ACUTRONIC

Acutrol3000 RS-232 Interface

Technical Manual

TM-9411 Preliminary

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Introduction

The Acutrol3000 is equipped with some Standard Interfaces like Ethernet and GPIB. In case it is necessary to use a RS-232 Interface to communicate with the Acutrol3000, a special Hardware can be added to accomplish the Interface.

1. Acutrol3000 Communication

The Acutrol3000 uses a Ethernet connection to communicate between the GUI and the Real-Time Computer. Normally this connection is done via a Ethernet crossover cable unless a Router as described in TM-9384 is being used.

To add a new Interface device such as the RS-232 the existing Ethernet connection can be used. By simply replace the single crossover cable on the Back of the Acutrol with two normal cables and connect each of the cables to separate ports on an Ethernet hub/switch/router (or according to TM-9384). This opens the possibility to connect additional Interfaces to the Acutrol3000

The Acutrol3000 Real-Time computer uses the IP address 192.168.53.1. and the Acutrol3000 GUI uses the IP address 192.168.53.2.

2. RS-232 Interface Hardware

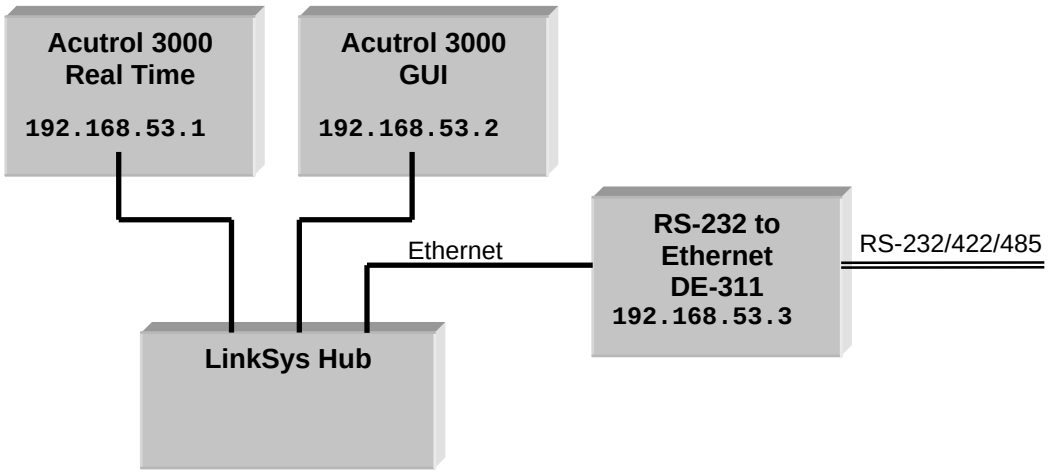
By using a RS-232 to Ethernet converter which connects to the Acutrol3000 via Ethernet, a RS-232 Interface can be added.

Acutronic recommends to use a MOXA Nport DE-311 RS-232/422/485 Device Server.

In addition to the DE-311 a Router or Hub has to be present. In case no Router (according TM-9384) is being used, Acutronic recommends the use of a Linksys 5-Port Switch, SD205.

Hardware Details:

- MOXA Nport DE-311, RS-232 Device Server (www.moxa.com)
- Linksys 5-Port Switch, SD205
- 1x Ethernet cable 0.3m length
- 2x Ethernet cable 0.6m length



3. RS-232 Interface Network

The Ethernet Port of the DE-311 has the TCPIP address of 192.168.53.3. It is fix and has to be configured to always talk to the Real-Time Computer with the address 192.168.53.1

When the Linksys Hub is being used no Hub configuration has to be done. In case a Router (according to TM-9384) is being used, then the Router has to be configured to reserve address 192.168.53.3 for the DE-311.

4. DE-311 Configuration

The DE-311 can either be configured via a TCPIP connection and the Software provided with the DE-311, or through a RS-232 console Port, or Telnet console connection.

