Utah Scientific

ESI-2020

System Setup and Operations Guide

ESI-2020 Setup and Operations Guide

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Notice

FCC Compliance (USA) and Digital Equipment Compliance (Canada)

This equipment has been tested and found to comply with the limits for a Class A, digital device, pursuant to Part 15, Subpart B of the FCC Rules and the Canadian EMC Requirement (ICES-003). These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case, the user will be required to correct the interference at their own expense. Shielded cables must be used to ensure compliance with the FCC Class A limits.

Declaration of Conformity

Utah Scientific, Inc.

4750 Wiley Post Way, Suite 150
Salt Lake City, Utah 84116-2878 U.S.A.

We declare our sole responsibility that the Utah-400 Digital Routing Switcher is in conformance with the following standards:

Emission

- EN55022:1994+A1&A2

Immunity

- EN55024:1998
- EN61000-3-2
- EN61000-3-3

Safety

- IEC 60950-1:2001 /EN 60950-1:2001

Following the provisions of the Directive(s) of the Council of the European Union:

- EMC Directive 89/336/EED
- Low Voltage Electrical Directive 72/23/EEC

Utah Scientific, Inc. hereby declares that the product specified above conforms to the above Directive(s) and Standard(s).

$$C\epsilon$$

Important Safeguards and Notices

This section provides important safety guidelines for the Operator and Service Personnel. Specific warnings and cautions are found throughout the guide where they apply, but may not appear here. Please read and follow the important safety information, specifically those instructions related to risk of fire, electric shock, or injury to persons.

Safety Symbols

- Hazardous Voltage symbol

- Caution symbol. The product is marked with this symbol when it is necessary to refer to the manual to prevent damage to the product.

Warnings

Please observe the following important warnings:

- Any instructions in this guide that require opening the chassis, changing a power supply, or removing a board, should be performed by qualified personnel only. To reduce the risk of electric shock, do not perform any service unless you are qualified to do so.

- Heed all warnings on the unit and in the operating instructions.

- Do not use this product in or near water. Disconnect AC power before installing any options or servicing the unit unless instructed to do so by this manual.

- This product is grounded through the power cord ground conductor. To avoid electric shock, plug the power cord into a properly wired receptacle before connecting the product inputs or outputs.

- Route power cords and other cables so they won't be damaged.

- The AC receptacle (socket) should be located near the equipment and be easily accessible.

- Disconnect power before cleaning. Do not use any liquid or aerosol cleaner - use only a damp cloth.

- Dangerous voltages exist at several points in this product. To avoid personal injury, do not touch exposed conductors and components while power is on. Do not insert anything into either of the systems two-power supply cavities with power connected.

- Do not wear hand jewelry or watches when troubleshooting high current circuits, such as power supplies. During installation, do not use the door handles or front panels to lift the equipment as they may open abruptly and injure you.

- To avoid fire hazard when replacing fuses, use only the specified correct type, voltage and current rating as referenced in the appropriate parts list for this product. Always refer fuse replacement to qualified service personnel.

- Have qualified personnel perform safety checks after any service.

Cautions

Please observe the following important cautions:

- When installing this equipment do not install power cords to building surfaces. To prevent damage when replacing fuses, locate and correct the problem that caused the fuse to blow, before reconnecting power.

- Use only specified replacement parts

Notices

Please observe the following important notes:

- When the adjacent symbol is indicated on the chassis, please refer to the manual for additional information.

- For the HD-2020 Chassis and Master Control Panel, refer to "Connecting and Disconnecting Power" - Chapter 2 (Hardware Installation).

Company Information

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Utah Scientific, Inc. warrants to the original purchaser that the Utah Scientific hardware is free from defects in materials and workmanship and will perform substantially in accordance with the accompanying written materials under normal use and service for a period of ten (10) years from the date of shipment. Any implied warranties on hardware are limited to ten (10) years. Some states/jurisdictions do not allow limitations on duration of an implied warranty, so the above limitation may not apply to certain specific purchasers.

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Utah Scientific warrants that the software will perform substantially in accordance with the accompanying written materials for a period of one (1) year from the date of shipment.

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For the first one (1) year after purchase of the software and the first ten (10) years after the date of purchase of the hardware, Utah Scientific's and its suppliers' entire liability and purchaser's exclusive remedy shall be, at Utah Scientific's option, either:

- Return of the price paid, or

- Repair or replacement of the software or hardware that does not meet the above warranties and is returned to Utah Scientific under the returned materials authorization (RMA) process with freight and forwarding charges paid.

After the initial warranty periods, purchaser's exclusive remedy is the repair or replacement of the hardware upon payment of a fixed fee to cover handling and service costs based on Utah Scientific's then-current price schedule. The above warranties are void if failure of the software or hardware has resulted from an accident, abuse, or misapplication. Any replacement software or hardware will be warranted for the remainder of the original warranty period or thirty (30) days, whichever is longer.

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Table of Contents

The ESI-2020 Machine Control

Introduction

The ESI-2020 is a multi-purpose interface device that is designed to support a number of communications functions in Utah Scientific router/master control systems.

The ESI-2020 hardware platform is housed in a 1RU rack mount chassis with dual power supplies, a main logic board, and up to three device interface boards. A front panel display is used to show device status and to provide feedback on a number of diagnostic and set-up procedures.

The main logic board supports several different embedded software packages that tailor the ESI-2020 to certain applications. Some of the specific configurations of the ESI-2020 are described in the following pages.

