NRG INSTRUCTIONS

NRG BP65 Pressure Sensor

CONTENTS

INTRODUCTION

The NRG BP65 Pressure Sensor (introduced June, 2023) has a similar form factor as the NRG BP60, as a drop in replacement with voltage supervisor. Sensors are individually serialized, and compatible with NRG SymphoniePRO, SymphoniePLUS3, and LOGR-S data loggers. For traceability, a manufacturing quality certificate is available for each individual sensor. A calibrated version of the sensor is available which includes a calibration certificate from an ISO 17025 accredited laboratory.

SENSOR IDENTIFICATION

The BP65 can be identified by the label on the cable, which contains the "BP65" model name, serial number (9493NNNNNN), wiring information, and barcode.

Show with optional mounting bracket item 12132

The BP65 is available with the following cable lengths:

NRG Item Number	Sensor Description
9453	BP65 Barometric Pressure Sensor | 1.5m cable
9455	BP65 Barometric Pressure Sensor | 67m cable
9456	BP65 Barometric Pressure Sensor | 90m cable
9457	BP65 Barometric Pressure Sensor | 110m cable

The calibrated version of the sensor, the BP65C, includes a 1.5m cable:

NRG Item Number	Sensor Description
9454	BP65C Barometric Pressure Sensor | 1.5m cable

POWER REQUIREMENTS

The BP65 requires an excitation voltage of (5 to 15) V DC and has an average current consumption of 1.25 mA. The sensor has a start-up time of 25 mSec and can be operated using a 5V pulsed excitation voltage source (natively supported by SymphoniePRO and SymphoniePLUS3 loggers), further reducing overall power consumed. When using a third party logger capable of pulsed excitation operation, please allow a minimum of 25 mSec settling time between the initial power-up and reading the sensor output voltage.

To reduce the risk of fire in the case of a sensor malfunction or short circuit, the available current to the BP65 should be limited to 50 mA or less by the power supply. When using the BP65 with NRG data loggers, the excitation is already current limited to below the recommended value and no further actions are needed by the customer.

For optimal performance, deploy the BP65 on a logger channel configured for 5V pulsed excitation.

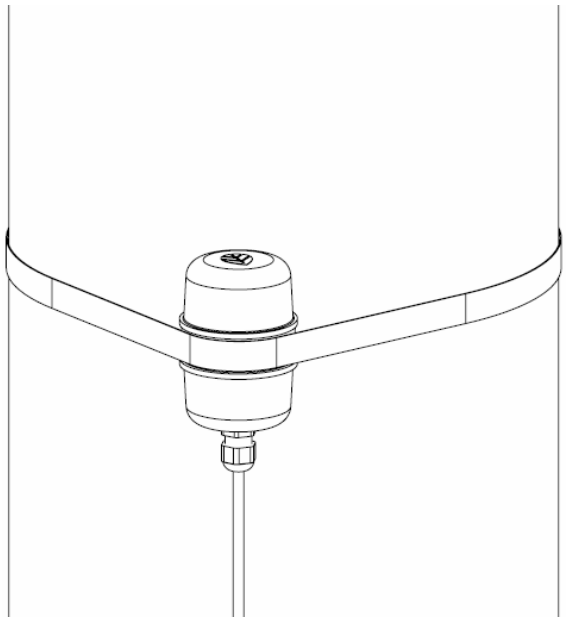
MOUNTING

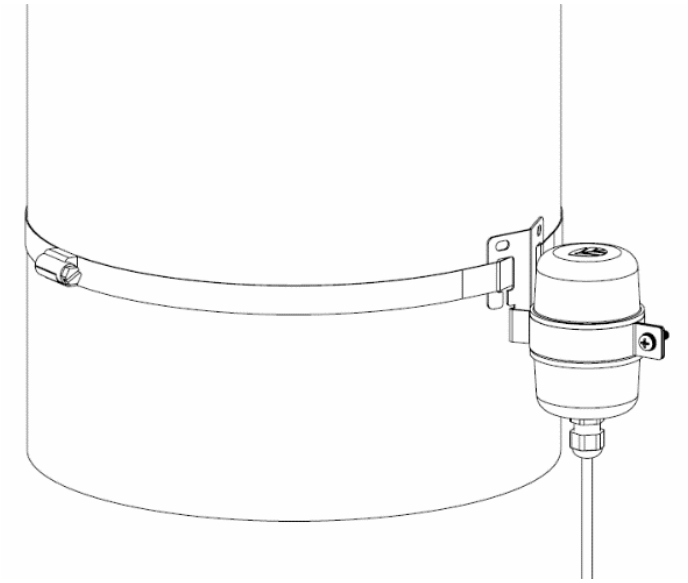
For maximum protection against ingress, NRG recommends mounting the BP65 inside a data logger shelter box. This practice is recommended but not required.

A hose clamp is included with each sensor to mount it directly to a met tower, preferably beneath a data logger shelter box. The hose clamp accompanying the sensor can be tightened with a flat head screw driver or a 5/16” nut driver.

An optional mounting bracket is sold separately for secure mounting up-tower, utilizing the hose clamp included with the sensor.

A drip loop should be left in the sensor wire to allow water to run off the cable.





SYMPHONIEPRO

Compatibility

The NRG BP65 pressure sensor defaults are available in SymphoniePRO Desktop Application 3.15.X 945and later. There are no additional logger firmware requirements.

NOTE: It is best practice to update your desktop software and logger firmware before performing logger configuration and/or data processing tasks. The latest versions of software, firmware and documentation can be downloaded from this page: https://www.nrgsystems.com/support/product-support/ ***.***

Wiring

Wire the NRG BP65 to the SymphoniePRO following the table below.

Built in Channels 13-15 and 16-19

Channels 13-15 and 16-19 (no SCM required)		
BP65 Connection	**Color**	**SymphoniePRO Logger**
+	Red	Connect to 13-19 "EXC" terminal
Signal	Clear	Connect to 13-19 "SIG" terminal
-	Black	Connect to 13-19 "GND" terminal
Shield	Braid	Connect to 13-19 "SHD" terminal

P-SCM Channels 20-26

Channels 20-26 (use P-SCM #9130)		
BP65 Connection	**Color**	**SymphoniePRO Logger**
+	Red	Connect to 20-26 "EXC" terminal
Signal	Clear	Connect to 20-26 "SIG +" terminal
-	Black	Connect to 20-26 "GND" terminal
Shield	Braid	Connect to 20-26 "SHD" terminal

Channel Configuration

Create the following configuration in the SymphoniePRO Desktop Application (Version 3.15.X or later). Note, if you do not see the BP65 in the "Load From Defaults" drop-down menu, please update your software from the "Services and Support" section of our website (https://www.nrgsystems.com).

Default Scale Factors

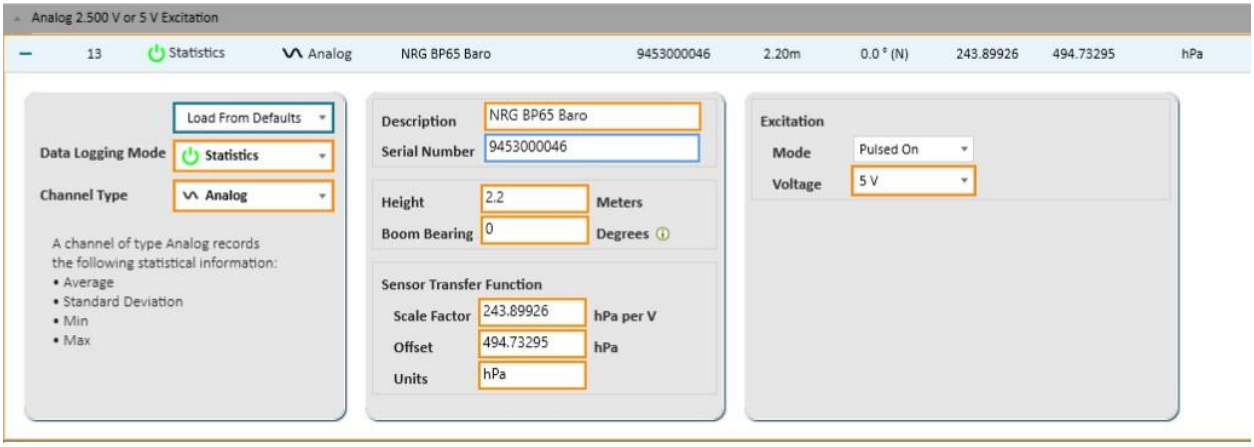
The SymphoniePRO Desktop Application contains default scaling information for the BP65 pressure sensor in millibars (mb).

