# **DSA FFT Analysis**

Follow the guided steps below on how to set-up a FFT Analysis in EDM to use with Spider hardware.

### **Create Test**



ew Test Wizard							
	information for t	<b>his test</b> r this test by "Test name	" or "Test description".				
reate a new FFT	Analysis test: FFT	Analysis					
	FFT Analysis	, may so		Append the sequence numb	er		
est name:	-			Append the sequence numb	er 1		
st description:							
O I lan than dafan	la l'ilanani a a a ala a		and the state of t		asing a contract		
ose the dela	iuit libraries of the	previous test of the sam	e type. If default libraries were no	applied before the manufacturing se	ettings will be used.		
Create test b	y using a template						
elect Tem	plate Name	Description					
	010 0007504						
der system:	SYS_2597504	•					
t directory:	C:\Users\Drew\D	ocuments\EDM\Spider_	DCA\FFT AIi-				
Crosto nou ru			_DSA\FFT Analysis	Choose			
	n folder for each n	in.	_USA\FFT Analysis	Choose			
Create rien ra	n folder for each r	ın	_DSA\FF1 Analysis	Choose			
	n folder for each n	un	DSA(FFT Analysis	Choose		< Back Next >	Car
	n folder for each n	ın	DSAIFFI Analysis	Choose		< Back Next >	
w Test Wizard				Choose		< Back Next >	Car
w Test Wizard	ne signal types to	be computed in real tir	me.	Choose		< Back Next >	
w Test Wizard lease check th lote: Go to Mea	ne signal types to asured Signals sett	be computed in real tir ing to select the signals	<b>me.</b> to be viewed or saved.	Choose		< Back Next >	
w Test Wizard lease check th lote: Go to Med Enable a spec	ne signal types to asured Signals sett ial analysis techno	be computed in real tir ing to select the signals logy of multi-resolution	me. to be viewed or saved.				
w Test Wizard lease check th lote: Go to Med Enable a spec	ne signal types to asured Signals sett ial analysis techno	be computed in real tir ing to select the signals logy of multi-resolution	me. to be viewed or saved.	gher accuracy in low frequency band	. To see the difference,		
w Test Wizard  ease check the ote: Go to Mei  Enable a spec  This function	ne signal types to asured Signals sett ial analysis techno n applies the FFT v	be computed in real tir ing to select the signals logy of multi-resolution vith variable resolution in	me. to be viewed or saved. I spectrum in frequency domain to achieve hi		. To see the difference		
w Test Wizard lease check th ote: Go to Mei Enable a spec This function	ne signal types to asured Signals sett ial analysis techno n applies the FFT v and Time Block sig	be computed in real tir ing to select the signals logy of multi-resolution vith variable resolution i	me. to be viewed or saved. I spectrum in frequency domain to achieve hi		. To see the difference,		
w Test Wizard lease check th lote: Go to Mei Enable a spec This function Time Streams APS: Auto Po	ne signal types to asured Signals sett ial analysis techno n applies the FFT v and Time Block sig wer Spectra using	be computed in real tir ing to select the signals logy of multi-resolution vith variable resolution i gnals are always available	me. to be viewed or saved. I spectrum in frequency domain to achieve hi		. To see the difference,		
w Test Wizard lease check th ote: Go to Mei Enable a spec This function Time Streams APS: Auto Por FRF: Frequence	ne signal types to asured Signals sett ial analysis techno n applies the FFT v and Time Block sig wer Spectra using cy Response Funct	be computed in real tir ing to select the signals logy of multi-resolution vith variable resolution i gnals are always available FFT ions	me. to be viewed or saved. I spectrum in frequency domain to achieve hi		. To see the difference,		
w Test Wizard lease check the ote: Go to Mei Enable a spec This function Time Streams APS: Auto Por FRF: Frequence CPS: Cross Po	ne signal types to asured Signals sett ial analysis techno n applies the FFT v and Time Block sig wer Spectra using cy Response Funct wer Spectral Signa	be computed in real tir ing to select the signals logy of multi-resolution vith variable resolution in gnals are always available FFT ions	me. to be viewed or saved. In spectrum in frequency domain to achieve hi	gher accuracy in low frequency band	. To see the difference,		
ease check the ote: Go to Mei Enable a spec This function Time Streams APS: Auto Por FRF: Frequence CPS: Cross Po FFT: Linear sp	ne signal types to asured Signals sett ial analysis techno n applies the FFT v and Time Block sig wer Spectra using cy Response Funct wer Spectral Signa sectra signals with	be computed in real tir ing to select the signals logy of multi-resolution vith variable resolution in gnals are always available FFT ions	me. to be viewed or saved. I spectrum in frequency domain to achieve hi	gher accuracy in low frequency band	. To see the difference,		
w Test Wizard lease check the ote: Go to Mei Enable a spec This function Time Streams APS: Auto Por FRF: Frequenc CPS: Cross Po FFT: Linear sp SRS: Shock Re	he signal types to asured Signals sett ial analysis techno n applies the FFT v and Time Block sig wer Spectra using cy Response Funct wer Spectral Signa sectra signals with esponse Spectra	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do	me. to be viewed or saved.  I spectrum in frequency domain to achieve hi	gher accuracy in low frequency band	. To see the difference,		