The ESI-2020 Includes:

ESI-2020 Chassis

- Translator

- (3) RS-422/232 Serial Boards

- (2) Power Supplies

- (1) Front Cover

- (2) AC Power cords

- (12) Standard Machine RS-422 Adapters

- (6) Automation Loop-thru RS-422 Adapters

- (1) Time Code connector

- (1) ESI-2020 Manual

- (1) Debug Port -- RJ-45 to 9-Pin adapter (140100-2)

Note: Serial boards can be configured for RS-232, though adapters are not provided. See Section 5 (Specifications, page 5-7) for the adapter pin-outs.

Installation

AC Power and Ethernet connections

The ESI-2020 power and Ethernet connections are standard.
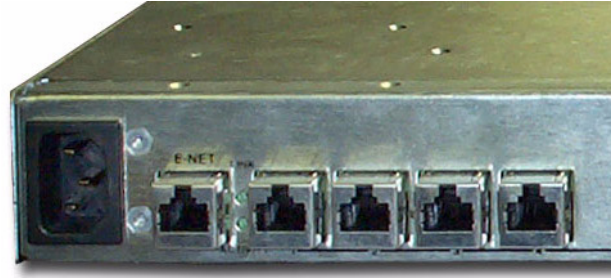

Figure 1-1.   Power and Serial ports

Time Code

The Time Code port is used for system logging and as a timing reference for machine control. (LTC - *Linear Time Code*)

MC-500/Canbus

Not used at this time.

Serial Ports

There are two serial port options available:

1. (Standard Machine) Allows the connection of up to (12) machines. This is a standard connection using a male RJ-45 to 9-pin D adapter. *This can be 232 or 422, though the default is 422.*

2. (Automation Loop-Thru) Allows the connection of up to (6) machines with (2) ports per machine (422 only).

    - Port 1 = automation (odds)

    - Port 2 = to machine (evens)
        - Port 1,2 = pair 1
        - Port 3.4 = pair 2
        - Port 5,6 = pair 3
        - Port 7,8 = pair 4
        - Port 9,10 = pair 5
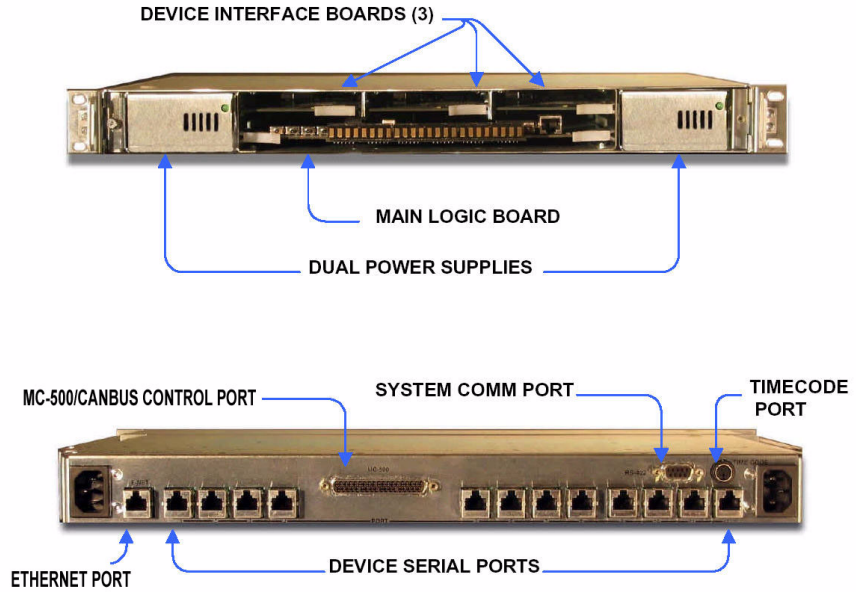   - Port 11,12 = pair 6

Front and Rear Panel controls

Figure 1-2.   Front and Rear panel layout

2

ESI Quick Setup

Six Steps for System Setup

The following description details the hardware connections from the ESI2020 to other equipment. A PC with an Ethernet Port and at least one Serial Port will be required to verify the setup and configure the ESI2020. (This can be the same machine used for configuring other Utah Scientific equipment.)

1. Unpack the ESI2020 and install it in a rack.

2. Connect the Configuration PC to the ESI2020 as described in the System Installation Guide.

   a. Setup the Configuration PC for the ESI2020 and continue once that is complete. ("Install2020.exe for the ESI2020, as described in the System Installation Guide.")

3. Assign the chassis IP Address.

   a. Launch Tera Term Pro and connect to the ESI 2020.

   b. At the Teraterm window type "chassis -r" (Read the current IP Address.)

   c. Type "chassis –ip1 XXXX" (XXXX = IP Address to be assigned to this chassis. e.g. chassis –ip1 192.168.4.72)

   d. Reset the ESI2020. (Press the Reset button next to the Debug Port at the front of the ESI2020.)

   e. Run "netverify.bat" to verify that the ESI2020 is setup properly. Earlier PC setup should have put the following directory on the Configuration PC: "C:\usi\xxxx-esi01\updates\netverify.bat". (xxxx = Customer Call Letters)

4. Connect the Time Code port to a Time Code Signal.

 a. Wire the Timecode signal to the provided mating connector. The Circular Din pinout can be found on page 1-12.

 b. Apply the Time Code signal to the ESI2020 and verify.

  i. At the TeraTerm window type "mem" and then return. (This is a hardware test utility.)

  ii. Then type "rl 48000090" and then return. (This is the Time Code Register.)

  iii. The address and Time Code value should be displayed. (e.g. 48000090: 09284120 à 09=hrs, 28=min, 41=sec, 20=frames)

5. Connect the ESI2020 serial ports to the machines.

 a. If the machines are standard machines with RS422 interface do the following: (This is the default setup for controlling 12 machines.)

