

IntelliVibe Guide

Technical Support

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*Note if you have purchased the Diagnostic System skip Chapter 2 + 3

Chapter 1

Introduction

Getting Started

- Before setting up your system please make sure that all cables are disconnected
- Check to ensure all power supplies are switched off

What's Included

The complete IntelliVibe Control system includes the following:

- IntelliHub (1)
 - 48VDC power cable (1)
 - Flexible RJ45 cables (8)
 - Accelerometer cables (2)
- IntelliDrive (1)
 - Power cable (1)
- Actuators (6)

Chapter 2

IntelliHub

Installation:

The IntelliHub comes preassembled, however there are a few steps that need to be taken to properly connect the outgoing cables.

1. There are six RJ45 to flex connector patch cables, these should be attached to any of the twelve RJ45 actuator ports, when attaching a cable to an actuator match the grey stripe on the flex cable with the left pin of the actuator cable.
2. There are two accelerometer cables that should be attached to the accelerometer output connectors
3. There are two RJ45 patch connectors that are connected to the out and in port of the of the IntelliDrive
4. Before power up connect the IntelliDrive power cord to the IntelliHub
5. Last connect the 48V input power cable from the power supply. (Note: when cycling the power always do so by removing the 48V input cable.)

Operation:

Operation is fairly simple, once the cables are connected the user can switch between channels and monitor the control and accelerometer outputs over the BNC jacks, here are a few more steps to utilize all the features of IntelliHub.

1. Once all cables are connected, supply 48VDC to the input jack
2. The IntelliHub allows the user to input two control signals, these signals can be toggled using the two position dip switch.
3. When the switch is toggled in one direction the user can then use the twelve position dip switch to turn that signal on and off to the actuators.

Monitoring Actuators:

It is possible to check each individual actuator to make sure they are functioning properly. To do so first jump pins 1 and 15 together, this sets the IntelliHub into test mode. Then with an oscilloscope probe you can check each pin which corresponds to the numbered actuator to view functionality. If the dip switch is set to channel one then the oscilloscope should display a 5 Hz sine wave, if it is set to channel two the scope should display a 50 Hz sine wave.

Chapter 3

IntelliDrive

Installation:

It is necessary to perform the following software installations to design and program unique controllers.

1. Turn on Japanese characters in XP
 - Control Panel, Regional & Language, Languages, Check "Install file for East Asian languages"
 - In advanced, change the language for non-unicode programs to Japanese
2. Install the s-box support Library
 - Insert s-BOX CD
 - In the support directory on the CD, run SETUP.EXE
 - Choose the default selections
3. Install Code Composer Studio
 - Click Launch
 - Click Install Products
 - Install the default/typical settings for the following programs
 - C6000 Code Composer Studio
 - Flashburn
 - DSK6713 Drivers and Target
4. Plug the s-box into the IntelliHub and plug the IntelliHub into a 48V supply.
5. Connect the s-box and computer using a USB cable
6. The computer says that new hardware is found. Follow the instructions.
 - If the basic installation does not work, try the advanced installation, specifying this directory: C:\CCStudio_v3.1\specdig\xds510usb
7. Click on DSK6713 diagnostic icon on desktop and click start to ensure proper functionality
 - If this does not work, try manual install from C:\CCStudio_v3.1\specdig\xds510usb
8. Open Code Composer Studio (CCS) and go to Option/customize and check box "connect to target when control window is open".
9. In Code Composer Studio, you can run the samples.

- File/open then go to this directory: C:\sBOX\exsamples. Open a .pjt (project) file from one of the subdirectories.

- In order to recompile, do the following

a) Go to the Project/ Build Options/ Preprocessor enter C:\sbox\h in the "Include Search Path (-i)" box

b) Edit C:\sBOX\h\sbox.h and comment out (as // before line):

```
//extern volatile void ist_base();
```

c) Recompile by going to Project/Build

Note: (a) and (b) only need to be done this one time, during initialization NOT during every rebuild.

10. Install pass-box software (phase 1)

- On s-BOX CD, go to passbox\Matlab_R14\win2000 and run SETUP.EXE

- Choose the default selections

11. If installing for Matlab V2006a, update the following files

- Insert the supplemental CD and open the "sbox" folder and overwrite the following files in their respective c:\winpass folders

C:\Winpass\sbox\matlab\extern\include\tmwtypes.h

C:\Winpass\sbox\matlab\rtw\c\grt\grt.tlc

C:\Winpass\sbox\matlab\rtw\c\tlc\fixpt\fixptlib.tlc

C:\Winpass\sbox\matlab\rtw\c\tlc\mw\biosig.tlc

12. Install pass-box software (phase 2)

- Run c:\winpass\sbox\setup_passbox.exe

Locate the Matlab and CSS base directories

(e.g. c:\MATLAB\R2006a and c:\CCStudio_v3.1)

- Press the left button

- Reboot the computer

13. Fix bug in sbox.h

- Edit c:\Winpass\sbox\sboxSrc\sbox.h and comment out (as // before line):

```
//extern volatile void ist_base();
```

- Note: This is a different file from the sbox.h that was edited in step 9.

14. Update Path

- Go to "My Computer". Right-click and select Properties. In the advanced tab, click the "environmental variables" button.

- In system variables (NOT user variables), select Path and click edit.

- At the end of the current information, add c:\CCStudio_v3.1\c6000\cgtools\bin;

15. Update cache path in Matlab

- Run Matlab R2006a

- Go to File/Preferences, click the General tab, and click on "Update Toolbox Path Cache" button.

16. Test toolbox

- At MATLAB prompt, type "pass". The script changes the directory.
- Open adda.mdl, a sample diagram
- Build model (ctrl-b or Tools / Real-Time Workshop / Build Model)
- Open CSS, Choose file, download code, and locate adda.out

17. To flash code (automated method)

- Copy the burn.bat and burn.cdd from \\halfon\emcstorage\Software\s-box\flash to files into C:\winpass\sbox\tool
- Change the Simulink model's template makefile to sbox_flash2.tmf in configuration parameters of the model you're compiling

18. To flash code (manual method)

- Before building model, change rtw template to sbox_flash.tmf
- After build, in the directory where FILENAME.out is run this command
hex6x FILENAME.out -o FILENAME.hex \sbox\lib\infohex2.cxd
- Then in code composer
 - connect to target
 - run the flashburn utility (Tools, flashburn)
 - Create a new cdd file
 - File to burn is FILENAME.hex that was just created
 - FBTC program is
C:\CCStudio_v3.1\bin\utilities\flashburn\c6000\dsk6713\FBTC6713.out
 - Choose Program, download FBTC
 - Program, Erase Flash
 - Program, Program Flash
 - Power cycle s-box

Chapter 4

Actuators

Installation:

The actuators can be connected directly to the RJ45 to flex connector cable, and our fully functional when power is supplied to the IntelliHub. They are attached and removed from a structure by using the electrical release epoxy.

(Please refer to the PDF files in this CD to learn how properly apply the adhesive)

Chapter 5

IntelliPower

Installation

The IntelliPower is a standalone unit used to control up to six actuators. Two different BNC signals can be fed into the front of the unit and they can be toggled by the corresponding switches.

The actuators are connected to any of the six RJ45 terminals and the LED's display the connection

Green LED – Power supplied to actuator

Green and Yellow LED – Power and Signal supplied to actuator

The user also has the option to send the signal in two different voltage modes depending if a bias voltage is being sent along with the signal. If no bias voltage is present switch the toggle switch to the 0 – 5V setting, otherwise provide a 2.5V offset voltage along with the signal. The IntelliPower is powered by a Power over Ethernet supply which is also provided.