w Test Wizard lease check the ote: Go to Mei Enable a spec This function Time Streams APS: Auto Por FRF: Frequence CPS: Cross Po FFT: Linear sp SRS: Shock Re	he signal types to asured Signals sett ial analysis techno n applies the FFT v and Time Block sig wer Spectra using cy Response Funct wer Spectral Signa sectra signals with esponse Spectra	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do	me. to be viewed or saved. In spectrum in frequency domain to achieve hi	gher accuracy in low frequency band	. To see the difference,		
ease check thote: Go to Mei Enable a spec This function Time Streams APS: Auto Por FRF: Frequenc CPS: Cross Po FFT: Linear sp SRS: Shock Re COR: Comput	and Time Block signer Spectra using cy Response Functiver Spectral Signar spectral Signar spectra signals with esponse Spectra as in spectra signals with esponse Spectra signals with esponse Spectra signals with esponse Spectra signals with esponse Spectra	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do	me. to be viewed or saved. spectrum in frequency domain to achieve hi	gher accuracy in low frequency band	. To see the difference,		
w Test Wizard lease check the ote: Go to Mere Enable a spec This function Time Streams APS: Auto Por FRF: Frequence CPS: Cross Po FFT: Linear sp SRS: Shock Re COR: Comput Cepstrum: Cor	and Time Block signer Spectra using cy Response Functiver Signals with the spectra using cy Response Functiver Spectra lignaries the correlation of mpute the Inverse mpute the Inverse	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do	me. to be viewed or saved.  spectrum in frequency domain to achieve hi	gher accuracy in low frequency band	. To see the difference,		
ease check thote: Go to Mei Enable a spec This function Time Streams APS: Auto Por FRF: Frequenc CPS: Cross Po FFT: Linear sp SRS: Shock Re COR: Comput Cepstrum: Co Demodulation	and Time Block signer Spectra using cy Response Functiver Signals with the sponse Spectra using a spectra signals with the sponse Spectra spectra special special spectra spectra spectra spectra spectra spectra special spectra spec	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do f time data(Autocorrelat Fourier transform (IFT) of	me. to be viewed or saved.  spectrum in frequency domain to achieve hi	gher accuracy in low frequency band	. To see the difference,		
v Test Wizard ease check thote: Go to Mei Enable a spec This function Time Streams APS: Auto Por FRF: Frequenc CPS: Cross Po FFT: Linear sp SRS: Shock Re COR: Comput Cepstrum: Co Demodulatior TACHO: Tacho	and Time Block signer Spectra using cy Response Functiver Spectra using sectra signals with the sponse Spectra is the test of the spectra signals with esponse Spectra is the test of the spectra signals with esponse Spectra is the correlation of mpute the Inverse in Spectra: Demodulometer	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do f time data(Autocorrelat Fourier transform (IFT) of	me. to be viewed or saved.  spectrum in frequency domain to achieve hi be omain. This signal type is rarely us tion and Cross-correlation) of spectrum signal hinery	gher accuracy in low frequency band	. To see the difference,		
w Test Wizard lease check thote: Go to Mei Enable a spec This function Time Streams APS: Auto Por FRF: Frequenc CPS: Cross Po FFT: Linear sp SRS: Shock Re COR: Comput Cepstrum: Coi Demodulation TACHO: Tach- FLT: Real time	and Time Block signal wer Spectra using cy Response Functioner Spectra using cy Response Spectra signals with esponse Spectra in the spectra signals with esponse Spectra in Spectra in Spectra: Demodulometer e digital filters applied	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do f time data(Autocorrelat Fourier transform (IFT) of lation Analysis for Mach	me. to be viewed or saved.  spectrum in frequency domain to achieve hi be omain. This signal type is rarely us tion and Cross-correlation) of spectrum signal hinery	gher accuracy in low frequency band	. To see the difference,		
w Test Wizard lease check thote: Go to Mei Enable a spec This function Time Streams APS: Auto Por FRF: Frequenc CPS: Cross Po FFT: Linear sp SRS: Shock Re COR: Comput Cepstrum: Coi Demodulation TACHO: Tachi FLT: Real time assure Time Sta	and Time Block signal wer Spectra using cy Response Funct wer Spectral Signal wert Spectral Signal wert Spectral Signal wert Spectral Signal werth esponse Spectra en the correlation of the spectra signal with the spectra spectra were the correlation of the spectra spectra were spectra. Demodulometer en digital filters appliats:	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do f time data(Autocorrelat Fourier transform (IFT) of lation Analysis for Machinels	me. to be viewed or saved.  I spectrum In frequency domain to achieve hi  I spectrum I spectrum I spectrum I spectrum I spectrum I spectrum signal type is rarely us I spectrum signal I spectrum signal I spectrum signal I spectrum signal	gher accuracy in low frequency band	. To see the difference,		