By default the TCPIP address of the DE-311 is 192.168.127.254

By using the NPort Management Suite Software the DE-311 can be connected via a crossover Ethernet cable and the following settings can be applied:

4.1 Connecting to the DE-311

- Connect the DE-311 to your Computer via a crossover Ethernet cable
- Startup the Nport Management Suite, Configurator
- Use the  Search button to search for the DE-311
- When found double click the Device and make the following Settings.

4.1.1. Settings

Network Settings:
- Server Name: A3K_RS232_IF
- IP Address: 192.168.53.3
- Network: 255.255.255.0
- DHCP: Disabled

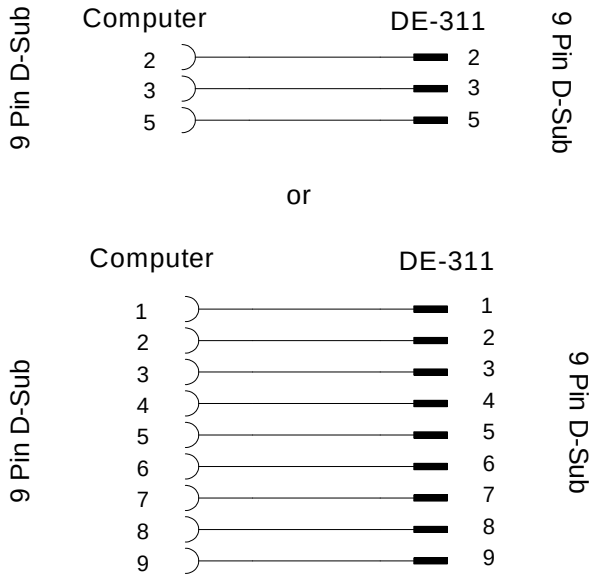
OP_Mode Settings: TCP Client
- Destination IP Address: 192.168.53.1
- TCP Connection: Startup
- TCP Port: 9878
- Force Transmit Timeout: 0
- Inactivity Time: 0
- TCP alive check time: 7

Serial Settings:
- Baud rate: 9600 (or whatever is needed)
- Parity: none
- Data Bits: 8
- Stop Bits: 1
- Flow Control: none
- UART FIFO: Enabled

After the above settings have been done, Press OK. The Settings will be applied to the DE-311.

5. RS-232 Connection

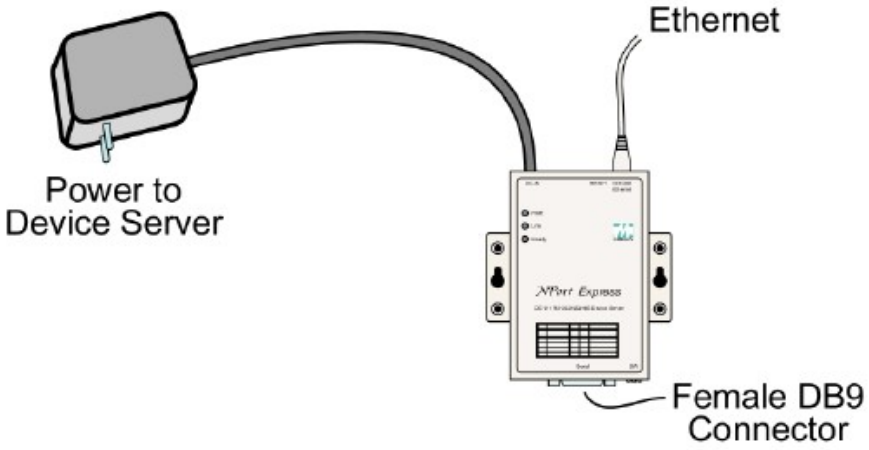
The RS-232 connection between the Simulation Computer and the DE322 uses a straight through RS-232 Cable, with a 9-Pin D-Sub connector.

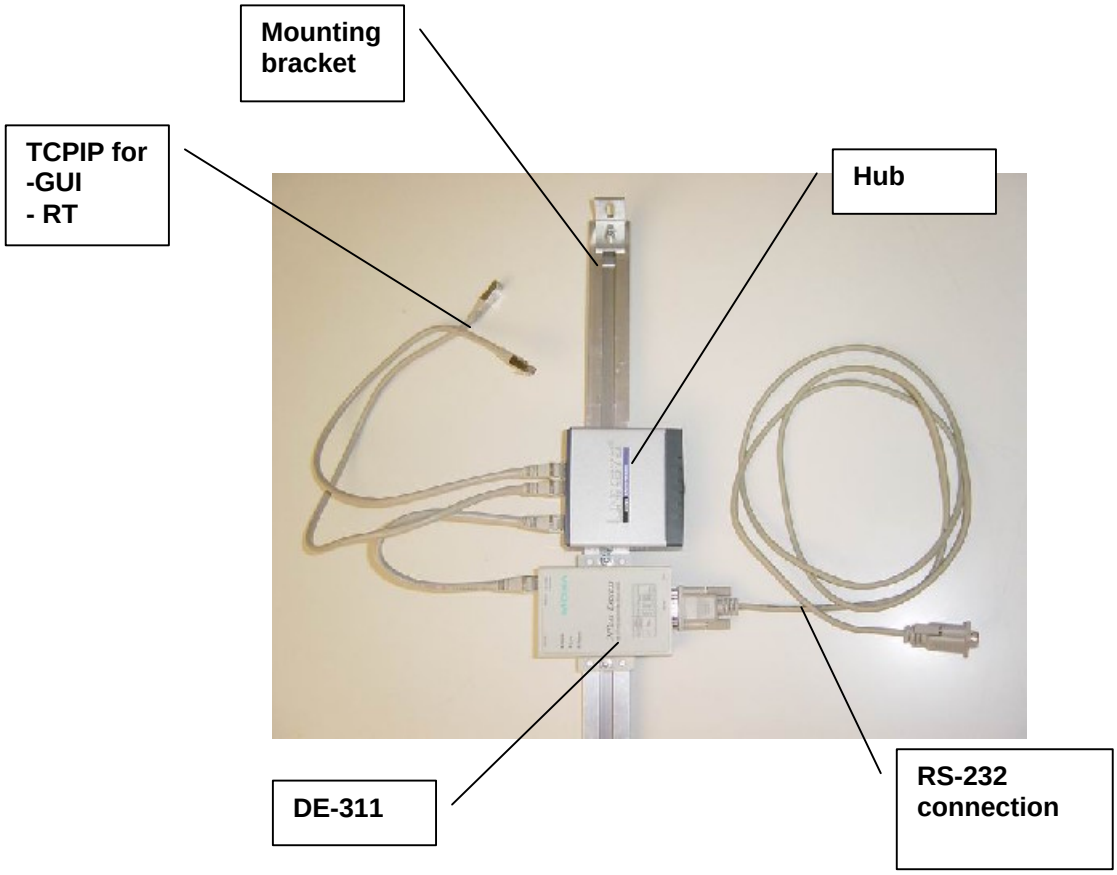


6. Monitoring

By using the Nport Monitor Software which is supplied with the DE-311 the communication through the DE-311 can be monitored when the computer that has the Monitor Software installed, is connected to the same Ethernet connection as the DE-311.

