

TELEMARK

RS232 Operation Manual

Models TVP-2000 and TVP-3500



Following system parameters ranges are normal. Any abnormal conditions will be reported via the display and the RS232 link if enabled.

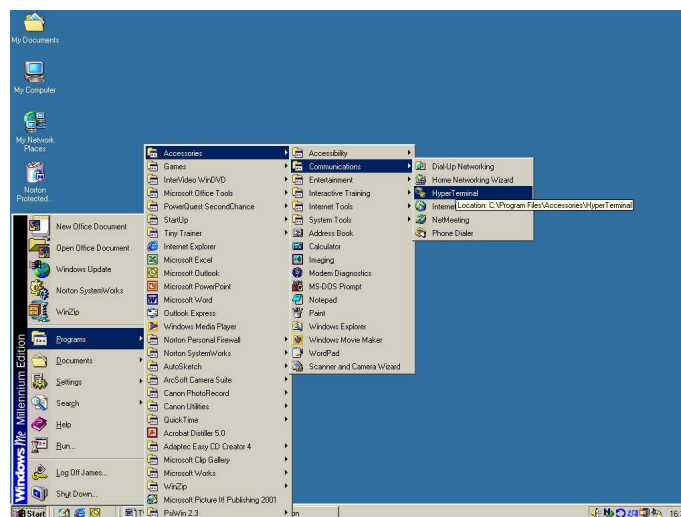
Parameter	Description	Acceptable (normal) range
SP start up *	Suction Pressure	20 to 120 pşi
DP start up *	Discharge pressure	100 to 470 pşi
SP unit running		7 to 60 pşi
DP unit running		100 to 380 pşi
DP unit off ¹	System balance at ambient	200 to 260 pşi
CT	Coldest temperature	-100 to -170 °C
WT	Water temperature	35 °C default 40 °C optional
CI	Coil in temperature	+90 °C to -150 °C
CO	Coil out temperature	+40 °C to -150 °C

Computer mode remote operation using RS232 or other communication standard

TVP units are capable of being controlled and data logged via an integral RS232 port, this is accessible on the services panel diagram. Connection to your PC is made via your serial port to an RJ11 port. A serial link cable and adapter are supplied with the TVP unit. Additional serial link cable and adapter are available from Telemark or your local PC dealer.

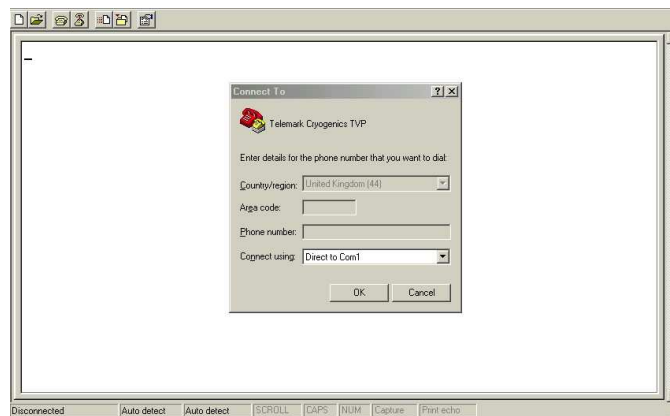
Connection to your PC is achieved using hyper terminal, which is normally shipped with your Windows to control and data log system parameters.

Hyper Terminal Settings (assumes Windows 95 or newer) hyper terminal is normally found under programs/startup/accessories/communications folder of windows.

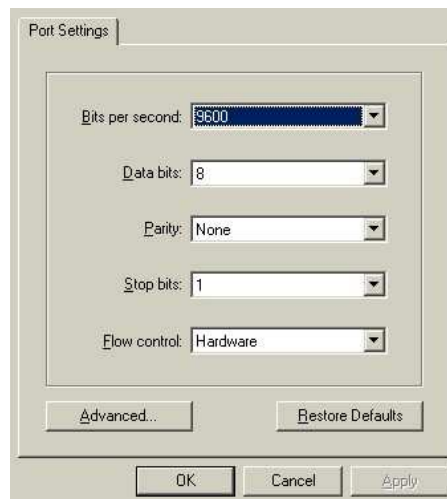




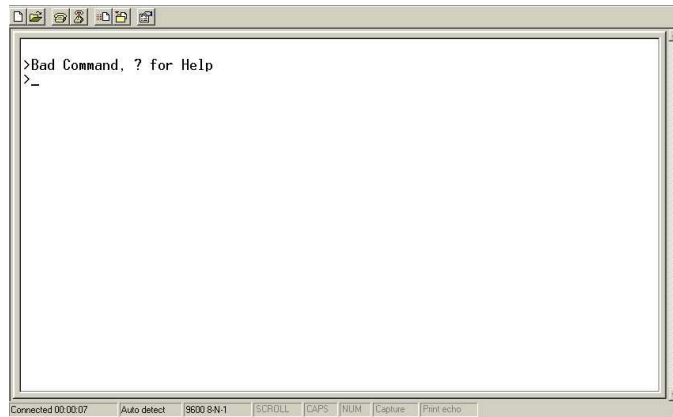
Select the "connect using" box and set to your serial port usually COM1. You may need to select a different COM port depending on how your PC is set up.
Select OK



You will automatically be taken to COM port properties window
Select the following settings
Bits per second = 9600
Data bits = 8
Parity = None
Stop bits = 1
Flow control = Hardware
Select OK



Push Enter (return) and the message will appear if a connection has successfully been made.