w Test Wizard lease check the ote: Go to Mei Enable a spec This function Time Streams APS: Auto Por FRF: Frequence CPS: Cross Po FFT: Linear sp SRS: Shock Re COR: Comput Cepstrum: Cor Demodulation TACHO: Tach FLT: Real time teasure Time Sta	and Time Block signal wer Spectra using cy Response Funct wer Spectral Signal wert Spectral Signal wert Spectral Signal wert Spectral Signal werth esponse Spectra en the correlation of the spectra signal with the spectra spectra were the correlation of the spectra spectra were spectra. Demodulometer en digital filters appliats:	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do f time data(Autocorrelat Fourier transform (IFT) of lation Analysis for Mach	me. to be viewed or saved.  I spectrum In frequency domain to achieve hi  I spectrum I spectrum I spectrum I spectrum I spectrum I spectrum signal type is rarely us I spectrum signal I spectrum signal I spectrum signal I spectrum signal	gher accuracy in low frequency band	. To see the difference,		
w Test Wizard lease check the ote: Go to Mei Enable a spec This function Time Streams APS: Auto Por FRF: Frequence CPS: Cross Por FFT: Linear sp SRS: Shock Re COR: Comput Cepstrum: Cor Demodulation TACHO: Tacher FLT: Real time easure Time Streams	and Time Block signal wer Spectra using cy Response Funct wer Spectral Signal wert Spectral Signal wert Spectral Signal wert Spectral Signal werth esponse Spectra en the correlation of the spectra signal with the spectra spectra were the correlation of the spectra spectra were spectra. Demodulometer en digital filters appliats:	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do f time data(Autocorrelat Fourier transform (IFT) of lation Analysis for Machinels	me. to be viewed or saved.  I spectrum In frequency domain to achieve hi  I spectrum I spectrum I spectrum I spectrum I spectrum I spectrum signal type is rarely us I spectrum signal I spectrum signal I spectrum signal I spectrum signal	gher accuracy in low frequency band	. To see the difference,		
w Test Wizard lease check the ote: Go to Mei Enable a spec This function Time Streams APS: Auto Por FRF: Frequence CPS: Cross Po FFT: Linear sp SRS: Shock Re COR: Comput Cepstrum: Cor Demodulation TACHO: Tach FLT: Real time easure Time Str	and Time Block signal wer Spectra using cy Response Funct wer Spectral Signal wert Spectral Signal wert Spectral Signal wert Spectral Signal werth esponse Spectra en the correlation of the spectra signal with the spectra spectra were the correlation of the spectra spectra were spectra. Demodulometer en digital filters appliats:	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do f time data(Autocorrelat Fourier transform (IFT) of lation Analysis for Machinels	me. to be viewed or saved.  I spectrum In frequency domain to achieve hi  I spectrum I spectrum I spectrum I spectrum I spectrum I spectrum signal type is rarely us I spectrum signal I spectrum signal I spectrum signal I spectrum signal	gher accuracy in low frequency band	. To see the difference,		
w Test Wizard lease check the lote: Go to Mei Enable a spec This function Time Streams APS: Auto Por FRF: Frequence CPS: Cross Po FFT: Linear sp SRS: Shock Re COR: Comput Cepstrum: Cor Demodulation TACHO: Tach FLT: Real time easure Time Stz RMS	and Time Block signal wer Spectra using cy Response Funct wer Spectral Signal wert Spectral Signal wert Spectral Signal wert Spectral Signal werth esponse Spectra en the correlation of the spectra signal with the spectra spectra were the correlation of the spectra spectra were spectra. Demodulometer en digital filters appliats:	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do f time data(Autocorrelat Fourier transform (IFT) of lation Analysis for Machinels	me. to be viewed or saved.  I spectrum In frequency domain to achieve hi  I spectrum I spectrum I spectrum I spectrum I spectrum I spectrum signal type is rarely us I spectrum signal I spectrum signal I spectrum signal I spectrum signal	gher accuracy in low frequency band	. To see the difference,		
w Test Wizard  lease check the lote: Go to Mea  Enable a spector of the spector of the lote of the lot	and Time Block signal wer Spectra using cy Response Funct wer Spectral Signal wert Spectral Signal wert Spectral Signal wert Spectral Signal werth esponse Spectra en the correlation of the spectra signal with the spectra spectra were the correlation of the spectra spectra were spectra. Demodulometer en digital filters appliats:	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do f time data(Autocorrelat Fourier transform (IFT) of lation Analysis for Machinels	me. to be viewed or saved.  I spectrum In frequency domain to achieve hi  I spectrum I spectrum I spectrum I spectrum I spectrum I spectrum signal type is rarely us I spectrum signal I spectrum signal I spectrum signal I spectrum signal	gher accuracy in low frequency band	. To see the difference,		
