



PPG-2R-880/ PPG-2R-940

Reflectance SpO₂ Module

Works with the AECG100 main console or SECG 5.0 AIO Multi Vital Sign Simulator as the first reflectance SpO₂ performance tester designed for R&D in manufacturers

Outputs R and IR analog signals to test heart rate and blood oxygen saturation (SpO₂) functions

Allows users to individually adjust the R/IR's amplitude and frequency and the rate of change of respiratory signals in PPG for more authentic testing

Suitable for the development of reflectance PPG products such as wearable devices and medical PPG sensor patches

- Works with the AECG100 main console or SECG 5.0 AIO Multi Vital Sign Simulator to test heart rate, ECG, PPG, PWTT, and SpO₂ functions
- Outputs R and IR analog signals to simulate SpO₂ signals
- Adjustable SpO₂ parameters, such as AC, DC, and PI values of R/IR, to confirm the accuracy of the SpO₂ function
- ECG function with adjustable PWTT parameters to verify the accuracy of blood pressure measurement algorithms
- Respiratory variation simulation – add-on signals for more authentic testing
- Equipped with Auto Sequence function – sorts the parameters of different test items into a designated order for automated testing while eliminating the need to develop automated testing programs
- Raw data playback – plays recorded raw data or customized waveforms for repeated verification to facilitate the development process
- Provides SDK supporting multiplatform for users to flexibly develop automated testing programs
- Equipped with RCA to BNC ports to connect to an oscilloscope – outputs amplified and stable signals for viewing the voltage of AC analog signals of R/IR, optical signals received by the PPG-2R-880/PPG-2R-940, and the switch status of R/IR LED of DUT
- Adjustable PPG waveform characteristic points, such as the Systolic Peak (SP), Dicrotic Notch (DN), and Diastolic Peak (DP), in a wide range and precise values for flexible test settings*
- Allows users to configure noise with adjustable frequencies and amplitudes to output with PPG signals for testing*

*Note: Only available when paired with the AECG100.

• PPG-2R-880 / PPG-2R-940 Testing Scenario



(The image illustrates the testing scenario of the PPG-2R-880/PPG-2R-940 and AECG100.
Please refer to the user manual for detailed installation and instructions when using PPG-2R-880/PPG-2R-940 with AECG100 or SECG 5.0 AIO.)

• Specifications

Parameters	Specifications	
Heart Rate	Setting Range	10 ~ 300BPM
	Minimum Step Size	1BPM
	Accuracy	±1BPM
LED DC Level Reference Output	Setting Range	100 ~ 3000mV
	Minimum Step Size	1mV
LED AC Level Reference Output	Setting Range	0.75 ~ 30mV
	Minimum Step Size	0.01mV
PI (AC level / DC level)	Setting Range	0.025% ~ 30% (AC / DC, varies with AC or DC level)
	Accuracy	NA
LED Light Wavelength	Range	Red : 660nm ; Infrared : 940nm / 880nm
	Accuracy	Red : ±10nm ; Infrared : ±10nm
Red Light Absolute Irradiance (100%) §	Intensity	3.55mW / m^2
	Accuracy	±15%
Infrared Light Absolute Irradiance (100%) §	Intensity	6.65mW / m^2
	Accuracy	±15%
LED Scan Rate	Rate	50 ~ 40kHz (Normal mode / Standalone mode) ⁽¹⁾ ; 10kHz (Raw data mode)
	Accuracy	±5μs
PD Sample Rate	Rate	250kHz (single channel)
	Accuracy	±5μs
PD Response Time	Rising	1μs Typical ⁽²⁾
	Falling	1μs Typical ⁽²⁾
	Setting Range	1% ~ 100%
	Minimum Step Size	1%
SpO ₂ %	±1% + specified accuracy of the DUT (using Masimo Radical-7 Pulse CO-Oximeter or "Covidien" Nellcor Portable SpO ₂ Patient Monitoring System)	
	Accuracy	

§ Data Collection Method: To connect the spectrometer with a 2-inch integrating sphere, and fix the integrating sphere on the DUT to measure the absolute irradiance of the LED of the DUT.

Note:
(1) When used with the AECG100, it supports normal mode, standalone mode, and raw data mode; when used with the SECG 5.0 AIO, only the raw data mode is applicable.
(2) PD response time varies with the light intensity of the DUT.

• Ordering Information
SpO₂ Module

Part No.	Description	Quantity
100-AE00004	Model No.: PPG-2R-880 Model Name: Reflectance SpO ₂ module	1
100-AE00005	Model No.: PPG-2R-940 Model Name: Reflectance SpO ₂ module	1

Compatible Products

Part No.	Description	Quantity
100-AE00001	Model No.: AECG100 The main console unit for ECG testing.	1
100-EC00002	Model No.: SECG 5.0 AIO Model Name: Multi Vital Sign Simulator The standalone ECG simulator with 12 leads (RA, LA, LL, N, V1 - V6) output for ECG performance tests.	1

Optional Calibration Service and Warranty Extension

Part No.	Description
YY0007	Model No.: C3 Provides (3) years of calibration service coverage. WhaleTeq equipment can be calibrated to original performance on the basis of (1) year interval.
YY0008	Model No.: R3 Extends the limited warranty from (1) year to (3) years.