7. DE-311 Hardware





8. Appendix

8.1 DE-311 Setup File

```
[NPort Configuration File]
# [Model Name]
#  211  DE-211
#  8211 DE-211-IA
#  311  DE-311
#  8311 DE-311M
#  301  DE-301
#  302  DE-302
#  304  DE-304
#  331  DE-331
#  332  DE-332
#  334  DE-334
#  303  DE-303
#  308  DE-308
ModelName      311

##################
# Server Config #
##################

# [Server Name]
ServerName     A3K_RS232_IF

# [IP Configuration]
#  0 Static IP
#  1 DHCP
#  2 DHCP/BootP
#  3 BootP
DHCPflag       0

# [Server IP address]
#  IP address 255.255.255.255 means not set
#IPAddress      192.168.53.3

# [netmask]
Netmask                 255.255.255.0

# [gateway address]
Gateway

# [Server password]
Password


############
# OP mode #
############
```

```
# [OP mode (Hex)]
#  2 Host Based / Driver Mode
#  1 Pair Connection (Msater)
#  0 Pair Connection (Slave)
#  A TCP Server
#  D TCP Client
#  E UDP Server/Client
#  C Ethernet Modem mode
OPMode                  d


# Host Based / Driver Mode
#----------------

# [TCP alive check time]
TCPAlive        7

# [Delimiter en/disable]
#  bit 0 Delimiter Char 1 Enable/Disable
#  bit 1 Delimiter Char 2 Enable/Disable
#  0 Disable Delimiter Char
#  1 Enable Delimiter Char
DeliCharFlag    0

# [Delimiter 1 (Hex)]
ASPPDel1        ff

# [Delimiter 2 (Hex)]
ASPPDel2        ff

# [Force transmit (ms)]
ASPPFtx         0


# Pair Connection (Master)
#-------------------------

# [Remote IP address]
RemoteIP

# [TCP alive check time]
# The flag is same to Host Based / Driver Mode TCP alive check time
# TCPAlive      7


# Pair Connection (Slave)
#------------------------

# [Remote IP address]
# The flag is same to Pair connection (Master) remote ip address
```

```
# RemoteIP

# [TCP alive check time]
# The flag is same to Host Based / Driver Mode TCP alive check time
# TCPAlive       7


# TCP Server
#----------------------------

# [TCP port number]
RAWTCPport              4001

# [Dest. IP address]
#  Destination IP address
RAWIP

# [Delimiter en/disable]
#  bit 0 Delimiter Char 1 Enable/Disable
#  bit 1 Delimiter Char 2 Enable/Disable
#  0 Disable Delimiter Char
#  1 Enable Delimiter Char
RAWDeliCharFlag         0

# [Delimiter 1 (Hex)]
RAWDelimiter1 ff

# [Delimiter 2 (Hex)]
RAWDelimiter2 ff

# [Force transmit (ms)]
RAWForceTran 0

# [Inactivity Time]
RAWInactT       0

# [TCP alive check time]
# The flag is same to Host Based / Driver Mode TCP alive check time
# RAWTCPAlive           7


# RAW Connect (TCP Client)
#------------------------

# [Dest. IP address]
#  Destination IP address
CLIIP    192.168.53.1

# [TCP port number]
CLITCPport      9878
```

```
# [TCP Connect]
#  0 StartUp
#  1 Any Character
TCPConnect     0

