



Initial Offset and Software
Zeroing Method
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Topics



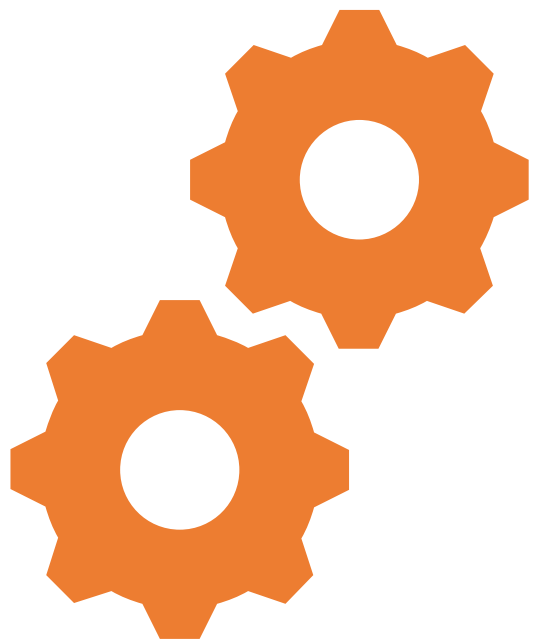
Initial Offset Check & Remove Offset



Software Zeroing



Typical Setup for Common Sensors



Initial Offset Check & Remove Offset

Initial Offset Check & Remove Offset | Purpose

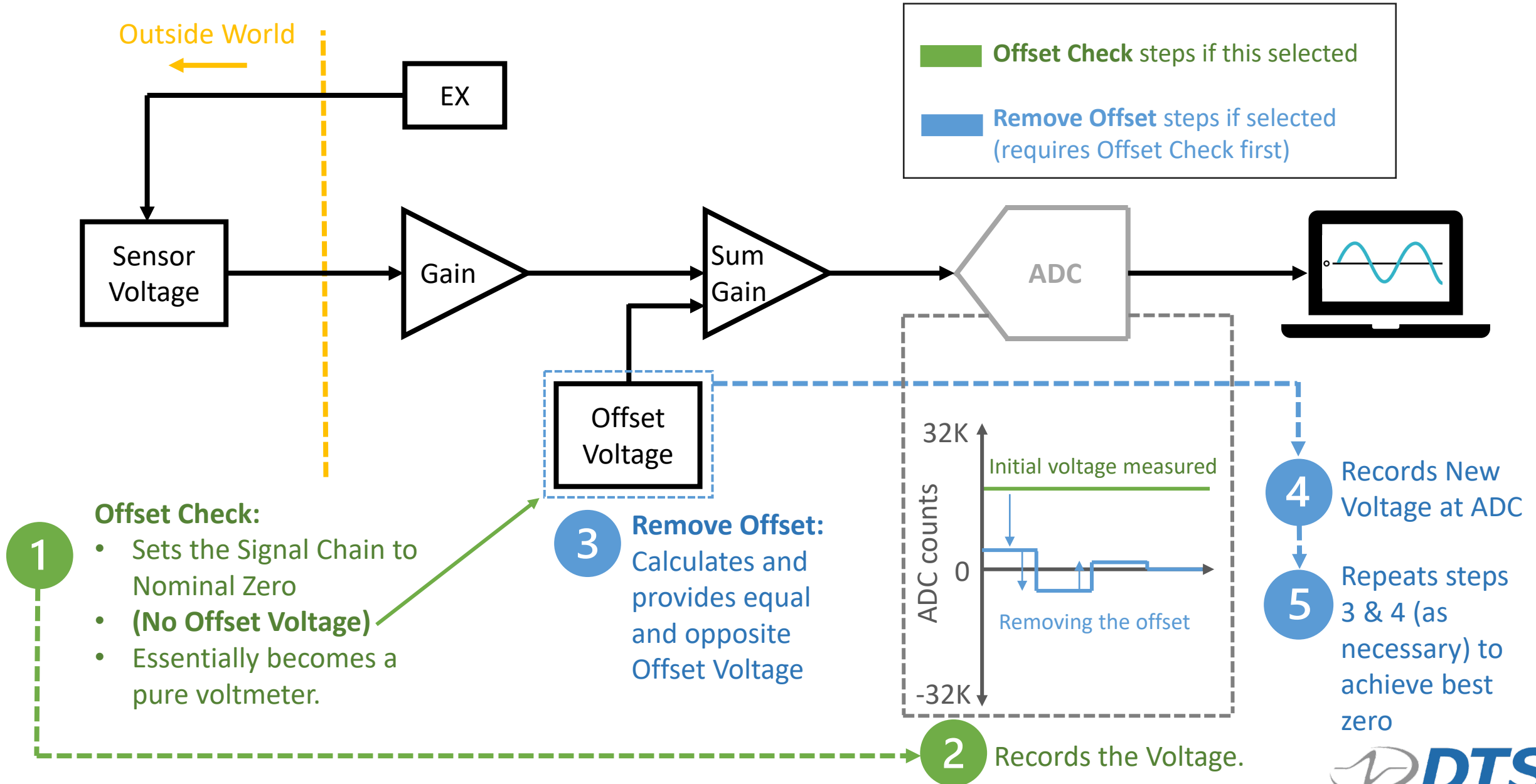
› Offset Check

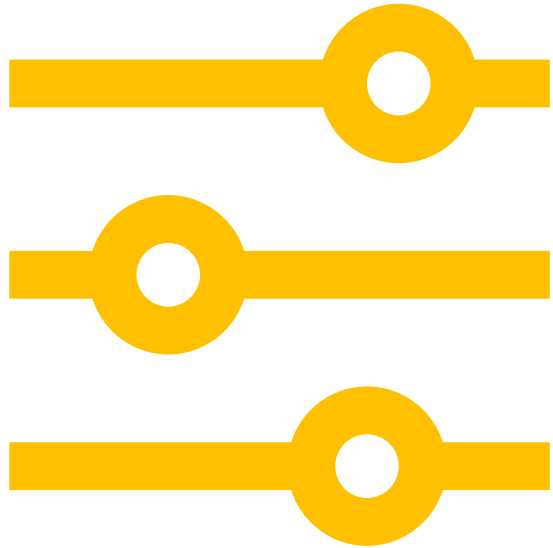
- › Provides a Health Check of the Sensor
- › Simply checks the voltage offset and compares to a tolerance the user provides
- › Will report in Diagnostics > How measured offset compares to tolerances and whether it fails

› Remove Offset

- › Using the results from the Offset Check, provides an equal and opposite Offset Voltage that will bring the resulting voltage in the Analog to Digital Converter (ADC) down to zero
- › Performed automatically by the Firmware if Remove Offset is selected:
 - › This is in iterative process that may be repeated automatically to achieve best offset removal

Signal Chain | Initial Offset | Check & Remove





Software Zeroing

Software Zeroing


- › **Separate from Offset Check and Remove Offset, which are Hardware functions**
- › **Operates in the Software only, during real-time display or after data has been collected**
 - › Note: The zero function/software button in the Real-Time View is a software only function, and does not affect the final data
- › **As the sensor's orientation or environment may change after the test has been setup, this option is meant to zero the data based on what will be most meaningful, given the sensor details and post-processing requirements**
- › **Diagnostics:**
 - › Zeroes Data based on voltage read during the Diagnostics phase
- › **Average Over Time**
 - › Takes an average voltage during a time window provided by the user, and uses that voltage to zero the data
- › **Absolute Zero**
 - › Does NOT Remove Offset, instead reads whatever voltage is being supplied
 - › Note: Check Offset still an option (as with all methods here), as that is a health check of the sensor

Initial EU and Initial Offset

- › In cases with temperature, pressure, pure voltage inputs, we allow you to choose how the data will be displayed
- › Note: DTS Software allows the user to specify an Initial EU (Engineering Unit value)