  i. Connect the serial ports to the machines with the RJ45 to 9pin-D Standard Machine Adapters. (140081-01)

  ii. The serial boards come from the factory strapped for RS422.

 b. If the machines are used with automation do the following: (The machine interface should be RS422. The machine control drops to one machine for a pair of ports. The even port will connect to the machine and the odd port will connect to the automation.)

  i. Connect the machines that will be configured for automation to the ESI2020's even ports (2,4,6,8,10,12). Connect through the RJ45 to 9pin-D Standard Machine Adapters. (140081-01)

  ii. Connect the automation that will be configured for automation to the ESI2020's odd ports (1,3,5,7,9,11). Connect through the RJ45 to 9pin-D Automation Adapters. (140081-02)

    c. If the machines are RS232 interfaces do the following: (No automation support if the serial ports are strapped for RS232.)

       i. RS232 to 9pin-D adapters are not supplied. (Most machines are a RS422 interface.) Purchase these separately at Utah Scientific if needed (140081-03).

       ii. Set the jumper straps on the serial boards to RS232.

       iii. Connect serial ports to the machines.

6.   Configure the ESI2020 and the MC2020 for the machines to control. (Go to the ESI2020 configuration section.)

ESI Configuration

Overview

The ESI2020 comes from the factory configured for 12)Sony Machines with the BVW75 Protocol. This enables most customers the ability to hook up machines and verify control. To configure the ESI2020 it requires editing a default text file with the necessary changes. This will eventually be incorporated into the UCON Configuration Software to simplify the configuration process. The following description details the process of updating the configuration encoding and burning it into ESI2020 System.

1.   The Configuration PC should be setup (as described in the System Installation Guide) before this procedure can be followed.

2.   Before the machine control can function properly it is important to have the MC2020 configured for machine control with the same machine names as the ESI2020. Refer to the MC2020 manual for configuration information. The following is an example of a MC2020 configuration (e.g. "wgtv-sd01.conf") with machines VT 0-3 and IN 4-10:

Utah Scientific MC2020 Configuration Data (Pieces of the "wgtv-sd01" file.)

#

[ROUTER_SOURCE_DEFINITIONS_START]

