



Casting Emission Reduction Program

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US Army Task N256 SCPI Protocol for Facilities

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AI013c.pro AIGER Facilities SCPI Proposal

3.4. 1

Develop SCPI Protocol for Facilities

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PROBLEM STATEMENT:

Emission test cells often have requirements to control the overall environment in which the tests are made. These controls, such as temperature, humidity, and even altitude, are controlled by the HVAC systems in the facility. A few new controls must be added to the CONTrol subsystem as well as additional to the SCPI Sensor Function Tree are required to satisfy current requirements. It is anticipated that additional controls may be needed in the future as more sophisticated control of test chambers become more common, but the AIGER committee decided to wait until real applications appeared before adding them.

PROPOSED SOLUTION:

The additions are straightforward, and should be self-explanatory. To the following subsystems, add:

1 CONTrol

KEYWORD	PARAMETER FORM	NOTES
CONTrol		Existing SCPI
:HVAC		New
:MODE	CON5300 CON15000 VEHSPD HVAC	New
:BYP	<Boolean>	New
:FAN		New
[:STATe}	<Boolean>	New
:SLights		New
:INTensity	<numeric_value>	New
[:STATe]	<Boolean>	New

1.1 HVAC

CONTrol:HVAC

The Heating Ventilation and Air Conditioning command controls the HVAC subsystem.

1.1.1 :MODE CON5300|CON15000|VEHSPD|HVAC

CONTrol:HVAC:MODE

The MODE command selects one of the four modes listed under HVAC. Note: These MODE commands are commonly utilized in Emissions control setups.

At *RST this is device dependent.

1.2 BYPass <Boolean>

CONTrol:BYPass

The BYPass command is ON or OFF, selecting the bypass mode if ON.

At *RST this is device dependent.

1.3 :FAN

CONTrol:FAN

This command controls FAN<n>.

1.3.1 [:STATe] <Boolean>

CONTRol:FAN:STATe

The STATe command turns the fan<n> ON or OFF

At *RST, this value is OFF.

1.3.2 :SPEed|CFM <numeric_value>

CONTRol:FAN:CFM

The SPEed|CFM command sets or queries the fans volumetric flowrate in Cubic Meters per minute.

At *RST this value is device dependent.

1.4 SLIGHt

CONTRol:SLIGHt

The SolarLIGHt command controls the Solar Lights used to simulate sunshine.

1.4.1 :INTensity <numeric_value>

CONTRol:SLIGHt:INTensity

The Intensity command sets or queries the intensity of the Solar Lights. The units are Lumens.

At *RST, this value is device dependent.

1.4.2 [:STATe] <Boolean>

CONTRol:SLIGHt:STATe

The STATe command turns ON or OFF the Solar Lights.

AT *RST this value is OFF

2 SENSE

2.1 DATA & FUNCTION Subsystem

2.1.1 DATA? <query_only>

2.1.2 FUNCTION

2.1.2.1 <function>

<<Add the following to the Sensor function tree with the definitions>>>

FUNCTION

DESCRIPTION

NOTES

FLOW		Flow in Liters/sec.	Added with Samp Sys
HUMidity		Humidity in percent	New
MASS		Mass in kg	New
PRESsure		Pressure in kiloPascals (kPa)	Added with Samp Sys
:BARometric		Barometric Pressure in kiloPascals (kPa)	New
:DIFFerential	Differential Pressure	in kiloPascals (kPa)	New
SINTensity		Solar Intensity in Lumens	New
SPEed			Existing SCIP
:ENGine		Engine speed in RPM	New
:AIR		Air Speed in m/sec	New
:ANEMometer		Anemometer speed in m/sec	New
TEMPerature		Temperature in Kelvin	Existing SCPI
:DEViation		Temperature deviation in Kelvin	New
VACuum		Vacuum in kiloPascals (kPA)	New
VOLume	Volume in Liters	Added with Samp Sys	
VOLume:PERCent		Percent of Fuel Volume Dispensed	New
WEIGHT		Weight in kg	New

<<< Note 2-1: a numeric suffix may be added to any of the sensor functions to differentiate them, e.g. TEMPerature1, TEMPerature2, etc.>>>

APPROVED: