Communications Manual
IEEE / RS232
for ADSE

PITOT STATIC TESTER

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Creation	October 2010	1	D2-0123-CL-A
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Table of contents

Introduction

This technical manual provides communication instructions for the ADSE compatible with the requirements of first line operation.

- Scope

This technical manual contains the communications protocol for the operator of this equipment series.

- Software

This technical manual applies to software ADSE74X version 4.31 and more.

Safety

- The manufacturer has designed this equipment to be safe when operated using the procedures detailed in this manual. Do not use this equipment for any other purpose than that stated.
- This publication contains operating and safety instructions that must be followed to ensure safe operation and to maintain the equipment in a safe condition. The safety instructions are either warnings or cautions issued to protect the user and the equipment from injury or damage.
- Use qualified technicians and good engineering practice for all procedures in this publication.

Terms and Abbreviations

The following abbreviations are used in this manual.

ADSE	Air Data Set Equipment
ASCII	American Standard Code for Information Interchange
e.g.	For example
etc.	And so on
Fig.	Figure
ft	Feet
hPa	Hectopascal
i.e.	That is
IEEE 488	Institute of Electrical and Electronic Engineers standard 488 data
in	Inch
inHg	Inches of mercury
m	Meter
max	Maximum
mbar	Millibar
min	Minute or minimum
mmHg	Millimeter of mercury
N/A	Not Applicable
Pa	Pascal
PC	Personnel Computer
Ps	Pressure static
psi	Pounds per square inch
Pt	Pressure Total (Pitot)
RS232	Serial Communications Standard
SCPI	Standard Commands for Programmable Instruments
°C	Degrees Celsius

1. PRESENTATION

1.1. General

The IEEE 488 and/or RS232 interfaces of the ADSE pitot static tester provide remote control of the instrument from a suitable computer or controller.

The SCPI protocol enables any instrument with a SCPI facility to be controlled using the same commands. The ADSE use a reduced SCPI command set and the defined SCPI syntax.

The following sections describe and define each instrument command used by ADSE pitot static tester.

Referenced document :

D2-0012-CL-F-Operating Manual ADSE 745-Tablet PC - Ed06.pdf

D2-0116-CL-C Operating Manuel ADSE741 - Ed03.pdf

D2-0120-CL-A-Operating Manual ADSE 746.pdf

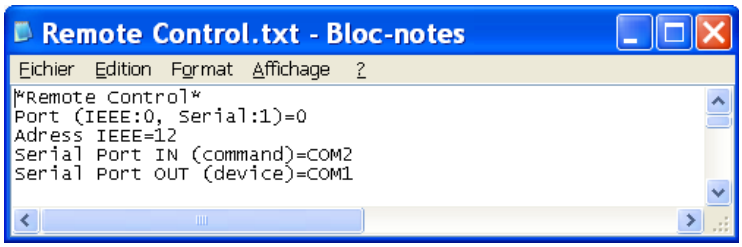
1.2. Configurations

1.2.1. Software

After the software installation, you can find the following folders and files (by default on C:\):

- Omicron.cfg : path file
- ADSE74X: Parameters folder
- Program file\ADSE74X IEEE: Executable folder

In "ADSE74X\Parameter\Remote Control.txt", you can select the remote control.



File : Remote Control.txt

In the first line, you select the active port :

- 0 : IEEE
- 1 : RS232

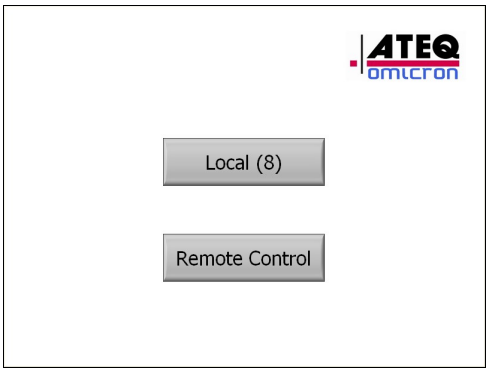
In the second, you can choose IEEE Interface address

In the third, you can choose the serial port for the RCU,

In the fourth, you can choose the serial port for the EPU.

1.2.2. Starting the software

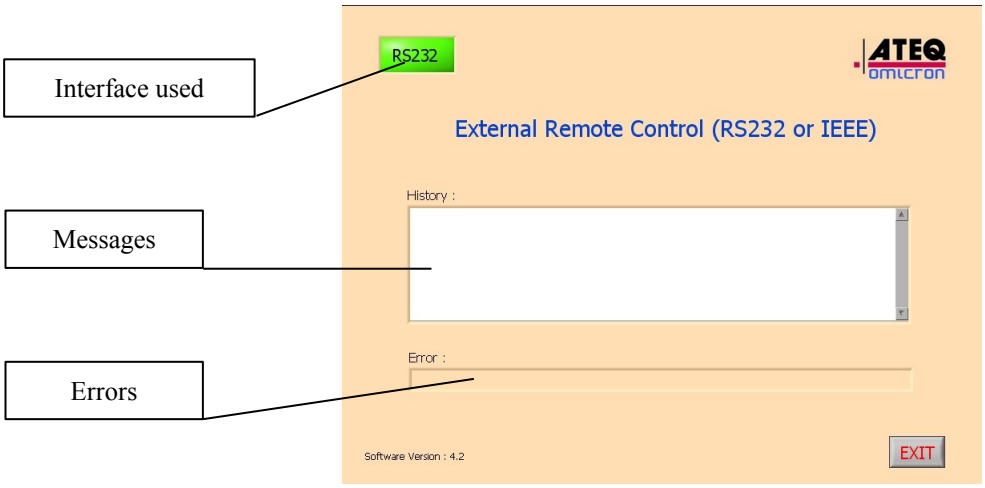
When the software gets started, the above screen is displayed (only on ADSE741) :



- Push on the "Remote Control" button to start this mode,
- After 10s , the software switch automatically on Remote Control mode (Option for RS232 and IEEE488).

