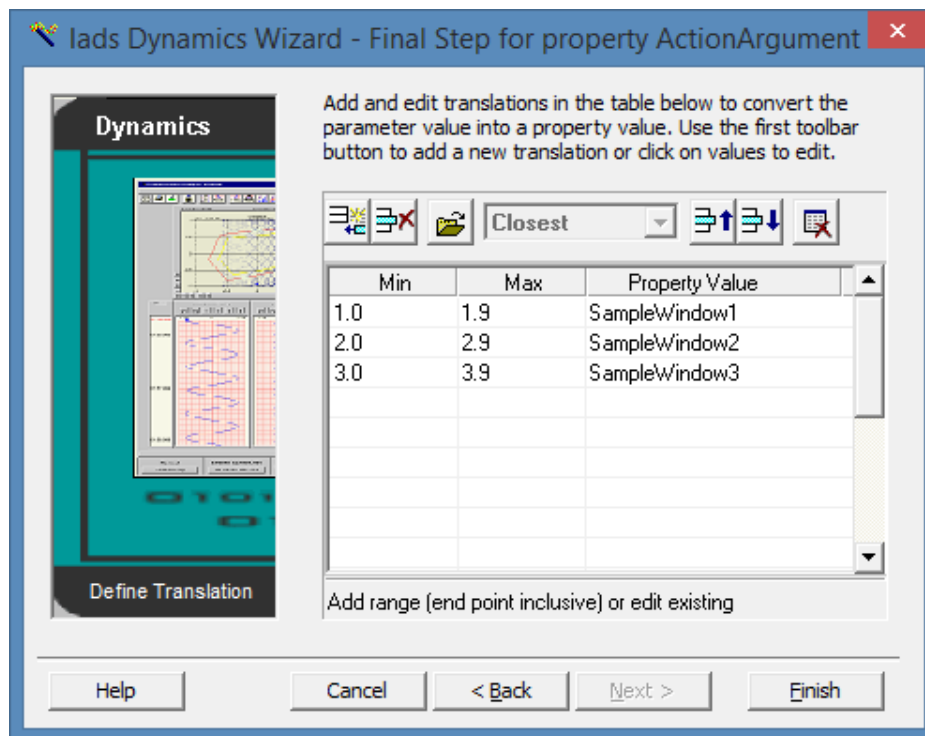


Figure 4-4 ActionArgument Property Dynamics

Note: Displays can be moved to a secondary monitor. Consider using the “Floating Window Style” available from the Analysis window title-bar right-click menu to remove Analysis Window buttons and gain more screen real estate for small secondary monitors.

5. Instructions for Use

The IADS Playback Client can be used to run IADS with the `IadsKeypadInterface` demonstration configuration file; or your own project configuration file. If you are using the `IadsKeypadInterface` `pfConfig` file provided for demo/setup purposes the `KeypadInput` parameter, and the `DisplayControllerWindow` and sample Analysis Windows are already created and ready to use. The entire IADS display set and functions are available; there are no limitations.

Two functions are available in the `IadsKeypadInterface`:

Keypad: GetCursorPosX(), IadsKeypadInterface.KeyPad(1.0)

The “keypad” function requires the ‘#’ pound key when entering a value to switch Analysis Windows or pages. Use the key sequence “# <number> <Enter>” to switch to an assigned page. For example: “# 3 <Enter>” will switch to the Display assigned to “3” by the action object; or to the third tab as assigned by its action object.

Keypad2: GetCursorPosX(), IadsKeypadInterface.KeyPad2(1.0)

The “Keypad2” function does not require the ‘#’ pound key when entering a value to switch Analysis Windows or pages. Use the key sequence “<number> <Enter>” to switch to an assigned page. For example: **2 <Enter>**

Note: The **NumLock** key must be enabled unless an external keypad is available and connected via USB port (ensure that the NumLock key is disabled).