SLICEWare

Sensor Settings	Channel Settings	Calibration History
Serial Number:	6264	
Description:	ARS PRO 8K	
Manufacturer:	DTS	
Model:	ARS PRO	
ISO:		
Non Linear	<input type="checkbox"/>	
Sensor ID:		
Proportional	<input type="checkbox"/>	
Sensitivity (mv/EU):	0.1933000000	
Excitation (V):	5.0	
UniPolar	<input type="checkbox"/>	
Desired Range (EU):	8000.00	
Ignore Range	<input type="checkbox"/>	
Units:	deg/sec	
Sensor Type:	Bridge-Ful	
Inverted	<input type="checkbox"/>	
Initial EU:	0.0000	
User Code		
User Code 2		
User Code 3		



DataPRO

Sensor Offset

Check

Low (mV) -100.000

High (mV) 100.000

Shunt None

Sensor ID

Calibration

Calibration

Last Calibration Date 9/1/2020

Calibration Interval (Days) 365

Has been used since calibration

Non-Linear

Sensitivity Details

Proportional to Excitation

Remove offset

Based on Output at Capacity

Software zero Method Absolute zero

Sensitivity 0.04185000


Sensitivity Units mV/EU

Initial Offset

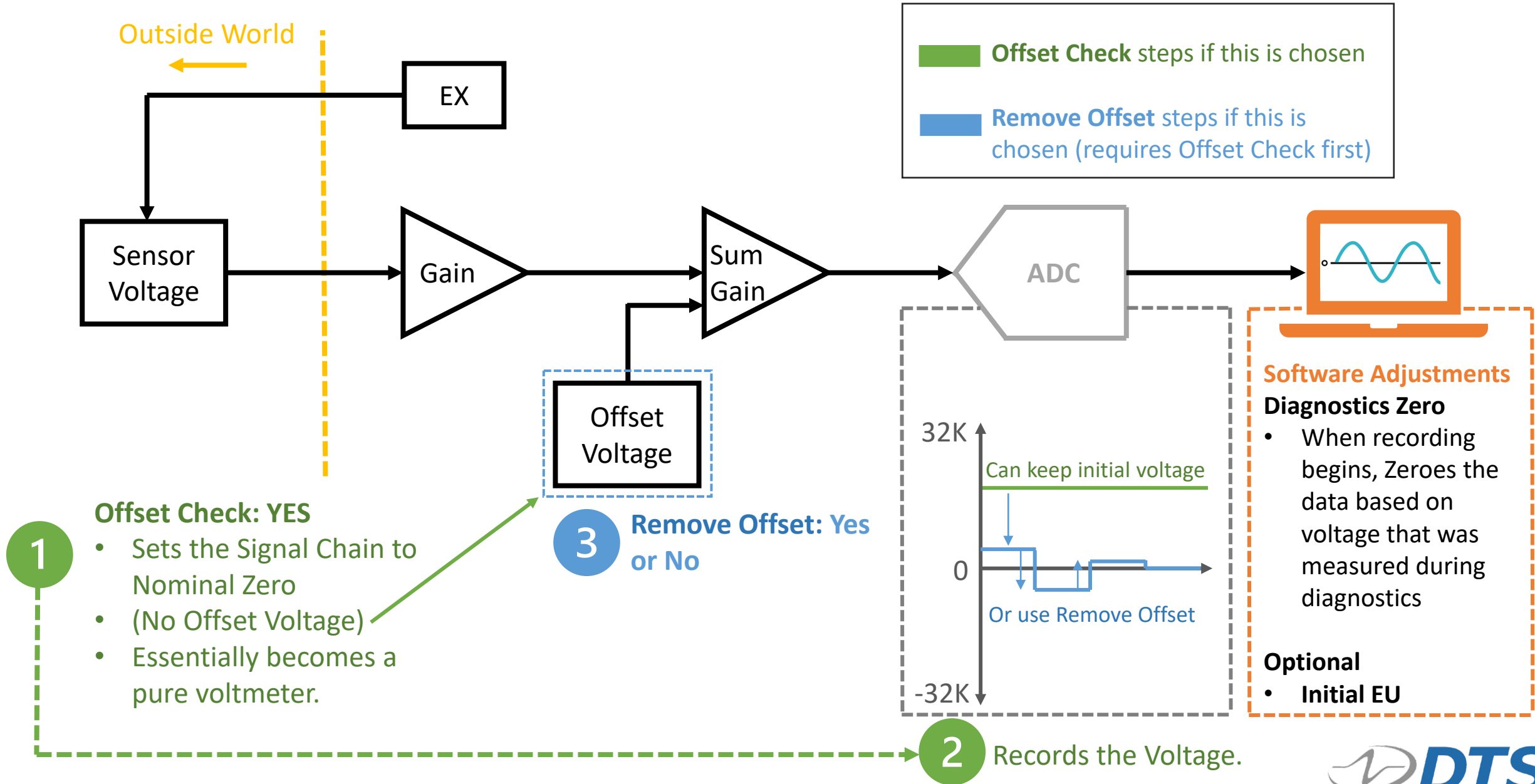
Offset type EU

Value (EU) 33.5

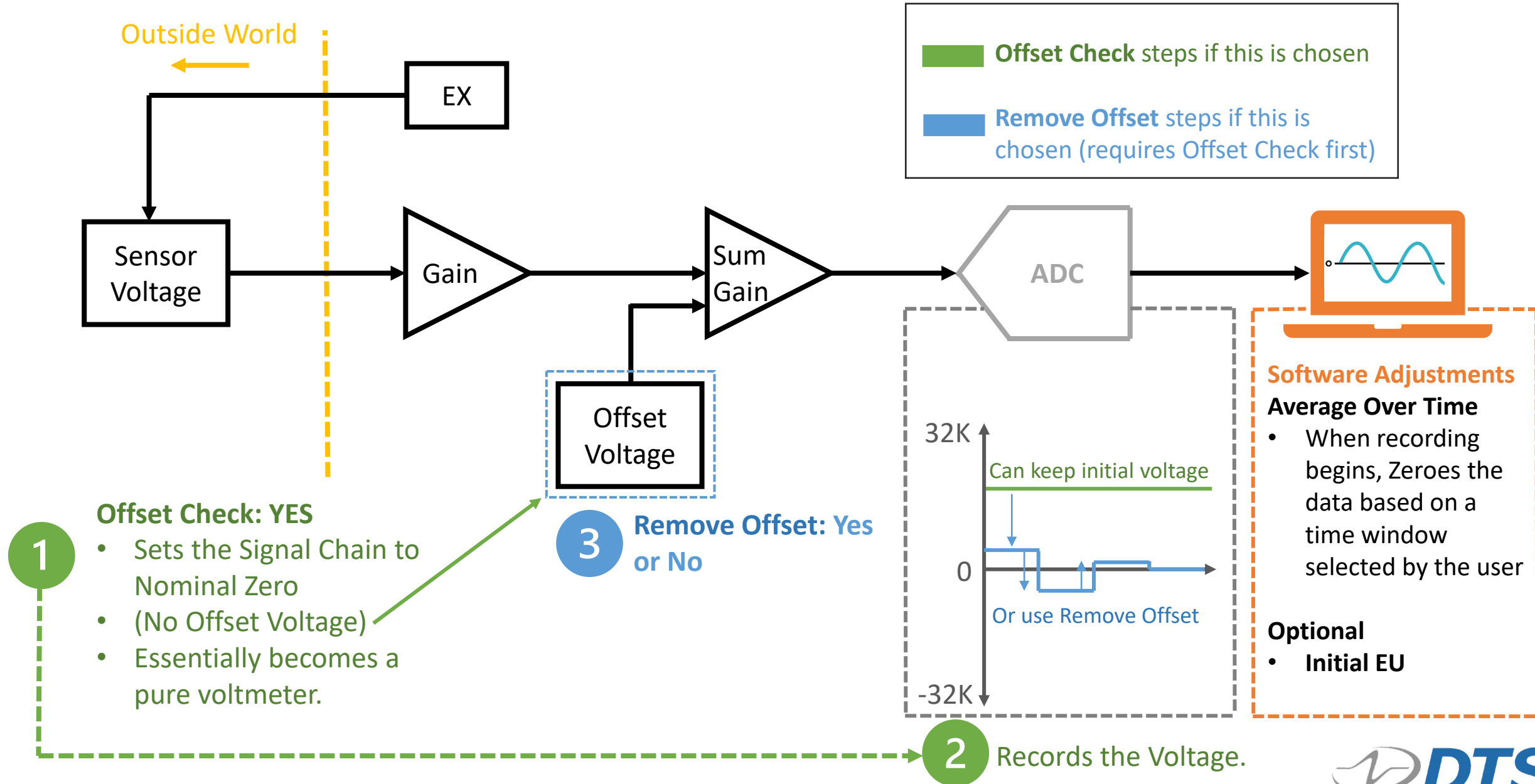
Document(s)