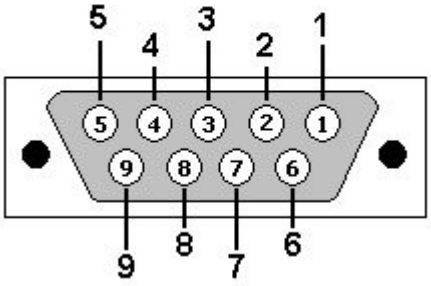
Note : The "Local" button start the manual mode (only on ADSE741).

When you select "Remote control" or with "ADSE74X IEE.exe", the above screen is displayed:



1.2.3. Serial port (remote control)

Serial interface – pins arrangement :



Serial link interface – Pins allocation :

1	Data carrier detect	DCD
2	Receive data	RX
3	Transmit data	TX
4	Data terminal ready	DTR
5	Signal ground	GND
6	Data set ready	DSR
7	Request to send	RTS
8	Clear to send	CTS
9	Ring indicator	RI

Serial protocol :

The serial bus transmission shall have the following characteristics :

- *Baud Rate: 115200*
- Data *Bits: 8*
- *Start Bit: 1*
- *Stop Bit: 1*
- *Parity: None*
- *Hardware Control: No*
- *Timeout: 1.5s (TBC)*
- Terminal char *: CR (carriage return : "/r")*

The ADSE74X with TabletPC can be controlled by the USB port, with the following interface :

- **EG-0279-A : Link cable USB/RS232**

1.2.4. IEEE (remote control)

The ADSE74X can be controlled by IEEE 488 port. In this case, you can use the following interface :

- **EZ-0098-PR-A : Link cable ADSE/IEEE**

2. Commands reference

2.1. Introduction

The ADSE commands are based on SCPI language. But, it is not a true SCPI. However, you can find its properties.

There are two types of commands :

- Standard commands,
- Local commands.

Standard commands always start with a "*" and local with a ":".

Commands can be in lowercase or uppercase,

Several commands can't be sent in the same time,

All commands must be in short form (long form is not supported),

Each parameters must be separated by a colon,

A space must be put between the last command and a parameter,

A "," must be put between parameters

2.2. Local commands

2.2.1. System commands

The following commands are used to communicate directly with the PC (windows XP) and to know the state of the system.

:INST:SN?
:SYST:ERR?
:SYST:EXIT
:SYST:RAZ

System commands

2.2.1.1. :INST:SN

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :INST:SN?

Name: INSTrument:SerialNumber

Function: ask identification and serial number.

Conditions: none

Returned Data: string

ADSE741 SN101 (for example)

2.2.1.2. :SYST:ERR

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SYST:ERR?

Name: SYSTem:ERRor

Function: check and erase the error in memory.

Conditions: none

Returned Data: string

1. No error
2. Invalid Input
3. Ps : Ground Impossible
4. Ps : Invalid Set Point
5. PS : Limits Exceeded
6. PS : Domain Limits Exceeded
7. PS : Sensor Problem
8. PS : Overpressure
9. PS : Technical Incident
10. PS : DeltaP Sensor Problem
11. PS : µC Init Problem
12. PS : µC Communication Problem
13. PS : Sensor Init Problem
14. PS : Servovalve Init Problem
15. Pt : Ground Impossible
16. Pt : Invalid Set Point
17. Pt : Limits Exceeded

18. Pt : Domain Limits Exceeded
19. Pt : Sensor Problem
20. Pt : Overpressure
21. Pt : Technical Incident
22. Pt : DeltaP Sensor Problem
23. Pt : µC Init Problem
24. Pt : µC Communication Problem
25. Pt : Sensor Init Problem
26. Pt : Servovalve Init Problem
27. AOA : Ground Impossible
28. AOA : Invalid Set Point
29. AOA : Limits Exceeded
30. AOA : Domain Limits Exceeded
31. AOA : Sensor Problem
32. AOA : Overpressure
33. AOA : Technical Incident
34. AOA : DeltaP Sensor Problem
35. AOA : µC Init Problem
36. AOA : µC Communication Problem
37. AOA : Sensor Init Problem
38. AOA : Servovalve Init Problem
39. MultiChannel : µC Init Problem
40. MultiChannel : µC Communication Problem
41. Pressure Pt < Pressure Ps
42. ETX Card Problem
43. Battery or Direct Courant Low
44. Battery Low or Direct Courant KO, stop the system
45. Warning : Internal Temperature
46. Internal Temperature Exceeded
47. Atmo Sensor Problem
48. MultiChannel : Configuration Card Problem
49. Alticoder : µC Init Problem
50. Alticoder : µC Communication Problem
51. Ps : Domain Limits Exceeded (vaccum stop)

52. Ps : Domain Limits Exceeded (pressure stop)
53. Pt : Domain Limits Exceeded (vaccum stop)
54. Pt : Domain Limits Exceeded (pressure stop)
55. AoA : Domain Limits Exceeded (vaccum stop)
56. AoA : Domain Limits Exceeded (pressure stop)

2.2.1.3. :SYST:EXIT

Command Syntax: :SYST:EXIT

Name: :SYSTem:EXIT

Function: Stop Windows and ADSE

Conditions: none

Parameters: none

Parameters Range: none

Query Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Returned Data: ----

2.2.1.4. :SYST:RAZ

Command Syntax: :SYST:RAZ

Name: SYSTem:RemiseAZero

Function: Restart Windows (not ADSE741 generator or ADSE EPU)