SOURCE8, SOURCE4, INPUT NUMBER, ACTIVE LEVELS

L1   L2   L3   L4   L5   L6   L7   L8   L9   L10 L11 L12 L13 L14 L15 L16

---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ---- ----

VT   0,VT 0,0 ,0 ,0 ,0 , , , , , , , , , , , ,

VT   1,VT 1,1 ,1 ,1 ,1 , , , , , , , , , , , ,

```
VT   2,VT 2,2  ,2  ,2  ,2  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
VT   3,VT 3,3  ,3  ,3  ,3  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN   4,IN 4,4  ,4  ,4  ,4  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN   5,IN 5,5  ,5  ,5  ,5  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN   6,IN 6,6  ,6  ,6  ,6  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN   7,IN 7,7  ,7  ,7  ,7  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN   8,IN 8,8  ,8  ,8  ,8  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN   9,IN 9,9  ,9  ,9  ,9  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  10,IN10,10  ,10  ,10  ,10  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  11,IN11,11  ,11  ,11  ,11  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  12,IN12,12  ,12  ,12  ,12  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  13,IN13,13  ,13  ,13  ,13  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  14,IN14,14  ,14  ,14  ,14  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  15,IN15,15  ,15  ,15  ,15  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  16,IN16,16  ,16  ,16  ,16  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  17,IN17,17  ,17  ,17  ,17  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  18,IN18,18  ,18  ,18  ,18  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  19,IN19,19  ,19  ,19  ,19  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  20,IN20,20  ,20  ,20  ,20  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  21,IN21,21  ,21  ,21  ,21  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  22,IN22,22  ,22  ,22  ,22  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  23,IN23,23  ,23  ,23  ,23  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  24,IN24,24  ,24  ,24  ,24  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  25,IN25,25  ,25  ,25  ,25  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  26,IN26,26  ,26  ,26  ,26  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  27,IN27,27  ,27  ,27  ,27  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  28,IN28,28  ,28  ,28  ,28  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  29,IN29,29  ,29  ,29  ,29  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  30,IN30,30  ,30  ,30  ,30  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
IN  31,IN31,31  ,31  ,31  ,31  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,
```

```
[MACHINE_CONTROL_DEFINITIONS_START]
#
# Examples
#
# EMC Commands  PLAY, STOP, FFWD, REWD, FDY-ON, RDY-OFF, SHTL-FWD, SHTL-REV, CTL-OVRD, JOG-FWD, JOG-
REV, STAT-RQS, CUE
# EMC controlled Router device
# RELAY controlled Router device
# RELAY controlled Audio Only device
# RELAY controlled Take Relay device
#
# DEVICE NAME 8 Character
# |   DEVICE NAME 4 Character
# |   |   MACHINE TYPE (VTR, TAKE_RELAY, AUD_ONLY)
# |   |   |   INTERFACE TYPE (RELAY, EMC)
# |   |   |   |   CONTROL PORT (UNUSED AT THIS TIME)
# |   |   |   |   |   PROTOCOL (UNUSED AT THIS TIME)
# |   |   |   |   |   |   PREROLL TIME (SECONDS:FIELDS)
# |   |   |   |   |   |   |   PLAY   STOP  FORWARD  REWIND   READY   RECORD   NEXT   RECUE   SELECT
SPARE-2
# |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
# |   |   |   |   |   |   |   (PLAY, STOP, FFWD, REWD, RDY-ON, SHTL-FWD, SHTL-REV, CTL-OVRD, CUE) |   |
# 8 ,4 , 8 , 8 , 8 , 8 , 8 , 8 , 8 , 8 , 8 , 8 , 8 , 8 , 8 , 8 , 8 , 8
#------,----,-------,-------,-------,-------,-------,-------,-------,-------,-------,-------,-------,-------,-------,-------,-------,-------
#VTR   6,VT 6,VTR   ,EMC   ,   ,    ,02:00 ,PLAY  ,STOP  ,FFWD  ,REWD  ,RDY-ON ,   ,   ,    ,CTL-
OVRD,
#VS   21,VT21,VTR   ,RELAY ,   ,    ,01:15 ,6    ,    ,    ,    ,    ,    ,    ,    ,    ,
#INSTRPLY,IN 1,AUD_ONLY,RELAY ,   ,    ,00:00 ,21    ,    ,    ,    ,    ,    ,    ,    ,    ,
#TAKE RLY,   ,TAKE_RLY,RELAY ,   ,    ,00:00 ,20    ,    ,    ,    ,    ,    ,    ,    ,    ,
VT    0,VT 0,VTR   ,EMC   ,   ,    ,02:00 ,PLAY  ,STOP  ,FFWD  ,REWD  ,RDY-ON ,    ,SHTL-FWD,SHTL-REV,    ,
VT    1,VT 1,VTR   ,EMC   ,   ,    ,02:00 ,PLAY  ,STOP  ,FFWD  ,REWD  ,RDY-ON ,    ,SHTL-FWD,SHTL-REV,    ,
VT    2,VT 2,VTR   ,EMC   ,   ,    ,02:00 ,PLAY  ,STOP  ,FFWD  ,REWD  ,RDY-ON ,    ,SHTL-FWD,SHTL-REV,    ,
VT    3,VT 3,VTR   ,EMC   ,   ,    ,02:00 ,PLAY  ,STOP  ,FFWD  ,REWD  ,RDY-ON ,    ,SHTL-FWD,SHTL-REV,    ,
IN    4,IN 4,VTR   ,EMC   ,   ,    ,02:00 ,PLAY  ,STOP  ,FFWD  ,REWD  ,RDY-ON ,    ,SHTL-FWD,SHTL-REV,    ,
IN    5,IN 5,VTR   ,EMC   ,   ,    ,02:00 ,PLAY  ,STOP  ,FFWD  ,REWD  ,RDY-ON ,    ,SHTL-FWD,SHTL-REV,    ,
IN    6,IN 6,VTR   ,EMC   ,   ,    ,02:00 ,PLAY  ,STOP  ,FFWD  ,REWD  ,RDY-ON ,    ,SHTL-FWD,SHTL-REV,    ,
IN    7,IN 7,VTR   ,EMC   ,   ,    ,02:00 ,PLAY  ,STOP  ,FFWD  ,REWD  ,RDY-ON ,    ,SHTL-FWD,SHTL-REV,    ,
IN    8,IN 8,VTR   ,EMC   ,   ,    ,02:00 ,PLAY  ,STOP  ,FFWD  ,REWD  ,RDY-ON ,    ,SHTL-FWD,SHTL-REV,    ,
IN    9,IN 9,VTR   ,EMC   ,   ,    ,02:00 ,PLAY  ,STOP  ,FFWD  ,REWD  ,RDY-ON ,    ,SHTL-FWD,SHTL-REV,    ,
IN   10,IN10,VTR   ,EMC   ,   ,    ,02:00 ,PLAY  ,STOP  ,FFWD  ,REWD  ,RDY-ON ,    ,JOG-FWD ,JOG-REV, CTL-
OVRD,    ,
IN   11,IN11,VTR   ,EMC   ,   ,    ,02:00 ,PLAY  ,STOP  ,FFWD  ,REWD  ,RDY-ON ,    ,SHTL-FWD,SHTL-REV,    ,
AESIN 1,   ,AUD_ONLY,RELAY ,   ,    ,00:00 ,20   ,    ,    ,    ,    ,    ,    ,    ,    ,
TAKE RLY,   ,TAKE_RLY,RELAY ,   ,    ,00:00 ,21   ,    ,    ,    ,    ,    ,    ,    ,    ,

[END_CONFIG_FILE]
```

3. After the MC2020 is configured properly and the Configuration PC is setup verify the connections between the Configuration PC and the ESI2020.
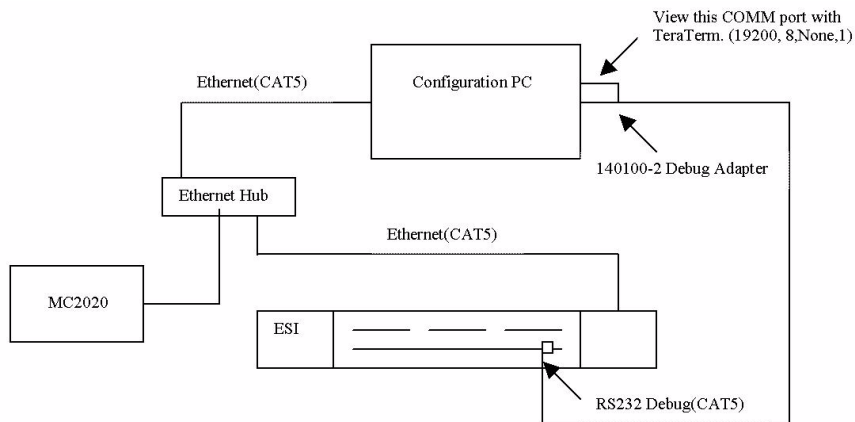
Figure 3-1.

4. Run ProNFS if it is not already running. (This is required for Ethernet communication between the PC and ESI2020)

   a. Go to –> "Start" –> "Programs" –> "ProNFS" –> "NFS-Server".

   b. Set the Export Directory to "C:\usi\XXXX-esi01" (XXXX = Customer Call Letters)

5. Edit the configuration file with a text editor. (Save a copy of this file for backup purposes.) The file is located at "C:\usi\XXXX-esi01\encode\XXXX-encode.conf", where XXXX = Customer Call Letters. Throughout the configuration file there are comments to help in any changes that need to take place. Review the following for clarification if needed.

   a. The "CUSTOMER_NAME" is usually the Customer Call Letters. (e.g. WGTV)

   b. The "SYSTEM_NAME" is usually XXXX-ESI01. (e.g. WGTV–ESI01)

   c. The "MACHINE_CONTROL_DEVICE_DEFINITIONS_START" has the machine information.

i. The "SYSTEM DEVICE NAME" should match the name of the machine assigned in the MC2020. (e.g. VT 01)

ii. The device information should match its associated machine.

iii. The Serial communications port identifier should match the ports to their machines.

iv. The "Loop_Thru Port Control Enabled" is disabled when each machine is connected to a port. When automation is used with the machines these should be set to "ENABLE". This will decrease the number of machines that can be controlled to six with the even ports connected to the machines and the odd ports connected to automation. Machine ports and automation ports should be grouped together in sets of two (e.g. ports 1-2, 3-4, 5-6, 7-8, 9-10, 11-12). The configuration example below has port 11 setup for automation and port 12 is the machine (e.g. IN10 = machine on port 12).

v. Assign "PREROLL TIME – FRAMES" as needed.

d. The MACHINE_CONTROL_SERIAL_PORT_DEFINITIONS_START" has the serial port information for each machine.

e. The "LOGFILE_TARGET_DEFINITIONS_START" has the path to the logging directory on the PC. The Action Enabled column should be set to "AUTO" for logging or left blank when logging is not required. (Note: The comments for this column indicated a YES/NO in early versions of this file. This column should have "AUTO" or be left blank. "YES/NO" will not work.)

f. The following is an example of a configuration file.

[CONFIG_DEFINITION_DATA_START]

[FLASH_VERSION_DATA_START]

the following fields are REQUIRED

the format for this section is a FIELD LABEL followed by FIELD DATA

the FIELD LABEL must have a ':' as the last character

the FIELD DATA must start with a '@' char and be no longer than 20 characters

#

FILE_FORMAT: @00.01

CUSTOMER_NAME: @xxxxxxxxxxxxxxxxxxx

SYSTEM_NAME: @xxxxxxxxxxxxxxxxxx

FILE_DATE: @MM/DD/YYYY

FILE_REVISION: @??

FILE_FORMAT: @00.01

CUSTOMER_NAME: @USI

SYSTEM_NAME: @WGTV-ESI01

FILE_DATE: @01/06/2004

FILE_REVISION: @01

[MACHINE_CONTROL_DEVICE_DEFINITIONS_START]

```
#
# This section defines the type and number of devices we will control in this ESI-2020
#
# SYSTEM DEVICE NAME (free form)
#   | ,DEVICE MANUFACTURER (free form)
#   |     | ,DEVICE MODEL NUMBER (free form)
#   |     |     | ,Device Communications Protocol to use (BVW75, LVDCP,
BVW75SIM=(Automation)???)
#   |     |     |     | , Serial communications port identifier
#   |     |     |     |     | ,Loop_Thru Port Control Enabled (DISABLE/ENABLE)
#   |     |     |     |     |     |
#   |     |     |     |     |     | ,PREROLL TIME – FRAMES
# 8 , 8 , 8 , 8 , 8 , 8 , 4
#------,-------,-------,-------,-------,-------,---
VT    0,SONY   ,BVW-75 ,BVW75  ,PORT_01 ,DISABLE ,60
VT    1,SONY   ,BVW-75 ,BVW75  ,PORT_02 ,DISABLE ,60
VT    2,SONY   ,BVW-75 ,BVW75  ,PORT_03 ,DISABLE ,60
VT    3,SONY   ,BVW-75 ,BVW75  ,PORT_04 ,DISABLE ,60
IN    4,SONY   ,BVW-75 ,BVW75  ,PORT_05 ,DISABLE ,
IN    5,SONY   ,BVW-75 ,BVW75  ,PORT_06 ,DISABLE ,
IN    6,SONY   ,BVW-75 ,BVW75  ,PORT_07 ,DISABLE ,30
IN    7,SONY   ,BVW-75 ,BVW75  ,PORT_08 ,DISABLE ,30
IN    8,SONY   ,BVW-75 ,BVW75  ,PORT_09 ,DISABLE ,30
IN    9,SONY   ,BVW-75 ,BVW75  ,PORT_10 ,DISABLE ,30
LOOP 10,SONY   ,BVW-75 ,BVW75SIM,PORT_11 , ENABLE
IN   10,SONY   ,BVW-75 ,BVW75  ,PORT_12 , ENABLE,
```

A unique name is required for the automation (e.g. LOOP 10). IN 10 will be the controlled machine.