w Test Wizard  Please check the lote: Go to Mei  Enable a spec This function  Time Streams  APS: Auto Por  FRF: Frequence  CPS: Cross Po  FFT: Linear sp  SRS: Shock Re  COR: Comput  Cepstrum: Co  Demodulation  TACHO: Tach  FLT: Real time  easure Time Streams  Pe	and Time Block signal wer Spectra using cy Response Funct wer Spectral Signal wert Spectral Signal wert Spectral Signal wert Spectral Signal werth esponse Spectra en the correlation of the spectra signal with the spectra spectra were the correlation of the spectra spectra were spectra. Demodulometer en digital filters appliats:	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do f time data(Autocorrelat Fourier transform (IFT) of lation Analysis for Machinels	me. to be viewed or saved.  I spectrum In frequency domain to achieve hi  I spectrum I spectrum I spectrum I spectrum I spectrum I spectrum signal type is rarely us I spectrum signal I spectrum signal I spectrum signal I spectrum signal	gher accuracy in low frequency band	. To see the difference,		
Please check the Note: Go to Mei.  Enable a spec. This function  Time Streams  APS: Auto Por  FRF: Frequence  CPS: Cross Po  FFT: Linear sp  COR: Comput  Cepstrum: Cor  Demodulation  TACHO: Tache  FLT: Real time  easure Time Streams  Pe	and Time Block signal wer Spectra using cy Response Funct wer Spectral Signal wert Spectral Signal wert Spectral Signal wert Spectral Signal werth esponse Spectra en the correlation of the spectra signal with the spectra spectra were the correlation of the spectra spectra were spectra. Demodulometer en digital filters appliats:	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do f time data(Autocorrelat Fourier transform (IFT) of lation Analysis for Machinels	me. to be viewed or saved.  I spectrum In frequency domain to achieve hi  I spectrum I spectrum I spectrum I spectrum I spectrum I spectrum signal type is rarely us I spectrum signal I spectrum signal I spectrum signal I spectrum signal	gher accuracy in low frequency band	. To see the difference,		
Please check the Note: Go to Mei  Enable a spec This function  Time Streams  APS: Auto Por  FRF: Frequence  CPS: Cross Po  FFT: Linear sp  CRS: Shock Re  COR: Comput  Cepstrum: Cor  Demodulation  TACHO: Tache  FLT: Real time  RMS Pe	and Time Block signal wer Spectra using cy Response Funct wer Spectral Signal wert Spectral Signal wert Spectral Signal wert Spectral Signal werth esponse Spectra en the correlation of the spectra signal with the spectra spectra were the correlation of the spectra spectra were spectra. Demodulometer en digital filters appliats:	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do f time data(Autocorrelat Fourier transform (IFT) of lation Analysis for Machinels	me. to be viewed or saved.  I spectrum In frequency domain to achieve hi  I spectrum I spectrum I spectrum I spectrum I spectrum I spectrum signal type is rarely us I spectrum signal I spectrum signal I spectrum signal I spectrum signal	gher accuracy in low frequency band	. To see the difference,		
Please check the Note: Go to Mei.  Enable a spec. This function  Time Streams  APS: Auto Por  FRF: Frequence  CPS: Cross Po  FFT: Linear sp  COR: Comput  Cepstrum: Cor  Demodulation  TACHO: Tache  FLT: Real time  easure Time Streams  Pe	and Time Block signal wer Spectra using cy Response Funct wer Spectral Signal wert Spectral Signal wert Spectral Signal wert Spectral Signal werth esponse Spectra en the correlation of the spectra signal with the spectra spectra were the correlation of the spectra spectra were spectra. Demodulometer en digital filters appliats:	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do f time data(Autocorrelat Fourier transform (IFT) of lation Analysis for Machinels	me. to be viewed or saved.  I spectrum In frequency domain to achieve hi  I spectrum I spectrum I spectrum I spectrum I spectrum I spectrum signal type is rarely us I spectrum signal I spectrum signal I spectrum signal I spectrum signal	gher accuracy in low frequency band	. To see the difference		
w Test Wizard lease check the lote: Go to Mei Enable a spec This function Time Streams APS: Auto Por FRF: Frequence CPS: Cross Po FFT: Linear sp SRS: Shock Re COR: Comput Cepstrum: Cor Demodulation TACHO: Tach FLT: Real time easure Time Stz RMS	and Time Block signal wer Spectra using cy Response Funct wer Spectral Signal wert Spectral Signal wert Spectral Signal wert Spectral Signal werth esponse Spectra en the correlation of the spectra signal with the spectra spectra were the correlation of the spectra spectra were spectra. Demodulometer en digital filters appliats:	be computed in real tir ing to select the signals logy of multi-resolution with variable resolution in gnals are always available FFT ions Is averaging in complex do f time data(Autocorrelat Fourier transform (IFT) of lation Analysis for Machinels	me. to be viewed or saved.  I spectrum In frequency domain to achieve hi  I spectrum I spectrum I spectrum I spectrum I spectrum I spectrum signal type is rarely us I spectrum signal I spectrum signal I spectrum signal I spectrum signal	gher accuracy in low frequency band	. To see the difference		