Conditions: none

Parameters: none

Parameters Range: none

Query Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Returned Data: ----

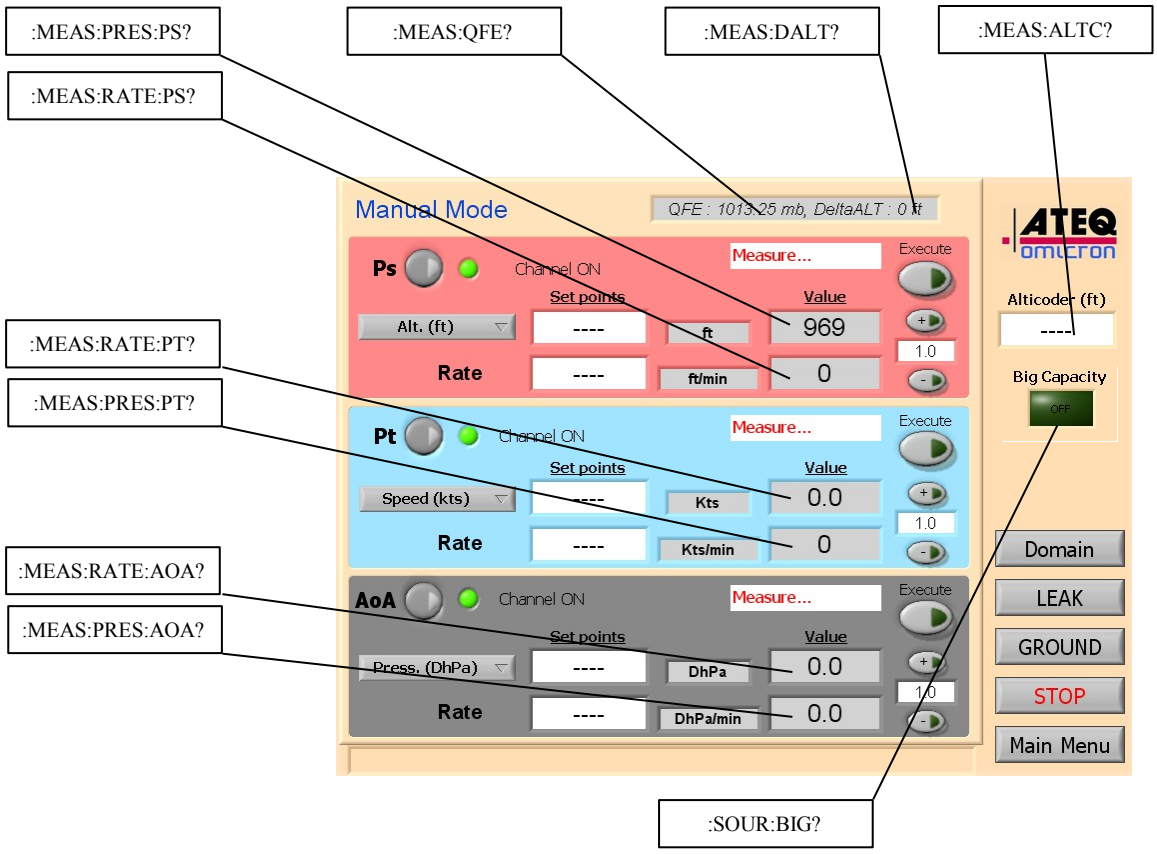
2.2.2. Data commands

The following commands are used to read measured values.

:MEAS:DALT?
:MEAS:ALTC?
:MEAS:PRES:PS?
:MEAS:PRES:PT?
:MEAS:PRES:AOA?
:MEAS:RATE:PS?
:MEAS:RATE:PT?
:MEAS:RATE:AOA?
:MEAS:QFE?
:MEAS:PATM?

Data commands

Correspondence with Manual mode :



2.2.2.1. :MEAS:DALT

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :MEAS:DALT?

Name: MEASure:DeltaALTitude

Function: return DALT* value

Conditions: none

Returned Data: Numeric type

(*) DALT = Vertical distance between ADSE and airplane probe.

2.2.2.2. :MEAS:ALTC

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :MEAS:ALTC?

Name: MEASure:ALTiCoder

Function: return altimeter encoder value

Conditions: none

Returned Data: Numeric type

2.2.2.3. :MEAS:PRES:PS

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :MEAS:PRES:PS?

Name: MEASure:PRESsure:PressureStatic

Function: return Ps value (in the unit used)

Conditions: none

Returned Data: Numeric type

2.2.2.4. :MEAS:PRES:PT

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :MEAS:PRES:PT?

Name: MEASure:PRESsure:PressureTotal

Function: return Pt value (in the unit used)

Conditions: none

Returned Data: Numeric type

2.2.2.5. :MEAS:PRES:AOA

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :MEAS:PRES:AOA?

Name: MEASure:PRESsure:AngleOfAttack

Function: return AoA value (in the unit used)

Conditions: none

Returned Data: Numeric type

2.2.2.6. :MEAS:RATE:PS

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :MEAS:RATE:PS?

Name: MEASure:RATE:PressureStatic

Function: return rate Ps value (in the unit used)

Conditions: none

Returned Data: Numeric type

2.2.2.7. :MEAS:RATE:PT

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :MEAS:RATE:PT?

Name: MEASure:RATE:PressureTotal

Function: return rate Pt value (in the unit used)

Conditions: none

Returned Data: Numeric type

2.2.2.8. :MEAS:RATE:AOA

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :MEAS:RATE:AOA?

Name: MEASure:RATE:AngleOfAttack

Function: return rate AoA value (in the unit used)

Conditions: none

Returned Data: Numeric type

2.2.2.9. :MEAS:QFE

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :MEAS:QFE?

Name: MEASure:RATE:QFE

Function: return QFE value (1013.25 mbar or local pressure)

Conditions: none

Returned Data: Numeric type

2.2.2.10. :MEAS:PATM

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :MEAS:PATM?

