

## SCPI Programming Mode

SCPI commands are ASCII text strings with a wide array of defined SCPI commands, all of which are not included in this implementation. The SCPI protocol is only available over Ethernet port 5025. The only available SCPI commands for the F4T are shown below. This complete list is only valid for Firmware Revision 04:03:0108, released January 9, 2019 and higher. **This list only applies to the native F4T Ethernet interface, NOT the external Serial Modbus-to-Ethernet Converter.**

For **:CLOOP#** – CLOOP1 is Temperature, CLOOP2 is Humidity.

Example **:SOURCE:CLOOP1:PVALUE?** (read the value for chamber temperature)

Example **:SOURCE:CLOOP2:PVALUE?** (read the value for chamber humidity)

| Description  | SCPI Command                     | SCPI Values  | R/W | Comments   |
|--|----------------------------------|--|-----|--|
| Query Comm. Temperature units  | :UNIT:TEMPERATURE?               | C F  | R   | Ethernet units   |
| Set Comm. Temperature units to F   | :UNIT:TEMPERATURE F              |  | W   | Ethernet units to Fahrenheit                                     |
| Set Comm. Temperature units to C   | :UNIT:TEMPERATURE C              |  | W   | Ethernet units to Celsius  |
| Query Display Temperature units  | :UNIT:TEMPERATURE:DISPLAY?       | C F  | R   | Front panel display units  |
| Set Display Temperature units to F   | :UNIT:TEMPERATURE:DISPLAY F      |  | W   | Front panel display units to Fahrenheit                          |
| Set Display Temperature units to C   | :UNIT:TEMPERATURE:DISPLAY C      |  | W   | Front panel display units to Celsius                             |
| <b>This list is NOT for versions with Cascade Control (Part Temperature Control). It is only for standard Temperature or Temperature/Humidity controllers.</b> |                                  |  |     |  |
| Read Temperature PV (Control loop)   | :SOURCE:CLOOP#:PVALUE?           | <floating point value>   | R   | Source Value A   |
| Query input error  | :SOURCE:CLOOP#:ERROR?            | ERROR NONE   | R   | Input error status   |
| Read SP  | :SOURCE:CLOOP#:SPOINT?           | <floating point value>   | R   | Set Point Active Closed  |
| Write SP   | :SOURCE:CLOOP#:SPOINT <value>    |  | W   | User Set Point   |
| Read Idle SP   | :SOURCE:CLOOP#:IDLE?             | <floating point value>   | R   | Idle Set Point   |
| Write Idle SP  | :SOURCE:CLOOP#:IDLE <value>      |  | W   | Idle Set Point   |
| <b>This list is ONLY for versions WITH Cascade Control (Part Temperature Control)</b>  |                                  |  |     |  |
| Read Set Point (Cascade)   | :SOURCE:CASCADE1:SPOINT?         | <floating point value>   | R   | User set point   |
| Write Set Point (Cascade)  | :SOURCE:CASCADE1:SPOINT <value>  |  | W   | User set point   |
| Read Outer Loop PV (Cascade)   | :SOURCE:CASCADE1:OUTER:PVALUE?   | <floating point value>   | R   | Source Value A   |
| Query Outer Loop Input Error (Cascade)   | :SOURCE:CASCADE1:OUTER:ERROR?    | ERROR NONE   | R   | Input error status   |
| Read Inner Loop PV (Cascade)   | :SOURCE:CASCADE1:INNER:PVALUE?   | <floating point value>   | R   | Source Value B   |
| Query Outer Loop Input Error (Cascade)   | :SOURCE:CASCADE1:INNER:ERROR?    | ERROR NONE   | R   | Input error status   |
| Read Outer Loop Set Point (Cascade)  | :SOURCE:CASCADE1:OUTER:SPOINT?   | <floating point value>   | R   |  |
| Read Inner Loop Set Point (Cascade)  | :SOURCE:CASCADE1:INNER:SPOINT?   | <floating point value>   | R   |  |
| Set ramping off  | :SOURCE:CLOOP#:REACTION OFF      |  | W   | controls instantly to set point                                  |
| Set ramping on startup   | :SOURCE:CLOOP#:REACTION STARTUP  |  | W   | ramps to set point on controller power on                        |
| Set ramping on set point change  | :SOURCE:CLOOP#:REACTION SETPOINT |  | W   | ramps to set point on change of set point                        |
| Set ramping on both events   | :SOURCE:CLOOP#:REACTION BOTH     |  | W   | ramps to set point on controller power on OR change of set point |
| Write ramp scale to minutes  | :SOURCE:CLOOP#:RSCALE MINUTES    |  | W   | ramp rate is per minute  |
| Write ramp scale to hours  | :SOURCE:CLOOP#:RSCALE HOURS      |  | W   | ramp rate is per hour  |
| Read ramp rate   | :SOURCE:CLOOP#:RRATE?            | <floating point value>   | R   | rate that controller ramps to set point                          |
| Read ramp time   | :SOURCE:CLOOP#:RTIME?            | <floating point value>   | R   | time that controller ramps to set point                          |
| Write ramp rate  | :SOURCE:CLOOP#:RRATE <value>     |  | W   | rate that controller ramps to set point                          |
| Read ramp time   | :SOURCE:CLOOP#:RTIME <value>     |  | W   | rate that controller ramps to set point                          |
| Set event output on  | :OUTPUT#:STATE ON                |  | W   | # = outputs 1-7  |
| Set event output off   | :OUTPUT#:STATE OFF               |  | W   | # = outputs 1-7  |
| Query event output state   | :OUTPUT#:STATE?                  | OFF ON   | R   | # = outputs 1-7  |
| Select a profile   | :PROGRAM:NUMBER <value>          | 1-40   | W   | selects the desired profile to control                           |
| Read selected profile name   | :PROGRAM:NAME?                   | <string value>   | R   | the selected profile   |
| Select a step  | :PROGRAM:STEP <value>            | 1-50   | W   | the selected profile   |
| start profile  | :PROGRAM:SELECTED:STATE START    |  | W   | the selected profile   |
| stop profile   | :PROGRAM:SELECTED:STATE STOP     |  | W   | the selected profile   |
| pause profile  | :PROGRAM:SELECTED:STATE PAUSE    |  | W   | the selected profile   |
| resume profile   | :PROGRAM:SELECTED:STATE RESUME   |  | W   | the selected profile   |
| Identification   | *IDN?                            | "Watlow Electric", <string value>, <integer value>, <string value> |     |  |
|  | (manufacturer)                   |  | R   |  |
|  | (model number)                   |  |     |  |
|  | (serial number)                  |  |     |  |
|  | (firmware level)                 |  |     |  |