[MACHINE_CONTROL_SERIAL_PORT_DEFINITIONS_START]

```
#

# Entries in this table are linked to

#  MACHINE_CONTROL_DEVICE_DEFINITIONS_START using the serial port number

#  field and are only used if an entry exists in the other table.

#

# Example config 2 machines using ports 3 and 7

# xxxxxxx,PORT_03 ,38400   ,8       ,ODD     ,1       ,DISABLE ,DISABLE

# xxxxxxx,PORT_07 ,38400   ,8       ,ODD     ,1       ,DISABLE ,DISABLE

# The system device name is not used  rogrammatically.  Just as a reference when

#  looking at this file

#

# SYSTEM DEVICE NAME (Don't Care at this time 5/22/2004)

# |  , SERIAL COMMUNICATIONS PORT NUMBER

# |     |  ,BAUD RATE

# |     |    |  ,BITS PER CHARACTER

# |     |    |     |  , PARITY TYPE (ODD, EVEN, NONE)

# |     |    |     |    |  ,STOP BITS PER CHARACTER

# |     |    |     |    |        ,XONN/OFF FLOW CONTROL
(ENABLE/DISABLE)

# |     |    |     |    |              ,RTS/CTS FLOW CONTROL
(ENABLE/DISABLE/RS485???)

#-------,-------,-------,-------,-------,-------,-------,-------

VT    0,PORT_01 ,38400   ,8       ,ODD     ,1       ,DISABLE ,DISABLE

VT    1,PORT_02 ,38400   ,8       ,ODD     ,1       ,DISABLE ,DISABLE

VT    2,PORT_03 ,38400   ,8       ,ODD     ,1       ,DISABLE ,DISABLE

VT    3,PORT_04 ,38400   ,8       ,ODD     ,1       ,DISABLE ,DISABLE

IN    4,PORT_05 ,38400   ,8       ,ODD     ,1       ,DISABLE ,DISABLE

IN    5,PORT_06 ,38400   ,8       ,ODD     ,1       ,DISABLE ,DISABLE

IN    6,PORT_07 ,38400   ,8       ,ODD     ,1       ,DISABLE ,DISABLE

IN    7,PORT_08 ,38400   ,8       ,ODD     ,1       ,DISABLE ,DISABLE
```

```
IN   8,PORT_09 ,38400  ,8    ,ODD  ,1   ,DISABLE ,DISABLE
IN   9,PORT_10 ,38400  ,8    ,ODD  ,1   ,DISABLE ,DISABLE
IN   10,PORT_11 ,38400  ,8    ,ODD  ,1   ,DISABLE ,DISABLE
IN   11,PORT_12 ,38400  ,8    ,ODD  ,1   ,DISABLE ,DISABLE
```

[LOGFILE_TARGET_DEFINITIONS_START]

This section defines the NFS address & directory the system

will use as remote file systems

Currently the log xfer function in the only target defined.

#EXAMPLE:

#192.168.004.010,/c/rt/usilogs/kyw-hd   ,YES/NO

#

IP   NFS LOGGING DIRECTORY (40 CHARS)   Action

ADDRESS   Enabled

#-------------,--------------------------------------,-------

192.168.004.165,/c/usi/kusiesi01   ,

[END_CONFIG_FILE]

6. Burn Encoding into the ESI2020.

   a. Get the PC's IP Address by typing "ipconfig" at a DOS Command Prompt. Note it here _____.

   b. Enter the ESI2020's IP Address here _____. If needed you can get it from the TeraTerm window on the PC. (The PC should be connected to the debug port on the front of the ESI2020 chassis.) Type "chassis –h", this will display some chassis information. The line starting with "ifconfig eth0" is followed by the IP Address. (e.g. "ifconfig eth0 192.168.004.072")

   c. From the PC run "burnenc_network.bat" located at "C:\usi\XXXX-esi01\encode\". (XXXX = Customer Call Letters) Follow the instructions until the update is complete.

7. The ESI2020 should reset and be configured at this point.

Machine Control Applications

In this configuration, the ESI-2020 is used to provide RS-422/RS-232 machine control links to devices that are under the control of the MC-2020 Master Control Switcher.

In machine configuration, up to 12 devices can be connected to each ESI-2020 unit, multiple units can be used to add capacity as needed. An optional automation loop-thru configuration of this device is for control of up to six machines with each machine assigned to a pair of ports. The first port is connected to an automation system, while the second port is connected to the machine.

In this application, the ESI-2020 listens to the status messages from the machines to provide feedback to the operator and when manual intervention is required the operator can take control of the machine from the MCP-2020 control panel.

Standard
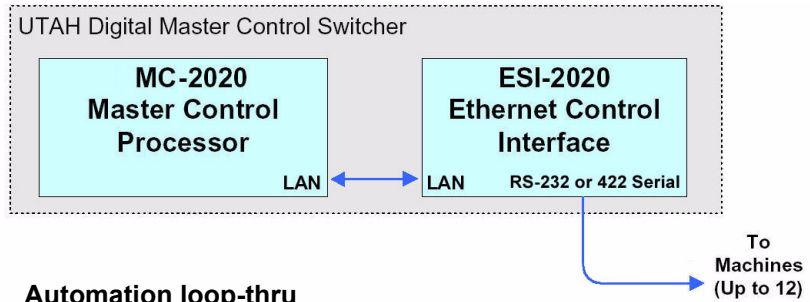
Automation loop-thru
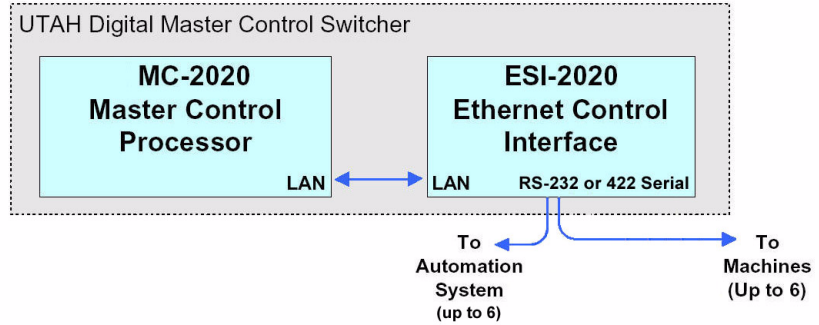
Figure 4-1. **UTAH Digital Master Control Switcher**

ESI Translator

The ESI Translator card contains jumpers for Watchdog reset, Processor type, and Canbus Terminated/Unterminated. These are set at the factory and should not be moved. The card contains a reset button, and a debug RS232 Port.
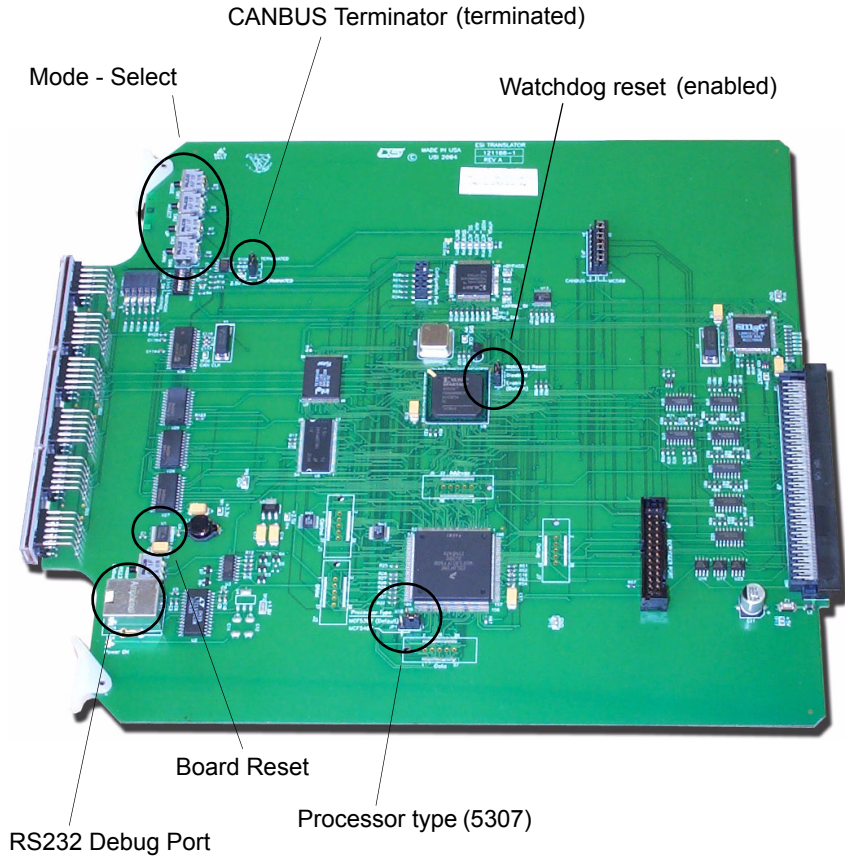
Figure 4-2.   ESI Translator board

The card also contains four switches (SW 1-4) for diagnostic and configuration purposes.

> **Note:**   Tthe Translator board's reset button must be pressed after replacing any card in the ESI-2020 chassis (board reset).

5

Product Specifications

Connectors

LAN and Serial Ports RJ-45

System Comm Port 9-pin Submin D Connector (female pins) *****

Timecode Port 5-pin Mini DIN Connector (female pins)

Power IEC

MC-500/Canbus Port - 37 pin D connector *****

Power Requirements

Redundant Power Supply (UL-listed and IEC950 approved)

Input 100-240 VAC, 50/60 Hz

Consumption 50 W Max

Physical Dimensions

EIA 19" Rack Space requirements 1RU

Chassis Depth 12" / 305 mm

Weight 10 pounds

Environmental

Operating Temperature Range 10-45° C

Relative humidity 0-90% (non-condensing)

Not used at this time

Pinouts

The table below contains the pinouts for the RS-422 connector.

(System Com Port)

Male on Cable   **Female on Chassis**
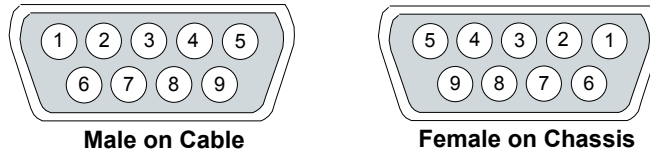
Table 5-1.   RS-422 Connector Pinouts

Pin #	Signal	Pin #	Signal
1	Ground*	4	Transmit Common*
7	Transmit (TX+)	2	Transmit (TX-)
8	Receive (RX-)	3	Receive (RX+)
6	Receive Common*	9	Ground*
5	Ground*	-	-

(The above detail is referenced *from* the ESI-2020)

*Grounds and Common are tied together.

Chapter 5

The table below contains the pinouts for the **RJ-45** Ethernet connector when a **Network Hub** is used. Both ends of the cable are wired in an identical manner.

Male on Cable   **Female on Chassis**
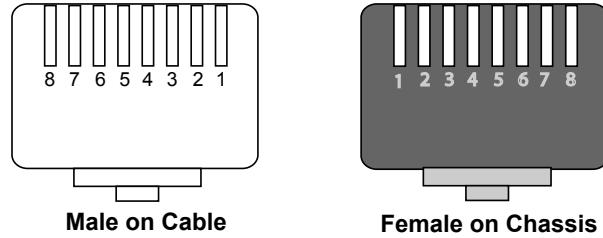
Table 5-2.   Ethernet Connector Pin Outs - Network Hub Wiring

Pin #	Signal	Pin #	Signal
1	TX+	5	Ground
2	TX-	6	RX-
3	RX+	7	Ground
4	Ground	8	Ground

Translator Debug Port (RS-232)