Name: MEASure:PressureATMosphere

Function: return local pressure

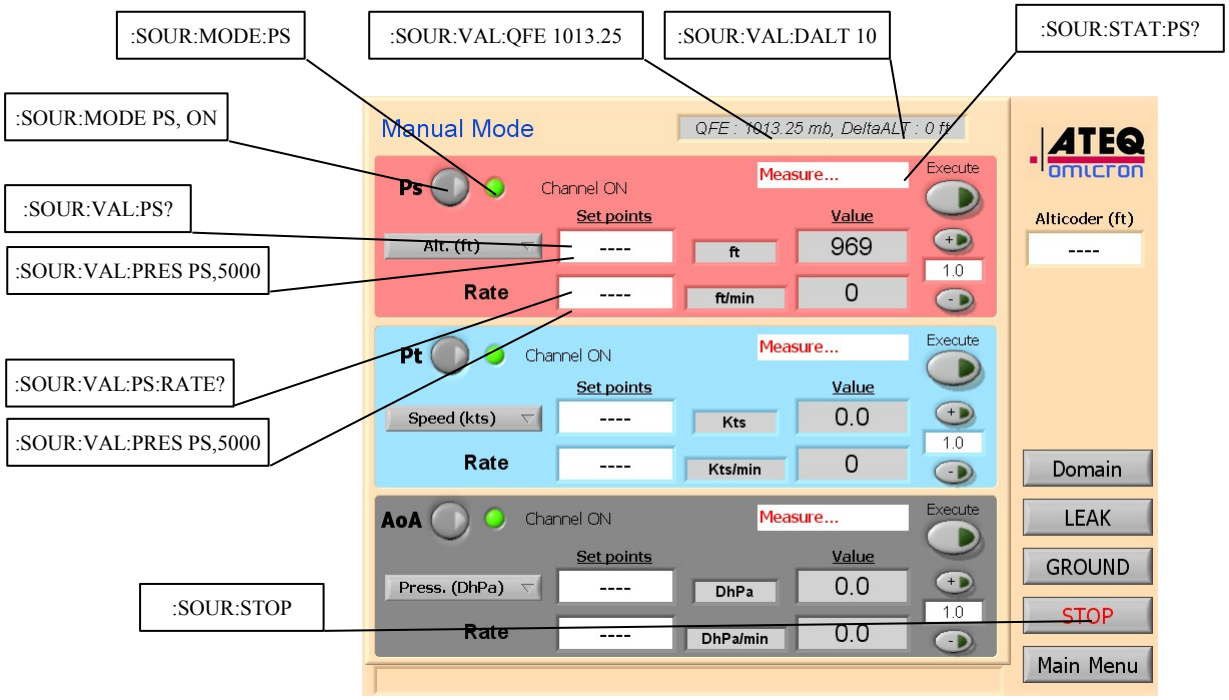
Conditions: none

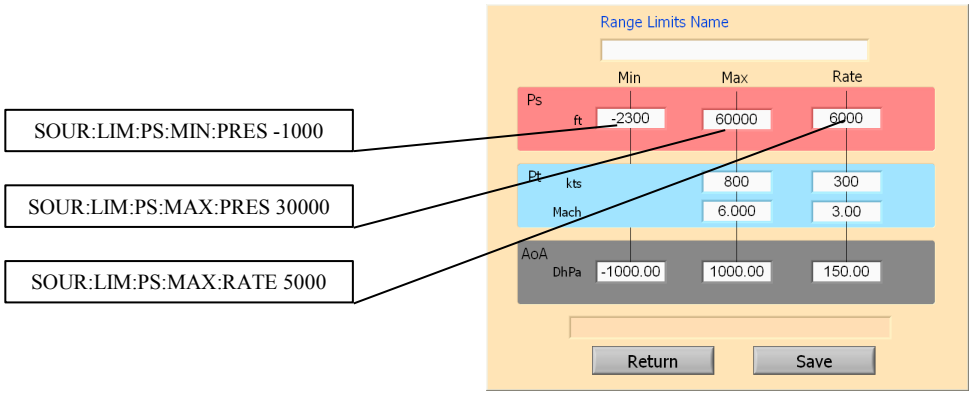
Returned Data: Numeric type

2.2.3. Configuration commands

The following commands are used :

- to send set points,
- to read value of set points,
- to change limit.





2.2.3.1. :SOUR:BIG

Command Syntax: :SOUR:BIG <value>

Name: :SOURce:BIGcapacity

Function: Set the "Big Capacity" mode

Conditions: none (automatically applied on Ps, Pt and AoA)

Parameters: string

Parameters Range: Value ON or OFF

Query Syntax: :SOUR:BIG?

Name: SOURce:BIGcapacity?

Function: Get the mode – active or not

Conditions: none

Returned Data: string (ON or OFF)

2.2.3.2. :SOUR:LIM:MIN:PRES

Command Syntax: :SOUR:LIM:MIN:PRES <channel,value>

Name: SOUR:LIMit:MINimum:PRESsure

Function: Set a user minimum limit

Conditions: Send a new generation to be applied.

Parameters: string, string

Parameters Range:

Channel : PS and AOA

Value : see units and range in MAX domain

Query Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Returned Data: ----

2.2.3.3. :SOUR:LIM:MAX:PRES

Command Syntax: :SOUR:LIM:MAX:PRES <channel,value>

Name: SOUR:LIMit:MAXimum:PRESsure

Function: Set a user maximum limit

Conditions: Send a new generation to be applied.

Parameters: string, string

Parameters Range:

Channel : PS, PT, MACH and AOA

Value : see units and range in MAX domain

Query Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Returned Data: ----

2.2.3.4. :SOUR:LIM:MAX:RATE

Command Syntax: :SOUR:LIM:MAX:RATE <channel,value>

Name: SOUR:LIMit:MAXimum:RATE

Function: Set a user maximum rate limit

Conditions: Send a new generation to be applied.

Parameters: string, string

Parameters Range:

Channel : PS, PT, MACH, AOA

Value : see units and range in MAX domain

Query Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Returned Data: ----

2.2.3.5. :SOUR:LIM:MAX:MAX

Command Syntax: :SOUR:LIM:MAX:MAX

Name: SOUR:LIMit:MAXimum:MAX

Function: Load MAX domain

Conditions: Send a new generation to be applied.

Parameters: none

Parameters Range: none

Query Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Returned Data: ----

2.2.3.6. :SOUR:LIM:PS:MIN:PRES

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:LIM:PS:MIN:PRES?

Name: SOURce:LIMite:PressureStatic:MINimum:PRESsure

Function: return minimum value for Ps (ft) – User domain

Conditions: none

Returned Data: Numeric type

2.2.3.7. :SOUR:LIM:PS:MAX:PRES

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:LIM:PS:MAX:PRES?