In EDM, select to create a new test. From the New Test Wizard, select the **FFT Analysis** test type.

Next, give the test a name and description.

https://help.go-ci.com/ Printed on 2025/08/31 02:00

Finally, select the signal types that are wanted. You can select more than one signal type.

Additionally, there Time History Stats can be selected to be calculated as well. You are **unable** to add more signal types to be computed once the test is created. Press **Finish** to create the test.

### **Test Configuration**

Before testing, the **Analysis Parameters** must be configured to ensure all the data is properly measured.

Frequency Range (Sampling Rate)- determines the resolution and the span of all time and frequency data blocks. Increasing the sample rate increases time resolution (makes dT smaller) and decreases the time span (Block T) captured. Increasing the sample rate also increases the maximum frequency (Fa) in a spectral block and decreases its resolution (increases dF).

Block size/Line- are the number of samples in each time blocks and the number of (un-aliased) spectral lines in each resulting spectrum. Increasing the block size increases the resolution of the frequency transform and allows lower frequencies to be detected, but it also increases the calculation time and slows down response. The ratio between Lines and Block Size is determined by the characteristics of the A/D converter and its anti-aliasing filter. In general, this ratio is about 0.46, meaning that 1024 samples in the waveform will produce about 0.46 \* 1024 = 471 lines in the spectrum.

Window- lets the user choose the window to be applied during FFT operation. Windowing functions can help reduce leakage and increase the precision of the frequency measurement. In general, select Uniform for triggered transients, Hanning for general continuous signals and Flat Top when studying tonal data (such as a rotating machine) and needing extreme accuracy of spectral peaks.

Overlap ratio- sets the proportion of the samples in a time block that are overlapped (redundant with samples in a prior block) when calculating the FFT of (un-triggered) continuous signals. Higher overlap ratios result in faster variance reduction per unit time producing smoother data, but they increase the processing requirements. The Overlap Ratio options are no overlap, 25%, 50%, 75%, 87.5%, 95% and As High As Possible. For most applications employing a symmetrically tapered window function (such as Hanning), an overlap of 50% proves optimal.

Average mode- options include Linear, Exponential, and Peak Hold. Linear averaging treats every block equally. The blocks are simply added together (at each frequency), and the result divided by the Average Number. Exponential averaging is a moving or evolving average that favors the most recently measured block. Old data slowly loses its importance (time exponentially), so that the average is dominated by the current instantaneous spectrum.