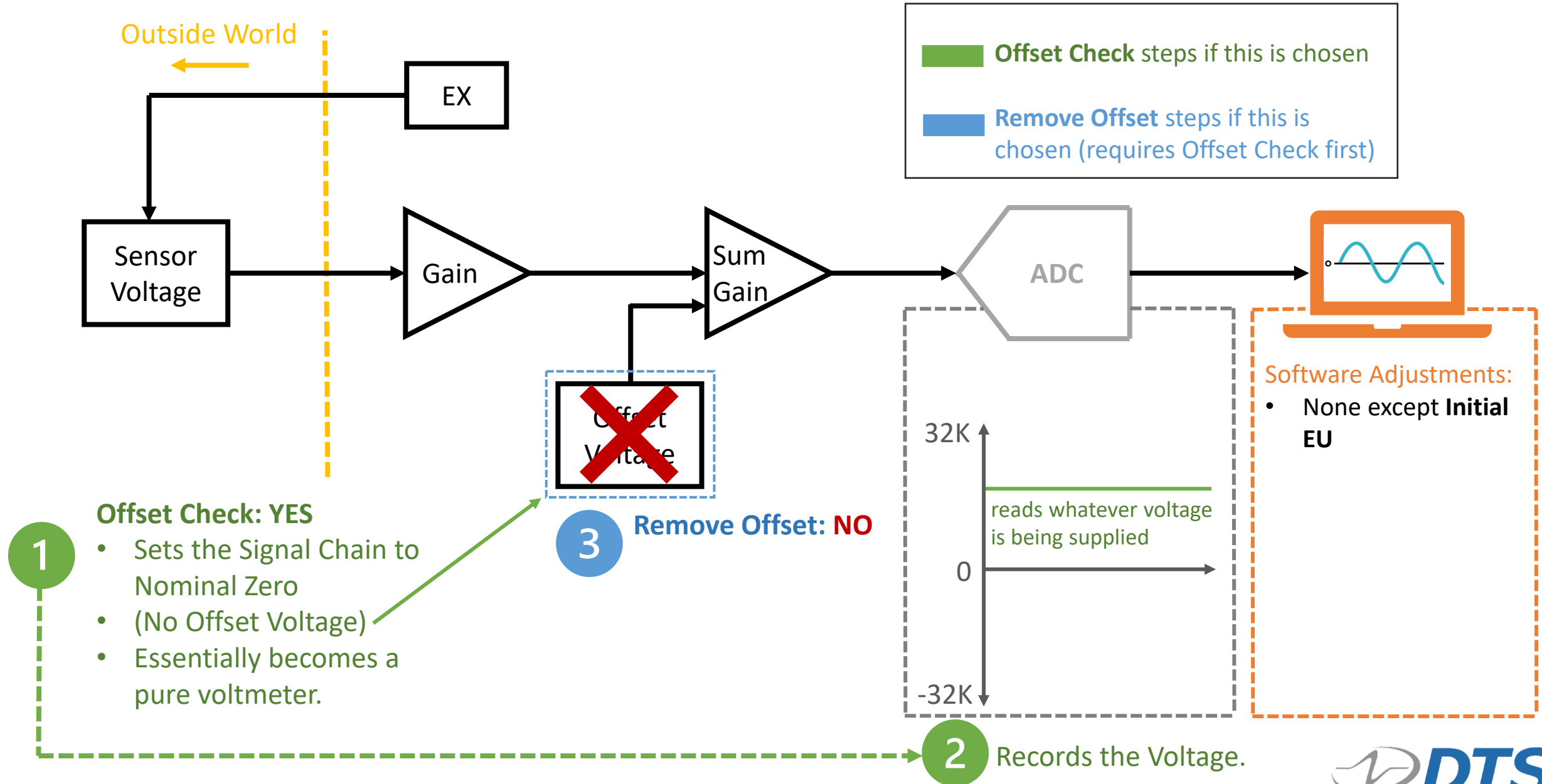
Software Zero Method | Diagnostics



Software Zero Method | Average Over Time



Software Zero Method | Absolute Zero





Typical Setup for Common Sensors

Typical Setup for Common Sensors

Sensor Type	Suggested Offset Tolerances (+/-)	Hardware Choice		Software Choice	
		Check Offset	Remove Offset	Initial EU	Zero Method
Accelerometer	+/- 50 mV	YES	YES	Zero/None	Diagnostic or Average
Load Cells	+/- 20 mV	YES	YES	Zero/None	Diagnostic or Average
Potentiometers	Varies by Type	YES	NO*	See Note*	Diagnostic or Average
Thermocouples	+/- **	YES	NO	See Note**	See Note**
Angular Rate Sensors	+/- 200 mV	YES	YES	Zero/None	Diagnostic or Average
Voltage Input	Varies by Application	YES	NO	Varies	Varies

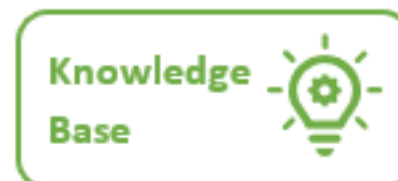
- Potentiometers: Simple 3-Wire connections generally require no hardware offset removal (i.e. to measure the full excursion of the potentiometer). Software Zeroing methods vary depending on the application.
 - Setup Decisions (3-Wire Active Sensors): <https://youtu.be/Wjr4dl8oTkg?t=1192>
 - Sensor Setup – Potentiometers: <https://support.dtsweb.com/hc/en-us/articles/203248043-Sensor-Setup-Potentiometers>

**Thermocouple Setup: <https://support.dtsweb.com/hc/en-us/articles/202538556-Sensor-Setup-DTS-Texense-Thermocouple-Adapter>



Need More Help?

- › We have support engineers in multiple time zones with various backgrounds who can assist. Registering creates a profile for your setup and keeps your records/requests organized going forward. You don't need to be registered to submit a Help Ticket, but it keeps all your info in one place.
 - › Here's how to get started. [The buttons below will take you directly to the specific web pages.](#)
1. Head to our Help Center main page for support resources.
 2. Register as a new user.
 3. Submit a Help Ticket. You can CC members of your organization, attach files, and add any helpful links.
 4. Feel free at any time to check out our Knowledge Base. It has articles, videos, and breakdowns of our hardware and software, as well as general information and best practices. We're frequently updating this library to keep users informed.
 5. Our Video Library has Webinar Recordings, Product Overviews, and Training. If you'd like to join a future webinar, let us know!



THANK YOU