Name: SOURce:LIMite:PressureStatic:MAXimum:PRESsure

Function: return maximum value for Ps (ft) – User domain

Conditions: none

Returned Data: Numeric type

2.2.3.8. :SOUR:LIM:PS:MAX:RATE

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:LIM:PS:MAX:RATE?

Name: SOURce:LIMite:PressureStatic:MAXimum:RATE

Function: return maximum rate for Ps (ft) – User domain

Conditions: none

Returned Data: Numeric type

2.2.3.9. :SOUR:LIM:PT:MAX:PRES

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:LIM:PT:MAX:PRES?

Name: SOURce:LIMite:PressureTotal:MAXimum:PRESsure

Function: return maximum value for Pt (kts) – User domain

Conditions: none

Returned Data: Numeric type

2.2.3.10. :SOUR:LIM:PT:MAX:RATE

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:LIM:PT:MAX:RATE?

Name: SOURce:LIMite:PressureTotal:MAXimum:RATE

Function: return maximum rate for Pt (kts) – User domain

Conditions: none

Returned Data: Numeric type

2.2.3.11. :SOUR:LIM:MACH:MAX:PRES

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:LIM:MACH:MAX:PRES?

Name: SOURce:LIMite:MACH:MAXimum:PRESsure

Function: return maximum value for Pt (Mach) – User domain

Conditions: none

Returned Data: Numeric type

2.2.3.12. :SOUR:LIM:MACH:MAX:RATE

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:LIM:MACH:MAX:RATE?

Name: SOURce:LIMite:MACH:MAXimum:RATE

Function: return maximum rate for Pt (Mach) – User domain

Conditions: none

Returned Data: Numeric type

2.2.3.13. :SOUR:LIM:AOA:MIN:PRES

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:LIM:AOA:MIN:PRES?

Name: SOURce:LIMite:AngleOfAttack:MINimum:PRESsure

Function: return minimum value for AoA (DhPa) – User domain

Conditions: none

Returned Data: Numeric type

2.2.3.14. :SOUR:LIM:AOA:MAX:PRES

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:LIM:AOA:MAX:PRES?

Name: SOURce:LIMite:AngleOfAttack:MAXimum:PRESsure

Function: return maximum value for AoA (DhPa) – User domain

Conditions: none

Returned Data: Numeric type

2.2.3.15. :SOUR:LIM:AOA:MAX:RATE

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:LIM:AOA:MAX:RATE?

Name: SOURce:LIMite:AngleOfAttack:MAXimum:RATE

Function: return maximum rate for AoA (DhPa) – User domain

Conditions: none

Returned Data: Numeric type

2.2.3.16. :SOUR:MODE

Command Syntax: :SOUR:MODE <channel,value>

Name: :SOURce:MODE

Function: Active or not the select channel

Conditions: none

Parameters: string, string

Parameters Range:

Channel : PS, PT, AOA

Value : ON, OFF

Query Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Returned Data: ----

2.2.3.17. :SOUR:MODE:PS

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:MODE:PS?

Name: SOURce:MODE:PressureStatic

Function: Get the mode of Ps – active or not

Conditions: none

Returned Data: string (ON or OFF)

2.2.3.18. :SOUR:MODE:PT

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:MODE:PT?

Name: SOURce:MODE:PressureTotal

Function: Get the mode of Pt – active or not

Conditions: none

Returned Data: string (ON or OFF)

2.2.3.19. :SOUR:MODE:AOA

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:MODE:AOA?

Name: SOURce:MODE:AngleOfAttack

Function: Get the mode of AoA – active or not

Conditions: none

Returned Data: string (ON or OFF)

2.2.3.20. :SOUR:STAT:PS

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:STAT:PS?

Name: SOURce:STATe:PressureStatic

Function: Get the state of Ps

Conditions: none

Returned Data: string

The state can be :

- Measure,
- Atmosphere,
- Start pump,
- Balancing,
- Running,
- Ready.

2.2.3.21. :SOUR:STAT:PT

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:STAT:PT?

Name: SOURce:STATe:PressureTotal

Function: Get the state of Pt

Conditions: none

Returned Data: string

The state can be :

- Measure,
- Atmosphere,
- Start pump,
- Balancing,
- Running,
- Ready.

2.2.3.22. :SOUR:STAT:AOA

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:STAT:AOA?

Name: SOURce:STATe:AngleOfAttack

Function: Get the state of AoA

Conditions: none

Returned Data: string

The state can be :

- Measure,
- Atmosphere,
- Start pump,
- Balancing,
- Running,
- Ready.

2.2.3.23. :SOUR:STAT:ALL

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:STAT:ALL?

Name: SOURce:STATe:ALL

Function: Get the state of ALL

Conditions: none

Returned Data: string

The state can be :

- Measure (if all channels are in this state),
- Atmosphere (if all channels are in this state),
- Ready(if all channels are in this state),
- Running (else).

2.2.3.24. :SOUR:STOP

Command Syntax: :SOUR:STOP

Name: :SOURce:STOP

Function: Stop the generation on all channels

Conditions: none

Parameters: none

Parameters Range: none

Query Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Returned Data: ----

2.2.3.25. :SOUR:VAL:PRES

Command Syntax: :SOUR:VAL:PRES <channel,value>

Name: :SOURce:VALue:PRESsure

Function: Send a new set point on the selected channel (in the unit used)

Conditions: none

Parameters:

- Channel : PS, PT or AOA
- value : integer type

Parameters Range: see domain

Query Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Returned Data: ----

2.2.3.26. :SOUR:VAL:RATE

Command Syntax: :SOUR:VAL:RATE <channel,value>

Name: :SOURce:VALue:RATE

Function: Send a new rate on the selected channel (in the unit used)

Conditions: none

Parameters:

- Channel : PS, PT or AOA
- value : integer type

Parameters Range: see domain

Query Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Returned Data: ----

2.2.3.27. :SOUR:VAL:PS

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:VAL:PS?

