SmartLink™ Commands Tutorial

Measurement Setup Process

You can take quick measurements with your SmartLink™ right out of the box, using the instrument's default configurations and the **:Meas?** command.

For more complex measurements, you will want to use the three-step process outlined below to be certain you are getting measurement results that meet your needs.

Before you can take measurements or configure channels, you must already have established communication with the instrument. You configure the communications port on SmartLink™ using its Local Port and the **:Config:Comm** commands.

You should also set the instrument's internal time and date using the **:Time** and **:Date** commands at this time; although it is not mandatory.

Once you have established communication and set the time and date, you can complete the following tasks to ensure the measurement you make will give you the results you want.

1. **Configure the SmartLink™ Instrument.**
2. **Activate SmartLink™ Configurations.**
3. **Activate the Measurement.**

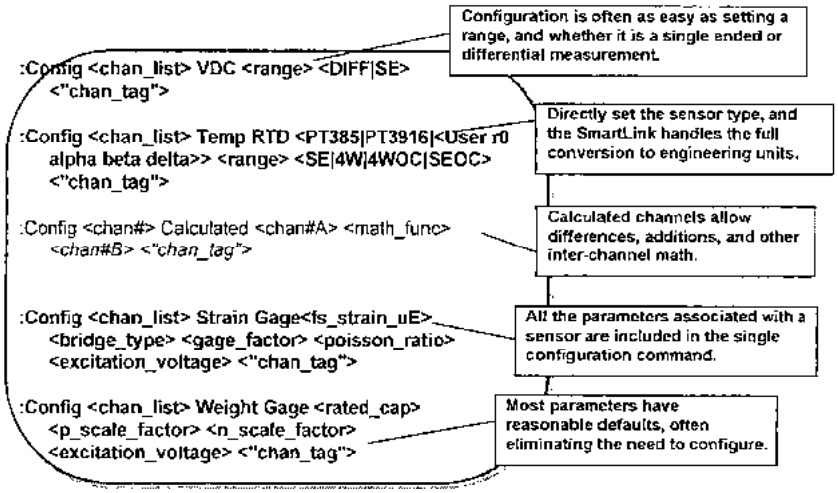
Keep in mind that you can take measurements with your SmartLink™ right out of the box, using the instrument's default configurations and the **:Meas?** command. You then only have to change those configurations that are necessary to meet your needs.

Please read the following sections in the order they appear to get the most benefit from this quick tutorial.

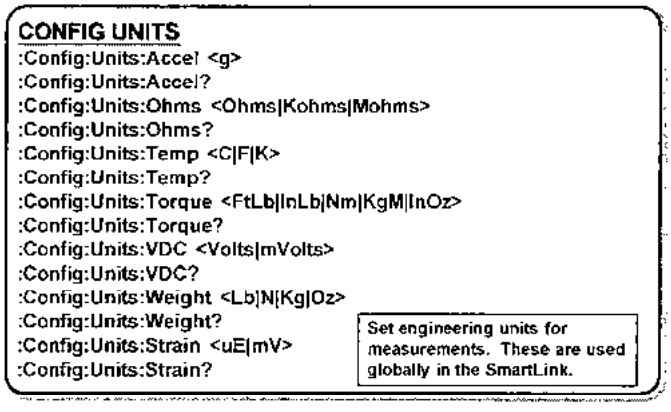
Configure the SmartLink™ Instrument

CONFIGURE SMARTLINK™ CHANNELS

1 Configure channels to measure the correct parameters with an appropriate measurement style (e.g. DCVolts-differential, DCVolts-single ended, 4-wire ohms-offset compensated, etc.) using **:Config <chan_list>** commands.