- Scale Factor: 243.89926
- Offset: 494.73295

If using the calibrated version of the sensor, the BP65C, refer to the individual sensor's calibration report for the calibrated scale factor and offset.

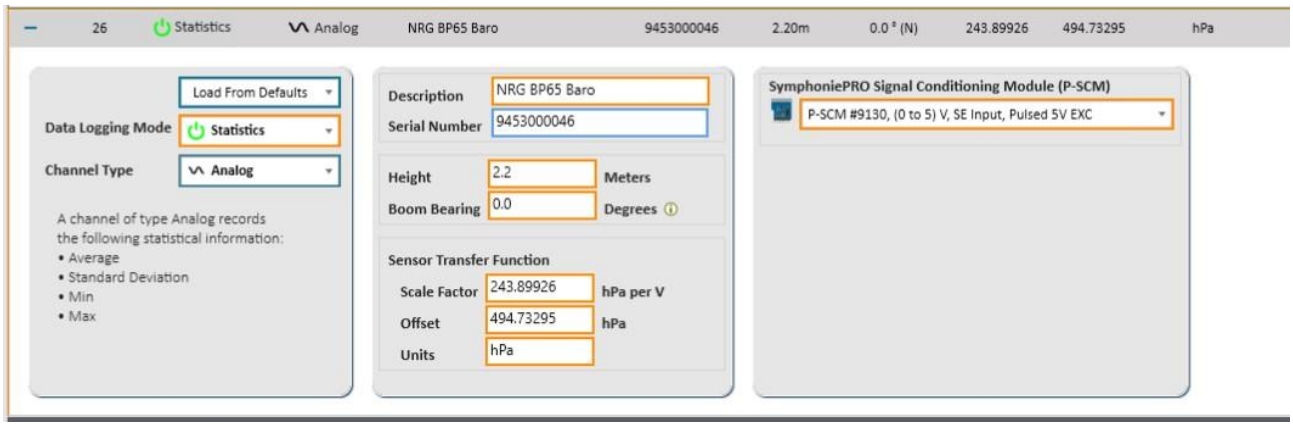
Built in Channels 13-15, and 16-19

The BP65 can be installed on logger channels 13-15 and 16-19 without the need for a P-SCM. Choose "NRG BP65 Pres" from the "Load From Defaults" drop down menu.



P-SCM Channels 20-26

The BP65 can be used on channels 20-26 when the logger is equipped with P-SCM item #9130 [P-SCM #9130, (0 to 5) V, SE Input, Pulsed 5V EXC]. This is useful if Channels 13-19 are already in use for other sensors. Choose "NRG BP65" from the "Load From Defaults" drop down menu.