Name: SOURce:VALue:PressureStatic

Function: Get the set point for Ps channel (in the unit used)

Conditions: none

Returned Data: integer type

2.2.3.28. :SOUR:VAL:PS:RATE

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:VAL:PS:RATE?

Name: SOURce:VALue:PressureStatic:RATE

Function: Get the rate for Ps channel (in the unit used)

Conditions: none

Returned Data: integer type

2.2.3.29. :SOUR:VAL:PT

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:VAL:PT?

Name: SOURce:VALue:PressureTotal

Function: Get the set point for Pt channel (in the unit used)

Conditions: none

Returned Data: integer type

2.2.3.30. :SOUR:VAL:PT:RATE

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:VAL:PT:RATE?

Name: SOURce:VALue:PressureTotal:RATE

Function: Get the rate for Pt channel (in the unit used)

Conditions: none

Returned Data: integer type

2.2.3.31. :SOUR:VAL:AOA

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:VAL:AOA?

Name: SOURce:VALue:AngleOfAttack

Function: Get the set point for AoA channel (in the unit used)

Conditions: none

Returned Data: integer type

2.2.3.32. :SOUR:VAL:AOA:RATE

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :SOUR:VAL:AOA:RATE?

Name: SOURce:VALue:AngleOfAttack:RATE

Function: Get the rate for AoA channel (in the unit used)

Conditions: none

Returned Data: integer type

2.2.3.33. :SOUR:VAL:DALT

Command Syntax: :SOUR:VAL:DALT <value>

Name: :SOURce:VALue:DeltaALTitude

Function: Set the altitude between ADSE and airplane probe (ft)

Conditions: Only when all channels are on the "ground"

Parameters: integer type

Parameters Range: 0 to 50 ft

Query Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Returned Data: ----

2.2.3.34. :SOUR:VAL:QFE

Command Syntax: :SOUR:VAL:QFE <value>

Name: :SOURce:VALue:QFE

Function: Set the QFE (local pressure or 1013.25mbar)

Conditions: Only when all channels are on the "ground"

Parameters: string

Parameters Range: "Local" or "1013.25"

Query Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Returned Data: ----

2.2.3.35. :SOUR:VAL:OUT

Command Syntax: :SOUR:VAL:OUT <output,value>

Name: :SOURce:VALue:OUTput

Function: Set the state of outputs C1 to C4

Conditions: Only when all channels are on the "ground"

Parameters: string

Parameters Range: - Output : C1 to C4,

- Value : ON or OFF.

Query Syntax: SOUR:VAL:OUT?

Name: SOURce:VALue:OUTput

Function: Return the state of outputs

Conditions: none

Returned Data: String (0 : close, 1 : open and 2 option)

For example, if the answer is : 1002

C1 is opened : 1

C2 is closed : 0

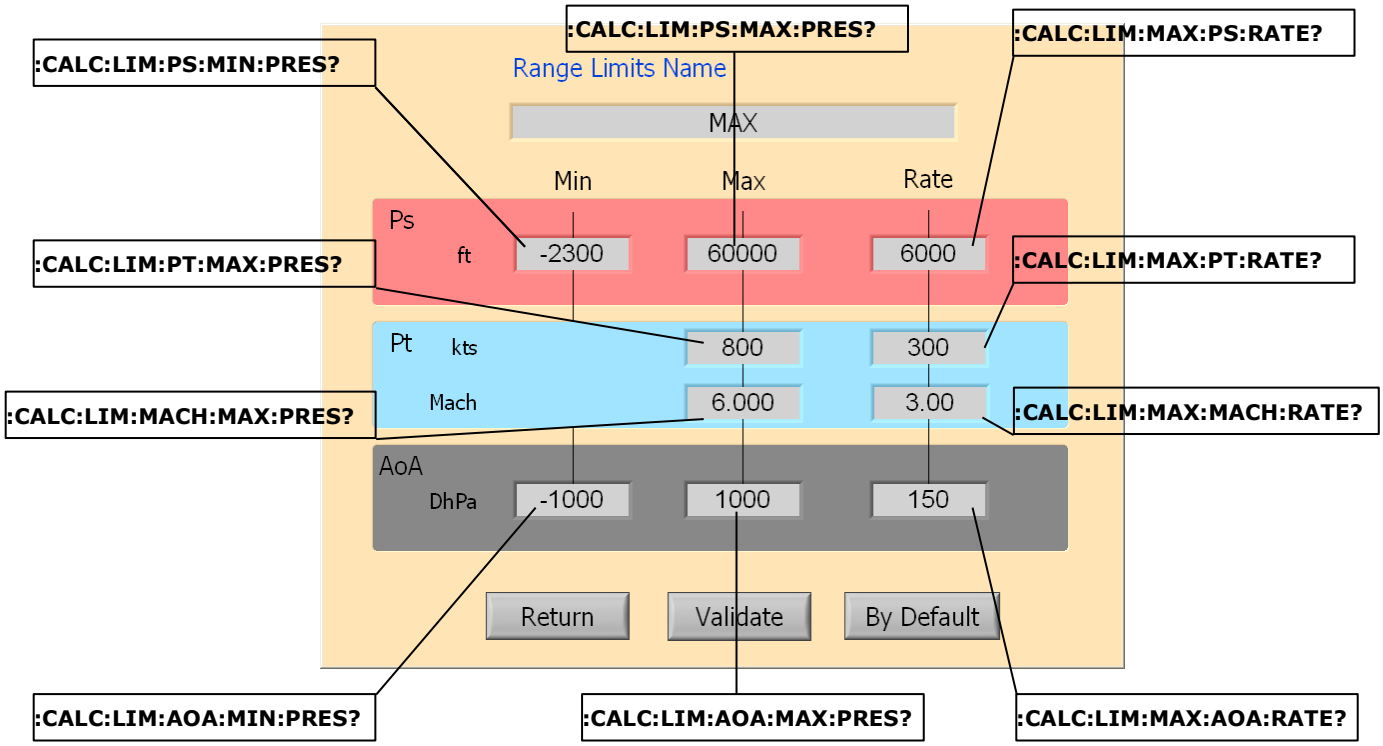
C3 is closed : 0

C4 in option : 2

2.2.4. Limits commands

The following commands are used to know the limits of the ADSE.The units for these limits are :

- Ps Channel : Feet
- Pt Channel : Knots and Mach
- AoA Channel : DhPa



2.2.4.1. :CALC:LIM:PS:MIN:PRES

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :CALC:LIM:PS:MIN:PRES?