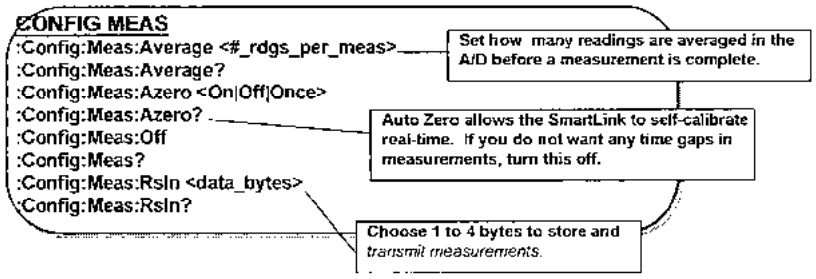


2 Configure units for each measurement parameter (e.g. FtLb for torque, K for temperature, etc.) using **:Config:Units** commands.



CONFIGURE SMARTLINK™ DATA CONDITIONING

1 Configure the instrument to average a number of readings for each measurement using **:Config:Meas** or **:Config:Filter** commands.

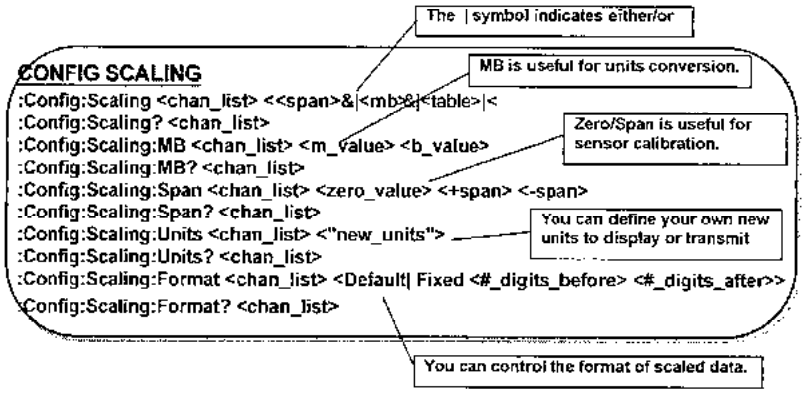


Since the digital filter is a moving average filter you get new readings at nearly the same rate as with unaveraged measurements.

CONFIG FILTER
:Config:Filter:Dig:MvgAvg <chan_list> <#_of_meas>
:Config:Filter:Dig:MvgAvg? <chan_list>

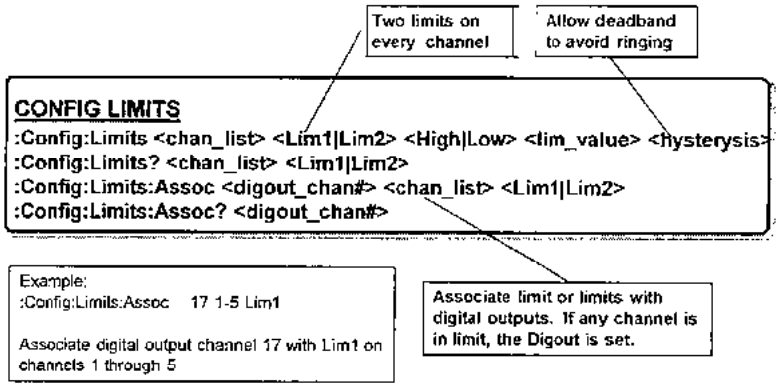
When using a Moving Average Digital Filter, it is important to note that the first "N" readings are not fully filtered. If they must be filtered, use the :config:meas:average command

2 Configure the instrument to scale data from each reading using the **:Config:Scaling** commands.



CONFIGURE SMARTLINK™ LIMIT CONDITIONS

1 Configure the instrument so it will check measurement data to see if it falls within desired limits, and specify what action the instrument takes when data is outside these limits using the **:Config:Limits** commands.



CONFIGURE SMARTLINK™ CHANNEL SCANNING & MEASUREMENT TIMING

You can configure the instrument to measure a list of channels at a specific time, at regular intervals of time, or after a trigger condition occurs in two ways.