LOGR-S

Wiring

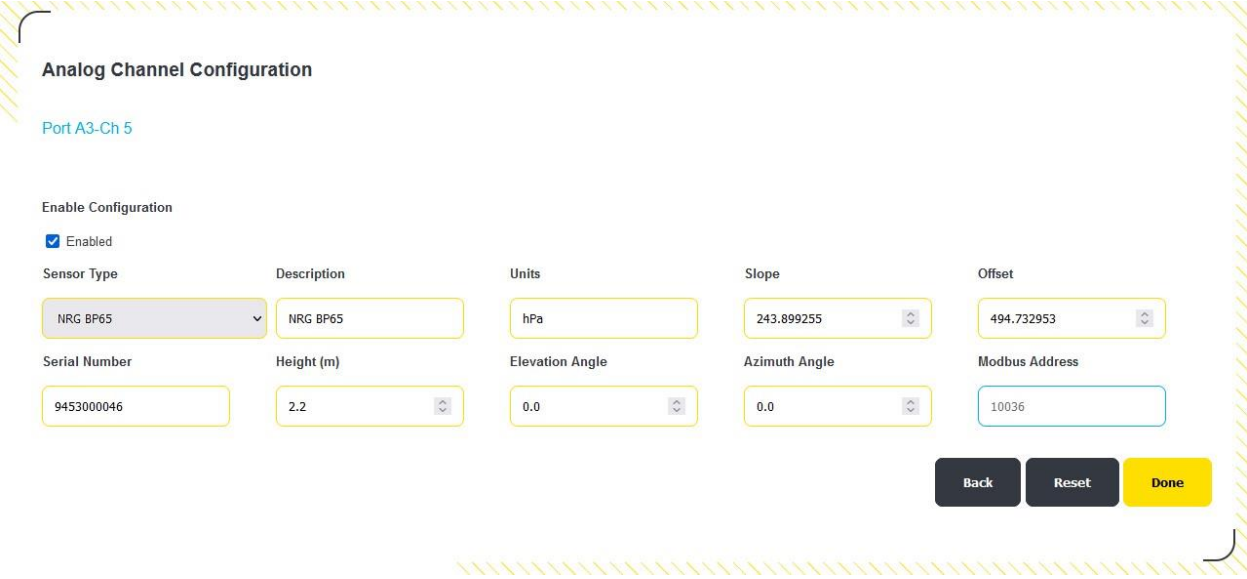
Wire the NRG BP65 sensor to the LOGR-S logger according to the table below.

LOGR-S Analog Channels A1-A7

BP65 Connection	Color	LOGR-S Logger
+	Red	Connect to "EXC" terminal
Signal	Clear	Connect to "SIG +" terminal
-	Black	Connect to "GND" terminal
Shield	Braid	Connect to "SHD" terminal

Channel Configuration

Any of the analog channels on the NRG LOGR-S can be configured for the BP65. From the Analog Channels screen of the LOGR-S web interface, select the desired analog channel. On the resulting screen select "NRG BP65" from the Sensor Type dropdown menu. Remember to fill out the serial number and height fields and put a check next to "Enabled" to enable the channel.



SYMPHONIEPLUS3

Install SCM card

In order to use the BP65 Pressure sensor on the SymphoniePLUS3 logger, Symphonie SCM Card 110S Temperature #3153 is required.

Do not use SCM 3151 BP20!

This SCM can be installed in any of the 7 SCM slots which correspond to channel ranges 4-6 and 9-12.

Wiring

Channels 4-6 or 9-12

Wire the sensor according to the following table and diagrams.

Channels 4-6, 9-12 (requires 110S Temperature SCM 3153)

BP65 Connection	Color	SymphoniePLUS3 Logger
+	Red	Connect to channel "EXC" terminal
Signal	Clear	Connect to channel "SIG" terminal
-	Black	Connect to channel "GND" terminal
Shield	Braid	Connect to channel "SHD" terminal

Channel Configuration

The BP65 has a different default scaling than the BP20.

Do not use the BP20 settings found in SDR!

Example

To configure the BP65 on channel 4 (for example) do the following:

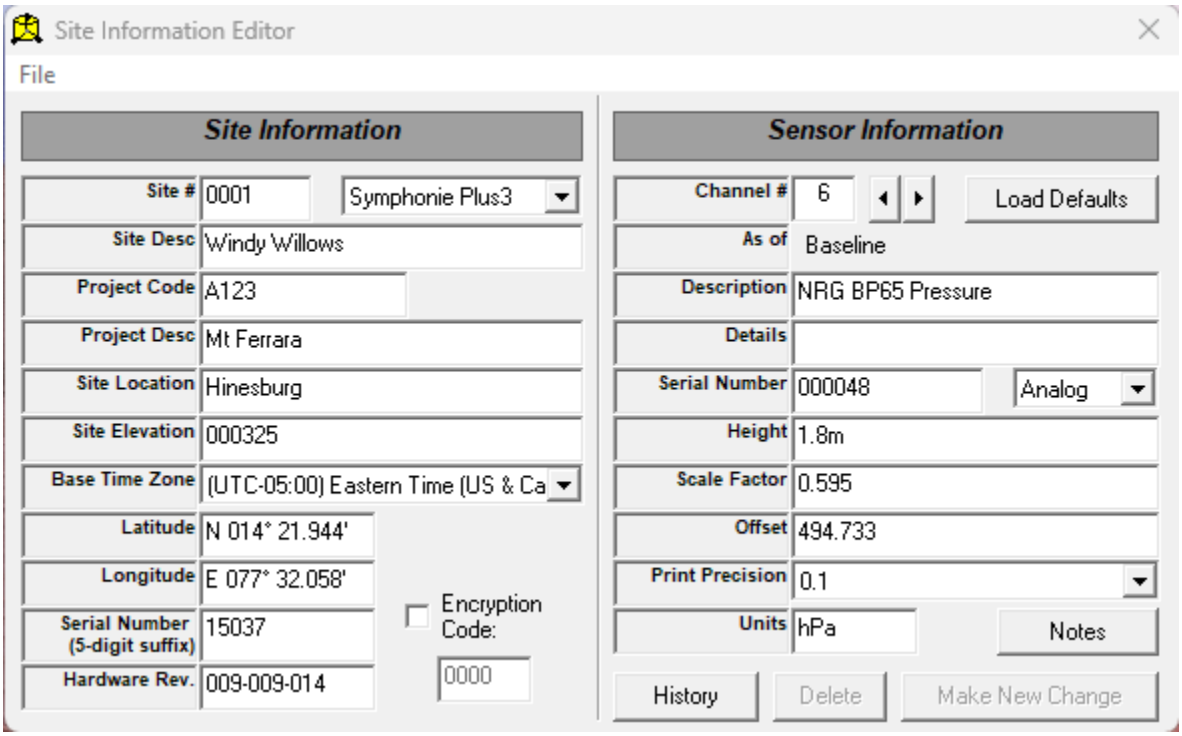
- On the logger keypad, press [Home > 4. Settings > 2. Analog Settings > Press "4" to configure channel 4 > Press the "↓" arrow to see the default list of sensors]
- Scroll down the list of default sensor settings and choose "NRG 110S Pres C" by pressing "Set".
    - Edit the name to "NRG BP65 Pressure" by using the keypad. The ↑ arrow will capitalize a letter and the "1" button will erase characters. Press "Set" when finished.
    - Enter the scale factor ".595" and press "Set" (unless using the calibrated scale factor)
    - Enter the offset "494.733" and press "Set" (unless using the calibrated offset)
    - Edit the units to "hPa" and press "Set".
    - Set the sensor height (in meters) and press "Set".
    - Enter the sensor's serial number (or the last 5 digits of it) and press "Set".
- With the sensor programmed and the wires connected to the logger, verify the sensor's functionality by pressing [Home > 1. Measurements > Press the "↓" arrow until you see the channel that the sensor has been installed on. Check the current Pressure from a different source and confirm that the sensor is reading accurately.

Please refer to the SymphoniePLUS3 manual for more detailed information on entering information directly into the logger.

Configure as follows:

- Scale Factor: 0.595
- Offset: 494.733

Again, if using the calibrated version of the sensor, the BP65C, refer to the individual sensor's calibration report for the calibrated scale factor and offset.



SPECIFICATIONS

See www.nrgsystems.com for up-to-date specifications

ASSOCIATED ITEMS LIST

Item #	Description
19126	BP65 Barometric Pressure Sensor | 1.5m cable
19127	BP65 Barometric Pressure Sensor | 67m cable
19128	BP65 Barometric Pressure Sensor | 90m cable
19129	BP65 Barometric Pressure Sensor | 110m cable
19130	BP65C Barometric Pressure Sensor | 1.5m cable
12132	Mounting Bracket | BP60/BP65
9130	P-SCM | 0 to 5 V, SE Input, Pulsed 5V EXC *(for use on PRO channels 20-26)*

3153	Symphonie SCM Card | 110S *(for use on PLUS3 channels 4-6 or 9-12)*