Name: CALCulate:LIMit:PS:MINimum:PRESsure

Function: return minimum value for Ps (ft)

Conditions: none

Returned Data: Numeric type

2.2.4.2. :CALC:LIM:PS:MAX:PRES

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :CALC:LIM:PS:MAX:PRES?

Name: CALCulate:LIMit:PS:MAXimum:PRESsure

Function: return maximum value for Ps (ft)

Conditions: none

Returned Data: Numeric type

2.2.4.3. :CALC:LIM:MAX:PS:RATE

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :CALC:LIM:MAX:PS:RATE?

Name: CALCulate:LIMit:MAXimum:PressureStatic:RATE

Function: return maximum rate value for Ps (ft)

Conditions: none

Returned Data: Numeric type

2.2.4.4. :CALC:LIM:PT:MAX:PRES

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :CALC:LIM:PT:MAX:PRES?

Name: CALCulate:LIMit:PressureTotal:MAXimum:PRESsure

Function: return maximum value for Pt (kts)

Conditions: none

Returned Data: Numeric type

2.2.4.5. :CALC:LIM:MAX:PT:RATE

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :CALC:LIM:MAX:PT:RATE?

Name: CALCulate:LIMit:MAXimum:PressureTotal:RATE

Function: return maximum rate value for Pt (kts)

Conditions: none

Returned Data: Numeric type

2.2.4.6. :CALC:LIM:MACH:MAX:PRES

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :CALC:LIM:MACH:MAX:PRES?

Name: CALCulate:LIMit:MACH:MAXimum:PRESsure

Function: return maximum value for MACH (Mach)

Conditions: none

Returned Data: Numeric type

2.2.4.7. :CALC:LIM:MAX:MACH:RATE

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :CALC:LIM:MAX:MACH:RATE?

Name: CALCulate:LIMit:MAXimum:MACH:RATE

Function: return maximum rate value for MACH (Mach)

Conditions: none

Returned Data: Numeric type

2.2.4.8. :CALC:LIM:AOA:MIN:PRES

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :CALC:LIM:AOA:MIN:PRES?

Name: CALCulate:LIMit:AngleOfAttack:MINimum:PRESsure

Function: return minimum value for AOA (DhPa)

Conditions: none

Returned Data: Numeric type

2.2.4.9. :CALC:LIM:AOA:MAX:PRES

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :CALC:LIM:AOA:MAX:PRES?

Name: CALCulate:LIMit:AngleOfAttack:MAXimum:PRESsure

Function: return maximum value for AOA (ft)

Conditions: none

Returned Data: Numeric type

2.2.4.10. :CALC:LIM:MAX:AOA:RATE

Command Syntax: N/A

Name: ----

Function: ----

Conditions: ----

Parameters: ----

Parameters Range: ----

Query Syntax: :CALC:LIM:MAX:AOA:RATE?

Name: CALCulate:LIMit:MAXimum:AngleOfAttack:RATE

Function: return maximum rate value for AOA (DhPa)