Average number- Determines the number of blocks measured for Linear and Peak Hold averages.

LPF cutoff frequency- allows the user to specify the cutoff frequency of the low-pass filter.

FFT analysis settings ———			
Frequency range (fa)	12 kHz	-	Format
Block size/Line	1024/450	•	
Window	Hanning	-	
Overlap ratio	No overlap	-	
Average mode	Exponential	-	
Average number		8	
FFT average on/off	Average off	-	
LPF cutoff frequency (Hz)		0.00	
LPF cutoff frequency (Hz)		0.00	

At the bottom of the window, the **Test Summary** can be found. This displays important stats about the analysis such as the Block Time, Sampling Rate, and Frequency Resolution (dF).

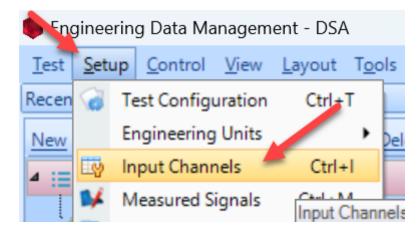
Test summary —	
Block T = 0.04 s	dT = 3.90625E-05 s
Sampling rate (fs) = 25600 Hz	dF = 25 Hz
Frequency range (fa)=11520 Hz	

## **Input Channels**

The input channels will now need to be set up. All sensors will to be properly configured before testing. The Input Channels menu can be found through **Setup** → **Input Channels**.

https://help.go-ci.com/ Printed on 2025/08/31 02:00

2025/08/31 02:00 5/6 DSA FFT Analysis



#### **Measurement Quantity**

Defines the physical unit that will be measured by the sensor connected to the channel.

#### Sensitivity

Sets the proportionality factor for the measurement (millivolts per engineering unit) given as a parameter of the sensor.

#### **Input Mode**

There are six modes in which the inputs can operate:

DC-Differential- In the DC-Differential mode, neither of the input connections is referenced to the local ground. The input is taken as the potential difference between the two input terminals, and any potential in common with both terminals is canceled out. The Common Mode Voltage (CMV) will be rejected as long as the overall input voltage level does not saturate the input gain stage. Beware that very high CMV will cause clipping and may damage the input circuitry. Signals with a nonzero mean (DC component) can be measured in this mode.

DC-Single End- In single-ended mode, one of the input terminals is grounded and the input is taken as the potential difference of the center terminal with respect to this ground. Use this mode when the input needs to be grounded to reduce EMI noise or static buildup. Do not use this mode when the signal source is ground referenced or ground loop interference may result. This mode also allows signals with a non-zero mean to be measured.

AC-Differential- AC-Differential is a differential input mode that applies a low-frequency high-pass (DC-blocking) analog filter to the input. It rejects common mode signals and DC components in the input signal. Use this when DC and low-frequency AC voltage measurements are not required or when a DC bias voltage is present. The analog high-pass filter has a cutoff frequency of -3dB at 0.3 Hz, and -0.1dB at 0.7 Hz for the IEPE input mode.

AC-Single End- AC-Single End grounds one of the input terminals and enables the DC-blocking analog filter. Use this mode for non-ground referenced sources where measuring the DC or low-frequency components are not required. It shares the same high-pass filter as that of AC-Differential.

IEPE (ICP)- All Crystal Instruments products support IEPE (Integral Electronic PiezoElectric) constant current output type input channels. IEPE refers to a class of transducers that are packaged with built-in voltage amplifiers powered by a constant current. These circuits are powered by a 4 mA constant current source at roughly 21 Volts.

Charge- Some sensors provide a high-impedance charge output. Usually, these are high-sensitivity piezoelectric units that lack a built-in voltage mode amplifier (i.e. IEPE), allowing them to be used in

high-temperature environments. The Spider-81 front-end module has a built-in charge amplifier that allows the system to read the output of these sensors.

#### **High-Pass Filter**

Ability to set a digital high-pass filter for specific channels.

**Integration/Differentiation** Channels can be set up to be integrated or differentiated. For example, the velocity data can be integrated from an accelerometer. **NOTE**: if this is selected, the original quantity of data will not be recorded (Ex. If an accelerometer is integrated, there will only be velocity data, no acceleration data.)

From:

https://help.go-ci.com/ - Crystal Instruments Help

Permanent link:

https://help.go-ci.com/dsa:fft

Last update: 2024/07/17 19:39

https://help.go-ci.com/ Printed on 2025/08/31 02:00