# [Delimiter en/disable]
#  bit 0 Delimiter Char 1 Enable/Disable
#  bit 1 Delimiter Char 2 Enable/Disable
#  0 Disable Delimiter Char
#  1 Enable Delimiter Char
CLIDeliCharFlag          0

# [Delimiter 1 (Hex)]
CLIDelimiter1    ff

# [Delimiter 2 (Hex)]
CLIDelimiter2    ff

# [Force transmit (ms)]
CLIForceTran   0

# [Inactivity Time]
CLIInactT        0

# [TCP alive check time]
# The flag is same to Host Based / Driver Mode TCP alive check time
# CLITCPAlive  7


# UDP Server/Client
#-----------------------------------

# [UDP Connect LAN to serial Source Begin IP address]
# [UDP Connect LAN to serial Source End IP address]
UDPSIPBegin1
UDPSIPEnd1
UDPSIPBegin2
UDPSIPEnd2
UDPSIPBegin3
UDPSIPEnd3
UDPSIPBegin4
UDPSIPEnd4
# [UDP Connect serial to LAN Destination Begin IP address]
# [UDP Connect serial to LAN Destination End IP address]
# [UDP Connect serial to LAN Destination Port]
UDPDIPBegin1
UDPDIPEnd1
UDPDestPort1  4001
UDPDIPBegin2
UDPDIPEnd2
UDPDestPort2  4001
```

```
UDPDIPBegin3
UDPDIPEnd3
UDPDestPort3  4001
UDPDIPBegin4
UDPDIPEnd4
UDPDestPort4  4001

# [UDP Connect local port]
UDPport                 4001

# [Delimiter en/disable]
#  bit 0 Delimiter Char 1 Enable/Disable
#  bit 1 Delimiter Char 2 Enable/Disable
#  0 Disable Delimiter Char
#  1 Enable Delimiter Char
UDPDeliCharFlag         0

# [Delimiter 1 (Hex)]
UDPDelimiter1  ff

# [Delimiter 2 (Hex)]
UDPDelimiter2  ff

# [Force transmit (ms)]
UDPForceTran 0


# Ethernet Modem Mode
#---------------------

# [TCP port number]
MDMTCPport    4001

# [Dest. IP address]
#  Destination IP address
MDMIP

# [TCP alive check time]
# The flag is same to Host Based / Driver Mode TCP alive check time
# TCPAlive       7


################
# Serial port #
################

# [Baud Rate]
#  0 50
#  1 75
#  2 150
#  3 300
```

```
#  4 600
#  5 1200
#  6 2400
#  7 4800
#  8 7200
#  9 9600
#  10 19200
#  11 38400
#  12 57600
#  13 115200
#  14 230400
BaudRate        9

# [IO Control (Hex)]
#  BITS(bit 0,1)+STOP(bit 2,3)+PARITY(bit 4,5)+FLOW(bit 6,7)
#  03 Tx/Rx 8 data bits
#  02 Tx/Rx 7 data bits
#  01 Tx/Rx 6 data bits
#  00 Tx/Rx 5 data bits
#  00 1 stop bit
#  08 2 stop bit
#  00 no parity
#  10 even parity
#  20 odd parity
#  30 mark parity
#  04 space parity
#  00 no flow control
#  40 hardware flow control
#  80 software flow control
IOControl       3

# [UART FIFO]
#  0 Disable UART FIFO
#  1 Enable UART FIFO
UARTfifo        1

########################
# Access Control Table #
########################

# [Access Control IP address]
# [Access Control Netmask]
# [Access Control IP port flag (Hex)]
#  total 16 bits, bit 0 map to port 1, and so on
#  bit = 0  not set
#  bit = 1  set
AccessIP1       192.168.1.10
AccessMask1   255.255.255.255
AccessPFlag1  ffff

AccessIP2       192.168.53.10
```