RJ45 - RA
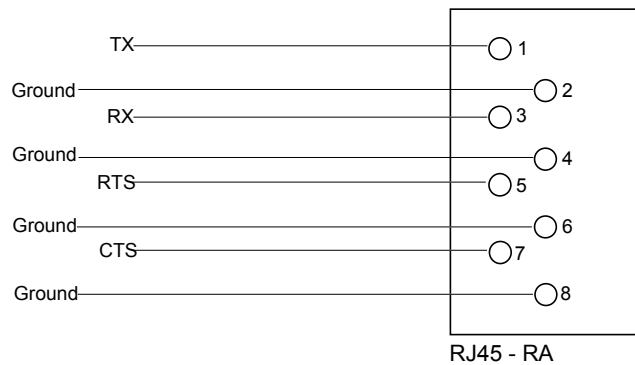
Figure 5-1.   Translator Debug Port

Serial Ports 1-12 (RJ-45)

The following table contains pin-outs for the RJ-45 Serial connector.
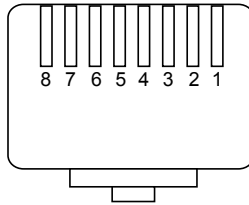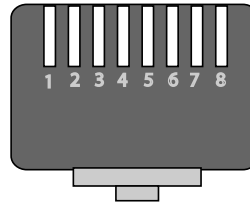
Male on Cable   **Female on Chassis**

Table 5-3.   Connector Pin-outs

RS-422		RS-232	
Pin #	**Signal**	**Pin #**	**Signal**
1	TX-	1	TX
2	NC	2	DTR
3	RX+	3	RX
4	NC	4	DSR
5	TX+	5	RTS
6	GND	6	GND
7	RX-	7	CTS
8	GND	8	NC
	RS-422		**RS-232**

Automation Connection (RS-422) - Part # 140081-02

The following table contains the automation RS-422 adapter pinout.
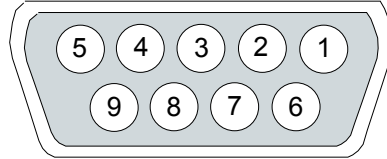
RJ-45 Connector		9-Pin Female D	
Pin	**Wire Color**	**Description**	**Pin**
1	Blue	RX-	2
2	Orange	No Connect	
3	Black	TX+	3
4	Red	No Connect	
5	Green	RX+	7
6	Yellow	GND	4
7	Brown	TX-	8
8	White	GND	1

(The above detail is referenced *from* the ESI-2020)

Standard RS-422 Connection (Machine) - Part # 140081-01

The following table contains the standard RS-422 adapter pinout.
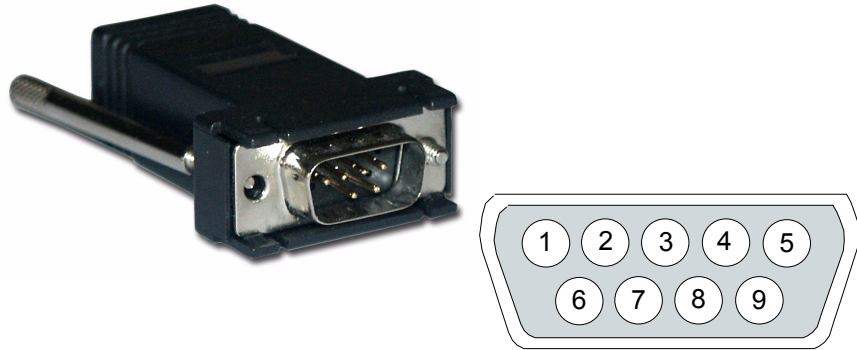
RJ-45 Connector		9-Pin Male D	
Pin	**Wire Color**	**Description**	**Pin**
1	Blue	TX-	8
2	Orange	No Connect	
3	Black	RX+	7
4	Red	No Connect	
5	Green	TX+	3
6	Yellow	GND	4
7	Brown	RX-	2
8	White	GND	1

(The above detail is referenced *from* the ESI-2020)

Standard RS-232 Machine Connection - Part # 140081-03

The following table contains the standard RS-232 adapter pinout.

(RJ-45 to 9-Pin D Adapter Cable)
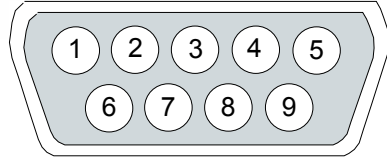
RJ-45 Connector		9-Pin Female D	
1	Blue	TX	3
2	Orange	DTR	4
3	Black	RX	2
4	Red	DSR	5
5	Green	RTS	7
6	Yellow	-	-
7	Brown	CTS	8
8	White	GND	5

Time Code

The following table contains the time code connector pin-outs.

6 Pin CirDin Connector Viewed from the Front of the Connector.

Male   Female
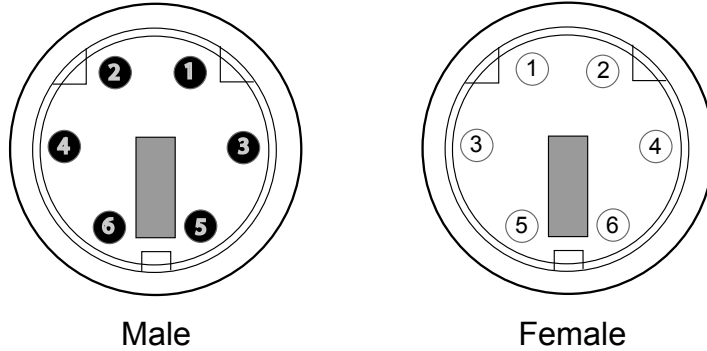
Table 5-4.   Time Code Pin-outs

Pin #	Signal
1	Ground*
2	Ground*
3	Ground
4	Time Code In -
5	Ground
6	Time Code In +

Index

Numerics