Entering a query with a “? Return” will give the following screen



>?R for read Commands, ?W for Write Command
>v – RS232 to Verbose mode
>q – RS232 to Quiet

Commands available when using RS232 control

NOTE

All commands must be executed as lower case characters followed by return. All commands apart from the specialised calibration routine follow a three-character format.

W2o

Turns the comms link on

W2f

Turns the link off

Operational commands

>Read Commands 'r'

>-----

>rdp – read Discharge Pressure
>rdt – read Defrost Termination
>rsn – read Serial Number
>rso – read Suction Pressure
>rci – read Coil In
>rco – read Coil Out
>rct – read Coldest Temperature
>rwt – read Water Temperature
>rws – read Water Shut Off
>rpr – read Set Point Relay
>rsr – read Software Revision

>Write Commands 'w'

>-----

>w2o – write 232 control ON
>w2f – write 232 control OFF
>wso – write System ON
>wsf – write System OFF
>wss – write Standby 1
>w2s – write Standby 2
>wsc – write Cool 1
>ws2c – write Cool 2
>wsd – write Defrost 1
>w2d – write Defrost 2

Calibration routine "cal2309"

During installation it is possible through a computer running hyper terminal to adjust a number of system parameters to match your application requirements.

Type return at the prompt "Bad Command, ? For Help" in the hyper terminal window type "cal2309" then push the enter key

The following will be displayed:



```
cal2309
>Calibrate Active
>Test Mode Active(1), Non Active(0) 0
>Compressor Cycling(1) Non-Cycling(0) 1
>Single(0) or Dual(1) Coil. Current 0
>Set Point Relay= 1
>Option 1: Comp. Running. DEFAULT (cr)
>Option 2: Coil Out (co)
>Option 3: Coldest Temp. (ct)
>Defrost Term. temp.(dt)= 0 C
>Defrost Term. SP (ds)= 100 psi
>Water Shutdown Temp (ws)= 35
>Logging Interval(li) = 2
>Select parameter to change or 'def' for defaults
>
```

Cal2309

```
>Calibrate Active
>Test Mode Active(1), non Active(0) 0
>Compressor Cycling(1) non-Cycling(0) 0
>Single(0) or Dual(1) Coil. Current 0
>Set Point Relay = 2
>Option 1: Comp. Running. DEFAULT (cr)
>Option 2: Coil Out (co)
>Option 3: Coldest Temp. (ct)
>Defrost Term.(dt) = 0
>Water Shutdown Temp (ws) = 40
>Logging Interval (li) = 5
>Select parameter to change or 'def' for defaults
```

From this point it is possible to change the following items

Defrost termination temperature (always the coil out CO value)

Data logging interval

Choose the parameter and the value for the set point relay

After entering any command change followed by enter you automatically leave the "Calibrate Active" mode. To change an additional parameter type "cal2309" then push the Enter key.

Changing Defrost termination temperature

Type "dt" return

You will be asked to input a value type value followed by enter – note a lower temperature can dramatically shorten the overall cycle time.

Changing Water shut down temperature

Type "ws" return

You will be asked to input a value type value followed by enter – Note the default is 35°C

Changing the set point relay

There are three possible parameters against which the system ready signal can be produced; Coil out (co) useful if a particular partial pressure of water needs to be reached before processing starts.

Coldest temperature (ct) useful if the system has a very long defrosting time as it indicates the systems readiness to start cooling.

Compressor running (cr) the default value commonly used in coating plant manufactured by Leybold and other German manufacturers.

NOTE – When in the “Calibrate Active” if the co or ct modes are selected you will then be prompted to input the temperature of the set point.

Changing the logging interval (li)

Type li return when in the “Calibrate Active” mode and you will be prompted to enter a logging interval between 1 and 1000 seconds. Logging only occurs when the unit is in verbose mode.

Data logging

The data logging function works even when the RS232 link is not activated, however the RS232 link must be opened to activate the logging mode.

Type “v enter” the unit is now in verbose mode and data logging. The rate at which logging occurs is defined by the Logging Interval function li under “cal2309”.

The data appears in columns in the following order.

Discharge pressure, Suction Pressure, Coil in, Coil out, Water Temp, Coldest Temp

The data logged file is comma and space delimited and may be saved as such and then imported into excel or other data processing package.

HyperTerminal is limited to 500 lines of text in the backscroll buffer, this is what you see on the display. When the number of lines is exceeded Hyper terminal will start to write over the first lines written. You can save more lines of text if you save incoming data to a text file or to a printer. Here are the instructions for checking the setting for the backscroll buffer and starting the capture text function.

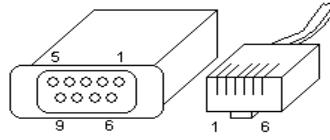
To check or change the backscroll buffer size

1. On the **File** menu, click **Properties**, and click the **Settings** tab.
2. In the **Backscroll buffer lines** box, type the number of communication text lines that you want saved in addition to what is displayed on the screen, and then click **OK**.

To save incoming data to a text file

1. On the **Transfer** menu, click **Capture Text** or, to send the text file directly to a printer, click **Capture to Printer**.
2. In the **File** box, type a descriptive name for the file, and then click **Start**.

Interface Cable



<u>9 Pin</u>	<u>RJ11</u>	<u>Color</u>
1	6	white
2	3	green
3	4	Red
4	-	-----
5	2	yellow
6	-	-----
7	5	black
8	1	blue
9	-	-----