Model 2900 RS-232 commands

The Model 2900 Humidity generator supports the following serial communication using the DB9 port labeled "External Control" on the left side of the generator. Use a DB9 NULL-MODEM cable (with handshake) to connect the 2900 to an external PC or laptop.

1. Serial Settings

    Baud Rate = 57600
    Data Bits = 8
    Parity = None
    Stop Bits = One
    Handshake = None
    RTS Enable = true
    DTR Enable = false

2. Commands to get and set parameters from the 2900. Please note the values are not specific and will vary based on the actual reading of the 2900.

    %RH
    To get the current value you send:
     get %rh<CR><LF>
    You receive:
     Setpoint: 50<LF>
     Actual: 50<CR><LF>

    To set a new value you send:
     set %rh 20<CR><LF>
    You receive:
     <CR><LF>

    where:
    <CR> is a carriage return character.
    <LF> is a linefeed character.

    Frost Point
    To get the current value you send:
     get frost point<CR><LF>
    You receive:
     Setpoint: 0<LF>
     Actual: 0<CR><LF>

    To set a new value you send:
     set frost point -5<CR><LF>
    You receive:
     <CR><LF>

Dew Point
To get the current value you send:
 get dew point<CR><LF>
You receive:
 Setpoint: 20<LF>
 Actual: 12.03227011<CR><LF>

To set a new value you send:
 set dew point 20<CR><LF>
You receive:
 <CR><LF>

PPMv
To get the current value you send:
 get ppmv<CR><LF>
You receive:
 Setpoint: 14120<LF>
 Actual: 14120.3867<CR><LF>

To set a new value you send:
 set ppmv 14120<CR><LF>
You receive:
 <CR><LF>

PPMw
To get the current value you send:
 get ppmw<CR><LF>
You receive:
 Setpoint: 8785<LF>
 Actual: 8784.870045<CR><LF>

To set a new value you send:
 set ppmw 8785<CR><LF>
You receive:
 <CR><LF>

Saturation Pressure
To get the current value you send:
 get saturation pressure<CR><LF>
You receive:
 Setpoint: 30<LF>
 Actual: 29.48623339<CR><LF>

To set a new value you send:
 set saturation pressure 30<CR><LF>
You receive:
 <CR><LF>

Chamber Pressure
To get the current value you send:
  get chamber pressure<CR><LF>
You receive:
  Actual: 14.7<CR><LF>

Saturation Temperature
To get the current value you send:
  get saturation temperature<CR><LF>
You receive:
  Setpoint: 23<LF>
  Actual: 23<CR><LF>

To set a new value you send:
  set saturation temperature 23<CR><LF>
You receive:
  <CR><LF>

Chamber Temperature
To get the current value you send:
  get chamber temperature<CR><LF>
You receive:
  Actual: 23.1<CR><LF>

Mass Flow Rate
To get the current value you send:
  get mass flow rate<CR><LF>
You receive:
  Setpoint: 40<LF>
  Actual: 30<CR><LF>

To set a new value you send:
  set mass flow rate 20<CR><LF>
You receive:
  <CR><LF>

Cabinet Temperature
To get the current value you send:
  get cabinet temperature<CR><LF>
You receive:
  Actual: 30.1<CR><LF>

Expansion Valve Temperature
To get the current value you send:
  get expansion valve temperature<CR><LF>
You receive:
  Actual: 23.5<CR><LF>

Pre-Saturator Temperature
To get the current value you send:
  get pre-saturator temperature<CR><LF>
You receive:
  Actual: 35.0<CR><LF>

Supply Pressure
To get the current value you send:
  get supply pressure<CR><LF>
You receive:
  Actual: 150.0<CR><LF>

Water Reservoir Level
To get the current value you send:
  get water reservoir level<CR><LF>
You receive:
  Actual: 95.5<CR><LF>

Chamber Fan Speed (%)
To get the current value you send:
  get chamber fan speed<CR><LF>
You receive:
  Expanded: 50<CR><LF>