Using the *:Config:Meas:Trig* **command**

Using the :Config:Scan command

Using the *:Config:Meas:Trig* command

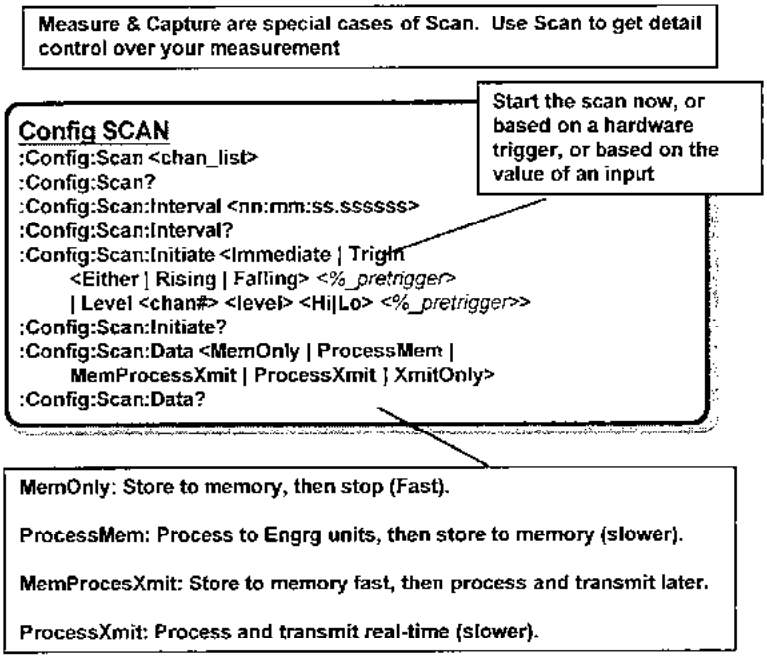
If you want the instrument to take a single measurement under certain conditions you use the *:Config:Meas:Trig <Immediate|TrigIn|DigIn|<chan#>>* command to specify the conditions.

You must then issue the **:Meas? <chan_list> <#_of_rdgs>** command to cause the instrument to watch for those conditions and take the number of readings specified by <#_of_rdgs> from each of the channels specified in <chan_list>.

Using the :Config:Scan command

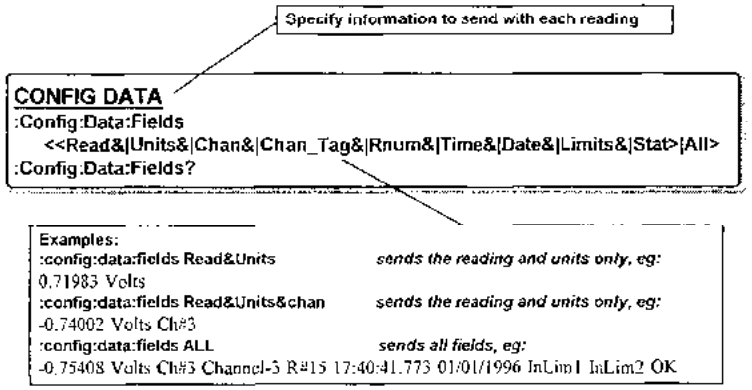
You can configure the instrument to scan a set of channels at regular intervals of time or after a specified trigger condition occurs using the **:Config:Scan** commands.

You must first define the channels you wish to scan using the **:Config:Scan <chan_list>** command and then define the conditions that will cause the scan to start using the **:Config:Scan:Initiate** command.

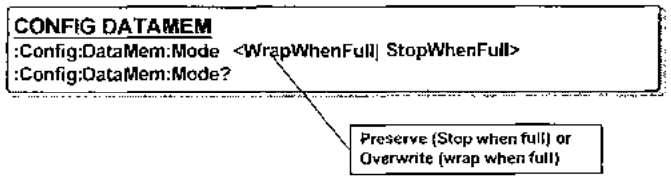


CONFIGURE SMARTLINK™ DATA COLLECTION

1 Configure which data as well as which fields in the data will be transmitted to memory or to the display using the **:Config:Data** commands.



2 Configure the way data is stored and the format in which it will be stored using the **:Config:DataMem** commands.



Activate SmartLink™ Configurations

There are a number of configurations you set up with **:Config** commands that you must activate before SmartLink™ will use them.