AccessMask2 255.255.255.255
AccessPFlag2 ffff

AccessIP3
AccessMask3 255.255.255.255
AccessPFlag3 0

AccessIP4
AccessMask4 255.255.255.255
AccessPFlag4 0

AccessIP5
AccessMask5 255.255.255.255
AccessPFlag5 0

AccessIP6
AccessMask6 255.255.255.255
AccessPFlag6 0

AccessIP7
AccessMask7 255.255.255.255
AccessPFlag7 0

AccessIP8
AccessMask8 255.255.255.255
AccessPFlag8 0

AccessIP9
AccessMask9 255.255.255.255
AccessPFlag9 0

AccessIP10
AccessMask10 255.255.255.255
AccessPFlag10 0

AccessIP11
AccessMask11 255.255.255.255
AccessPFlag11 0

AccessIP12
AccessMask12 255.255.255.255
AccessPFlag12 0

AccessIP13
AccessMask13 255.255.255.255
AccessPFlag13 0

AccessIP14
AccessMask14 255.255.255.255
AccessPFlag14 0

AccessIP15
AccessMask15 255.255.255.255
AccessPFlag150

AccessIP16
AccessMask16 255.255.255.255
AccessPFlag160

AccessIP17
AccessMask17 255.255.255.255
AccessPFlag170

AccessIP18
AccessMask18 255.255.255.255
AccessPFlag180

AccessIP19
AccessMask19 255.255.255.255
AccessPFlag190

AccessIP20
AccessMask20 255.255.255.255
AccessPFlag200

AccessIP21
AccessMask21 255.255.255.255
AccessPFlag210

AccessIP22
AccessMask22 255.255.255.255
AccessPFlag220

AccessIP23
AccessMask23 255.255.255.255
AccessPFlag230

AccessIP24
AccessMask24 255.255.255.255
AccessPFlag240

AccessIP25
AccessMask25 255.255.255.255
AccessPFlag250

AccessIP26
AccessMask26 255.255.255.255
AccessPFlag260

AccessIP27
AccessMask27 255.255.255.255
AccessPFlag270

AccessIP28
AccessMask28 255.255.255.255
AccessPFlag280

AccessIP29
AccessMask29 255.255.255.255
AccessPFlag290

AccessIP30
AccessMask30 255.255.255.255
AccessPFlag300

AccessIP31
AccessMask31 255.255.255.255
AccessPFlag310

AccessIP32
AccessMask32 255.255.255.255
AccessPFlag320

AccessIP33
AccessMask33 255.255.255.255
AccessPFlag330

AccessIP34
AccessMask34 255.255.255.255
AccessPFlag340

AccessIP35
AccessMask35 255.255.255.255
AccessPFlag350

AccessIP36
AccessMask36 255.255.255.255
AccessPFlag360

AccessIP37
AccessMask37 255.255.255.255
AccessPFlag370

AccessIP38
AccessMask38 255.255.255.255
AccessPFlag380

AccessIP39
AccessMask39 255.255.255.255
AccessPFlag390

AccessIP40
AccessMask40 255.255.255.255

AccessPFlag400

AccessIP41
AccessMask41 255.255.255.255
AccessPFlag410

AccessIP42
AccessMask42 255.255.255.255
AccessPFlag420

AccessIP43
AccessMask43 255.255.255.255
AccessPFlag430

AccessIP44
AccessMask44 255.255.255.255
AccessPFlag440

AccessIP45
AccessMask45 255.255.255.255
AccessPFlag450

AccessIP46
AccessMask46 255.255.255.255
AccessPFlag460

AccessIP47
AccessMask47 255.255.255.255
AccessPFlag470

AccessIP48
AccessMask48 255.255.255.255
AccessPFlag480

AccessIP49
AccessMask49 255.255.255.255
AccessPFlag490

AccessIP50
AccessMask50 255.255.255.255
AccessPFlag500

AccessIP51
AccessMask51 255.255.255.255
AccessPFlag510

AccessIP52
AccessMask52 255.255.255.255
AccessPFlag520

AccessIP53

AccessMask53 255.255.255.255
AccessPFlag530

AccessIP54
AccessMask54 255.255.255.255
AccessPFlag540

AccessIP55
AccessMask55 255.255.255.255
AccessPFlag550

AccessIP56
AccessMask56 255.255.255.255
AccessPFlag560

AccessIP57
AccessMask57 255.255.255.255
AccessPFlag570

AccessIP58
AccessMask58 255.255.255.255
AccessPFlag580

AccessIP59
AccessMask59 255.255.255.255
AccessPFlag590

AccessIP60
AccessMask60 255.255.255.255
AccessPFlag600

AccessIP61
AccessMask61 255.255.255.255
AccessPFlag610

AccessIP62
AccessMask62 255.255.255.255
AccessPFlag620

AccessIP63
AccessMask63 255.255.255.255
AccessPFlag630

AccessIP64
AccessMask64 255.255.255.255
AccessPFlag640

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