To set the chamber fan speed send the "fan" command followed by a value between 0 and 100:
  fan 50<CR><LF>
You receive:
  <CR><LF>

3. Commands to operate the generator.

   Generate
   You send:
     generate<CR><LF>
   You receive:
     <CR><LF>

   Shutdown
   You send:
     shutdown<CR><LF>
   You receive:
     <CR><LF>

4. Commands to return the run state of the generator.

   Run State
   You send:
     get run state<CR><LF>
   You receive:
     Expanded: X.X<CR><LF>

   Where X.X can be the following:
     Request to Generate = 0.1
     Generate = 1
     Request to Shutdown = 1.1
     Shutdown = 0

5. Commands to get groups or list of data at once. Please note the values are not specific and will vary based on the actual reading of the 2900.

   Setpoints
   To get the current list of setpoint values you send:
     get setpoints<CR><LF>
   You receive 8 setpoint values:
     "%rh setpoint"<LF>
     "frost point setpoint"<LF>
     "dew point setpoint"<LF>
     "PPMv setpoint"<LF>
     "PPMw setpoint"<LF>
     "saturation pressure setpoint"<LF>
     "saturation temperature setpoint"<LF>
     "mass flow rate setpoint"<CR><LF>

   Example:
   You Send
     get setpoints<CR><LF>
   You receive 8 setpoint values:
     50<LF>
     19.3685927763809<LF>
     19.3685927763809<LF>
     28099.8010136974<LF>
     17482.0353973598*<LF>*
     11.9769275*<LF>*
     23*<LF>*
     40<CR>*<LF>*

Actuals
To get the current list of actual values you send:
 get actuals<CR><LF>
You receive 15 actual values:
 "%rh"<LF>
 "frost point"<LF>
 "dew point"<LF>
 "PPMv"<LF>
 "PPMw"<LF>
 "saturation pressure"<LF>
 "chamber pressure"<LF>
 "saturation temperature"<LF>
 "chamber temperature"<LF>
 "mass flow rate"<LF>
 "cabinet temperature"<LF>
 "expansion valve temperature"<LF>
 "pre-saturator temperature"<LF>
 "supply pressure"<LF>
 "water reservoir level"<CR><LF>

Example:
You Send
 get actuals<CR><LF>
You receive 15 actual values:
 24.0286574211788*<LF>*
 24.8010257181343*<LF>*
 24.8010257181343*<LF>*
 39568.7214102701*<LF>*
 24617.3198160875*<LF>*
 11.9702894736842*<LF>*
 11.9789810526316*<LF>*
 24.7889051241996*<LF>*
 51.0666666666667*<LF>*
 -2.2730964614382*<LF>*
 36*<LF>*
 42.6*<LF>*
 24.8458736110768*<LF>*
 155*<LF>*
 0.5<CR><LF>

Note: The value NaN will be returned instead of a decimal value for any parameter value that is not valid. For example, when the generator is shutdown the humidity parameters (%RH, Dew Point, PPMv, etc.) are invalid as they are not being generated.

Legacy Model 2500 RS-232 command support

Model 2900 Humidity Generators running HW version 29.0.10.0 or newer will support the legacy 2500 command structure (refer to 2500 system manual for more information) with the following exceptions:

1. Only the serial settings listed at the beginning of this document are valid for communication with the 2900.

2. The 2900 only supports %RH@PcTc via the %RH data item and does not support %RH@Pc. Any legacy 2500 command that sets or returns %RH@Pc will instead set or return the %RH data item (same as %RH@PcTc).

3. The 2900 error codes do not map nor are 2500 error codes applicable to the 2900. The ?ER command will return 0 if there are no 2900 errors and will return 32767 if any 2900 error is currently issued. Refer to the 2900's HMI display for details on any issued 2900 error.

4. The Print System Data command PRI or PRINT in not supported.