ACTIVATE FILTERING CONFIGURATIONS

You activate filtering configurations for specified channels using the **:Filter:Dig** commands. You must activate filtering before you tell the instrument to take a measurement using the **:Meas?** Command.

FILTER
:Filter:Dig <chan_list> <On|Off>
:Filter:Dig? <chan_list>

ACTIVATE SCALING CONFIGURATIONS

You activate scaling configurations for specified channels using the **:Scaling** command.

SCALING
:Scaling <chan_list> <On|Off>
:Scaling? <chan_list>

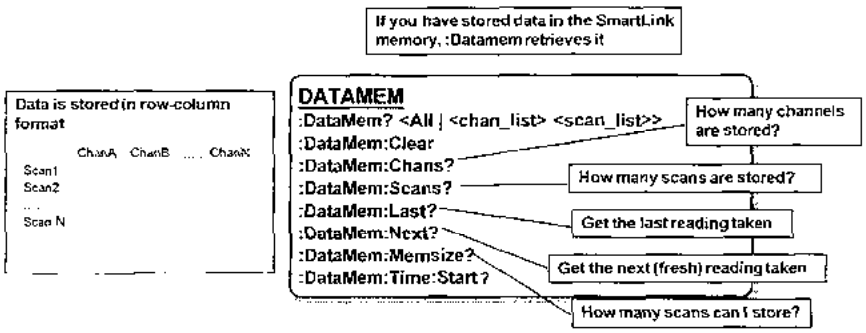
ACTIVATE LIMITS CONFIGURATIONS

You activate limits configurations for specified channels using the **:Limits** commands.

LIMITS
:Limits <<chan_list>|All> <On|Off>
:Limits? <chan_list>
:Limits:Status? <chan_list>

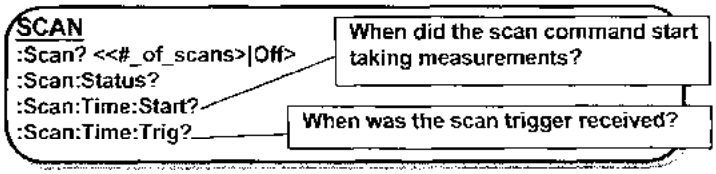
ACTIVATE DATA STORAGE CONFIGURATIONS

You activate data storage configurations using the **:DataMem** commands.



ACTIVATE SCAN CONFIGURATIONS

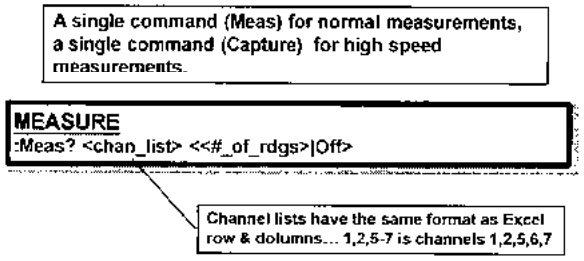
You activate Scan configurations using the **:Scan** commands.



Activate the Measurement

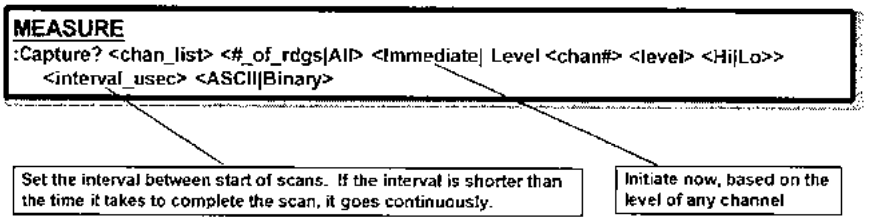
There are three ways to cause SmartLink™ to take a measurement.

ISSUE THE :MEAS? COMMAND.



ISSUE THE :SCAN? COMMAND.

ISSUE THE :CAPTURE? COMMAND.



**Note: All commands in Italics will be available in future firmware upgrades.*