Conditions: none

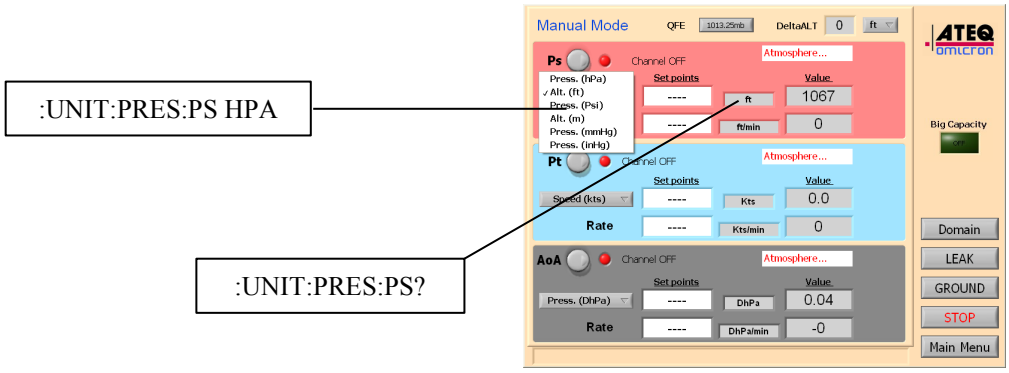
Returned Data: Numeric type

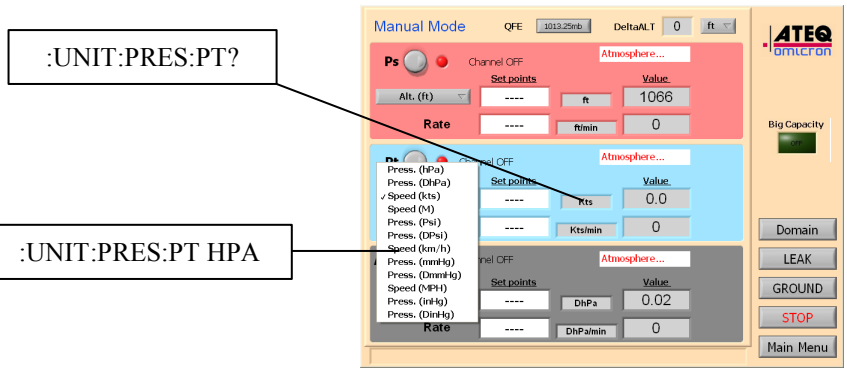
2.2.5. Units commands

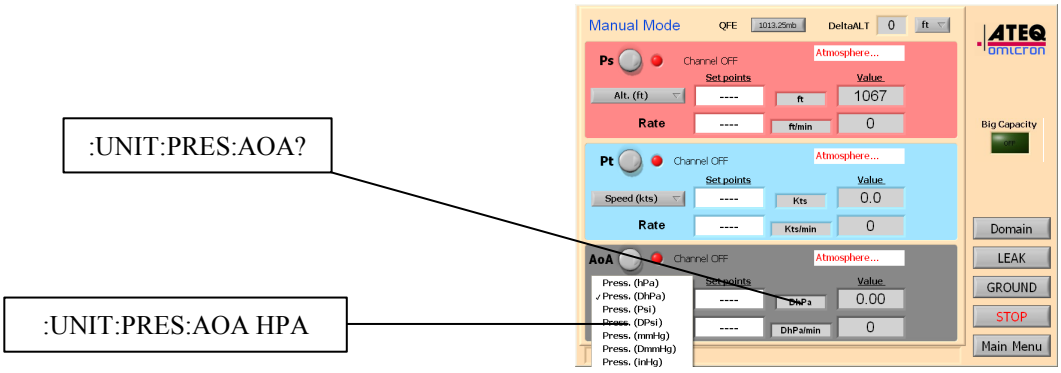
The following commands are used to change or to know the units of Ps, Pt and AoA channels.

:UNIT:PRES:AOA?	:UNIT:PRES:AOA
:UNIT:PRES:PS?	:UNIT:PRES:PS
:UNIT:PRES:PT?	:UNIT:PRES:PT

Units commands







2.2.5.1. :UNIT:PRES:PS

Command Syntax: :UNIT:PRES:PS <unit>

Name: UNIT:PRESsure:PressureStatic

Function: set a unit for Ps channel

Conditions: none

Parameters: abbreviation of the unit

Parameters Range: HPA, FT,PSI,M,MMHG,INHG

Query Syntax: :UNIT:PRES:PS?

Name: UNIT:PRESsure:PressureStatic

Function: return the unit of Ps channel

Conditions: none

Returned Data: string (abbreviation of the unit used)

2.2.5.2. :UNIT:PRES:PT

Command Syntax: :UNIT:PRES:PT <unit>

Name: UNIT:PRESsure:PressureTotal

Function: set a unit for Pt channel

Conditions: none

Parameters: abbreviation of the unit

Parameters Range: HPA, DHPA, KTS, MACH, PSI, DPSI, KMH, MMHG, DMMHG, MPH, INHG, DINHG.

Query Syntax: :UNIT:PRES:PT?

Name: UNIT:PRESsure:PressureTotal

Function: return the unit of Pt channel

Conditions: none

Returned Data: string (abbreviation of the unit used)

2.2.5.3. :UNIT:PRES:AOA

Command Syntax: :UNIT:PRES:AOA <unit>

Name: UNIT:PRESsure:AngleOfAttack

Function: set a unit for AoA channel

Conditions: none

Parameters: abbreviation of the unit

Parameters Range: HPA, DHPA, PSI, DPSI, MMHG, DMMHG, INHG, DINHG.

Query Syntax: :UNIT:PRES:AOA?

Name: UNIT:PRESsure:AngleOfAttack

Function: return the unit of AoA channel

Conditions: none

Returned Data: string (abbreviation of the unit used)

2.3. Standard commands

All the commands starting with * are SCPI standard commands.

2.3.1. *CLS

Command Syntax : *CLS

Function : Clear error of the ADSE.

Query Syntax : N/A

Function : ----

2.3.2. *ESE

Command Syntax : *ESE

Function : Send serial number

Query Syntax : *ESE?

Function : Send serial number

2.3.3. *ESR

Command Syntax : N/A

Function : ----

Query Syntax : *ESE?

Function : Send serial number

2.3.4. *IDN

Command Syntax : N/A

Function : ----

Query Syntax : *IDN?

Function : Send serial number

2.3.5. *OPC

Command Syntax : *OPC

Function : Send serial number

Query Syntax : *OPC?

Function : Send serial number

2.3.6. *OPT

Command Syntax : N/A

Function : ----

Query Syntax : *OPT?

Function : Send serial number

2.3.7. *RST

Command Syntax : *RST

Function : Send serial number

Query Syntax : N/A

Function : ----

2.3.8. *SRE

Command Syntax : *SRE?

Function : Send serial number

Query Syntax : *SRE?

Function : Send serial number

2.3.9. *STB

Command Syntax : N/A

Function : ----

Query Syntax : *STB?

Function : Send serial number

2.3.10. *TST

Command Syntax : N/A

Function : ----

Query Syntax : *TST?

Function : Send serial number

2.3.11. *WAI

Command Syntax : *WAI

Function : Send serial number

Query Syntax : N/A

Function : ----

3. Examples

3.1. Measure on Ps channel

This example show the commands and the answers to measure Ps channel.

Initialize device :

write : ***IDN?**

Read : **ADSE741 SN101**

Check errors :

write : **:SYST:ERR?**

Read : **No error**

Select a new unit for Ps (hPa for example) :

write : **:UNIT:PRES:PS HPA**

write : **:SYST:ERR?**

Read : **No error**

Check the unit for Ps :

write : **:UNIT:PRES:PS?**

Read : **HPA**

Measure Ps channel :

write : **:MEAS:PRES:PS?**

Read : **1001.123456**

3.2. Generate on Ps channel

This example show the commands and the answers to generate on Ps channel (Set point = 5000 ft and rate = 3000ft/mn).

Initialize device :

write : ***IDN?**

Read : **ADSE741 SN101**

Check errors :

write : **:SYST:ERR?**

Read : **No error**

Select a new unit for Ps (ft for our example) :

write : **:UNIT:PRES:PS FT**

Generate on Ps channel :

write : **:SOUR:VAL:PRES PS, 5000**

write : **:SOUR:VAL:RATE PS, 3000**

write : **:SYST:ERR?**

Read : **No error**

Measure Ps channel :

write : **:MEAS:PRES:PS?**

Read : **2305.000000**

State of Ps channel :

write : **:SOUR:STAT:PS?**

Read : **Running**

When the pressure is stabilized, you can read "**Ready**".