

Trim Coils

Commands Reference Manual

The screenshot displays the control interface for the Trim Coils system. At the top, it shows the Rack ID as 1234 and the current date and time as 2022-05-14 12:55:45. There are OFF and ON buttons for the system. A red alert bar indicates a fault: "14.05.2022 12:48:42 Probe 4 power supply 1 bad". Below this, three main parameters are shown: Rack temperature at 24.6 °C, Water temperature at 15.8 °C, and Water flow at 2.2 l/m. The interface is divided into three columns for Power supply 1, Power supply 2, and Power supply 3. Each column contains six temperature sensors (SENSOR 1 to SENSOR 6) with their respective L and H control buttons. An Interlock button is located at the bottom of each power supply column. At the very bottom, there are buttons for Power supply 1 Setup, Power supply 2 Setup, Power supply 3 Setup, Rack Setup, and Login.

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Commands List

Legend

- PS = Power Supply
- PS in rack are numbered from top (PS1) to bottom (PS3)
- <x> = PS 1 to 3
- <y> = PT100 1 to 6
- ? = query
- *value* = float
- *bool* = ON/OFF
- [...] = list of accepted parameters
 - example: [?,*value*] indicates that the command accepts both ? or a *value*
- (Input) = 1 bit, read only
- (Input Register) = 16 bit, read only
- (Holding Register) = 16 bits, read/write
- (Coil) = 1 bit, read/write
- ACK = Acknowledge (response)
- NAK:XX = Not Acknowledge (negative response)
 - XX = error code (see Error Codes section)

Power Supply Commands

Command:	Type:	Description:
PS<x><y>:TEMP:?	(Input Register)	Get temperature
PS<x><y>:TEMPMIN:[?,value]	(Holding Register)	Get/Set low temperature threshold
PS<x><y>:TEMPMAX:[?,value]	(Holding Register)	Get/Set high temperature threshold
PS<x><y>:TEMPMINENABLE:[?,bool]	(Coil)	Enable/Disable low temperature threshold
PS<x><y>:TEMPMAXENABLE:[?,bool]	(Coil)	Enable/Disable high temperature threshold
PS<x><y>:TEMPMINERROR:?	(Input)	Get alert low temperature threshold
PS<x><y>:TEMPMAXERROR:?	(Input)	Get alert high temperature threshold
PS<x><y>:PROBEERROR:?	(Input)	Get probe alert malfunction
PS<x>:STATUS:?	(Input Register)	Get PS status register
PS<x>:STATE:?	(Input)	Get PS state
PS<x>:INTERLOCK:?	(Input)	Get interlock status (magnet)
PS<x>:PROBEMODULEERROR:?	(Input)	Get probe module communication error

PS<x>:STATUS Command

Bit:	Description:
0	PS<x>, probe 1 disabled
1	PS<x>, probe 2 disabled
2	PS<x>, probe 3 disabled
3	PS<x>, probe 4 disabled
4	PS<x>, probe 5 disabled
5	PS<x>, probe 6 disabled
6	PS<x> Interlock
7-15	Reserved

Rack Commands

Command:	Type:	Description:
RACK:TEMP:?	(Input Register)	Get rack temperature
RACK:TEMPMIN:[?,value]	(Holding Register)	Get/Set rack low temperature threshold
RACK:TEMPMAX:[?,value]	(Holding Register)	Get/Set rack high temperature threshold
RACK:TEMPMINENABLE:[?,bool(Coil)]		Enable/Disable rack low temperature threshold
RACK:TEMPMAXENABLE:[?,bool(Coil)]		Enable/Disable rack high temperature threshold
RACK:TEMPMINERROR:?	(Input)	Get alert low temperature threshold
RACK:TEMPMAXERROR:?	(Input)	Get alert high temperature threshold
RACK:TEMPERROR:?	(Input)	Get alert malfunction of the probe
RACK:STATUS:?	(Input Register)	Get rack status register

RACK:STATUS Command

Bit:	Description:
0	low threshold water flux enabled
1	high threshold water flux enabled
2	low threshold water temperature enabled
3	high threshold water temperature enabled
4	low threshold rack temperature enabled
5	high threshold rack temperature enabled
6-15	Reserved

Water Flux Commands

Command:	Type:	Description:
H2O:FLUX:?	(Input Register)	Get water flow
H2O:FLUXMIN:[?, <i>value</i>]	(Holding Register)	Get/Set water low flow threshold
H2O:FLUXMAX:[?, <i>value</i>]	(Holding Register)	Get/Set water high flow threshold
H2O:FLUXMINENABLE:[?, <i>bool</i>]	(Coil)	Enable/Disable water low flow threshold
H2O:FLUXMAXENABLE:[?, <i>bool</i>]	(Coil)	Enable/Disable water high flow threshold
H2O:FLUXMINERROR:?	(Input)	Get alert low flow threshold
H2O:FLUXMAXERROR:?	(Input)	Get alert high flow threshold
H2O:FLUXERROR:?	(Input)	Get alert malfunction of the probe

Water Temperature Commands

Command:	Type:	Description:
H2O:TEMP?	(Input Register)	Get water temperature
H2O:TEMPMIN:[?,value]	(Holding Register)	Get/Set water low temperature threshold
H2O:TEMPMAX:[?,value]	(Holding Register)	Get/Set water high temperature threshold
H2O:TEMPMINENABLE:[?,bool](Coil)		Enable/Disable water low temperature threshold
H2O:TEMPMAXENABLE:[?,bool](Coil)		Enable/Disable water high temperature threshold
H2O:TEMPMINERROR:?	(Input)	Get alert low temperature threshold
H2O:TEMPMAXERROR:?	(Input)	Get alert high temperature threshold
H2O:TEMPERROR:?	(Input)	Get alert malfunction of the probe

General Commands

Command:	Type:	Description:
INT:STOP:?	(Input)	Get emergency alarm or door open
CTT:STATE:[?, <i>bool</i>]	(Coil)	Get/Set status Contattore

Error Codes

Error Code:	Description:
NAK:01	Unknown Command
NAK:02	Unknown Parameter
NAK:03	Invalid Parameter
NAK:04	Invalid Number of Arguments
NAK:05	Modbus Client Not Connected
NAK:06	Modbus Protocol Error
NAK:07	Modbus Generic Error
NAK:08	Register is readonly
NAK:99	Unknown Error
