



SDK, Software Development Kit



Develop your Spirometry and Pulse
Oximetry App with limited effort and time

What is the SDK?

The SDK (Software Development Kit) is a software product that allows you to easily integrate MIR devices, spirometers and oximeters, with your app.

Ideal for remote patient monitoring, clinical trials and more.

Who is it intended for?

The SDK is intended for customers who prefer to integrate MIR devices to their own app, rather than using the one MIR provides with its devices.



Main features

\ Simple and intuitive development

Native languages only (Java/Kotlin, Objective-C/Swift). The SDK libraries reduce time-to-market, no specific skills on Bluetooth and/or USB communication are required, nor specific skills on algorithms for the interpretation of spirometry and oximetry.

\ Always up to date with **Spirometry Guidelines**

\ Not just measured values

The SDK provides:

- Predicted values, LLN and Z-Score calculated with GLI equations
- Acceptability messages and instructions for patients, according to the latest guidelines

5 Tools, Endless Development Possibilities

1. COMPLETE FVC TESTS

For apps designed to detect, diagnose and manage common respiratory diseases.

2. SVC TEST

Additional health surveillance required by many hospitals and clinics.

3. PEF & FEV1 TEST

1-Second Expiratory Flows to Develop Asthma and COPD Monitoring Apps.

4. CONTINUOUS FLOW MONITORING

Highly accurate respiratory flow detection, with sampling from 50 ms to 10 ms per flow point. Ideal for developing applications dedicated to clinical studies, respiratory rehabilitation and interactive solutions, including games.

5. PULSE OXIMETRY TEST

Real-time plethysmographic waveform and SpO2% with BPM for oximetry monitoring apps.



SAMPLE APP SOURCE CODE INCLUDED

Instead of writing code from scratch, developers can copy and paste from the example app.



Developer Quick Start Guide always included, with best practices and tips!

What's included?

- **Instructions for use (IFU)**
- **An example app** with clear source code
- **2 demo units** for tests
- **Access to the dedicated MyMIR area** with updates and useful resources

How to obtain the SDK?

1

Sign the license agreement and the NDA



2

Pay the license fee



3

Download the SDK and start developing!

Minimum operating system requirements



iOS

11.0 or higher



Android

6.0 or higher



Windows

10.0 or higher

Martini David

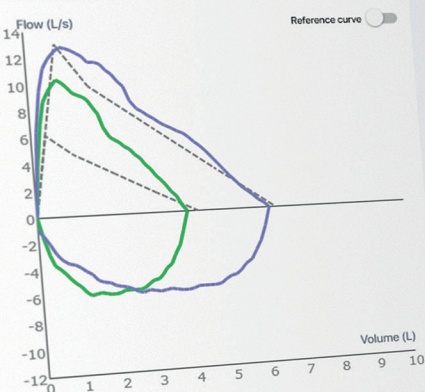
37 years | 180 cm | 76 kg | M | Smoker PA 05

Spirometry

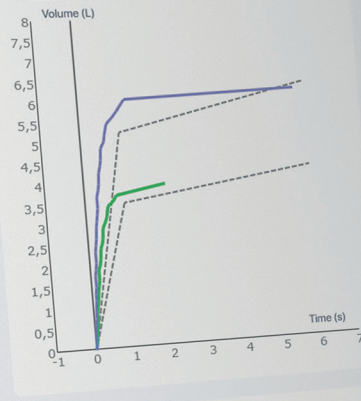
03/12/2012 15:16

FVC POST

Flow-Volume Curve



Volume-Time Curve



Result

Variability	FEV1-FVC-	Reference	Result
Temperature	24°C (75°F)	Quality level	5,0
BTPS	1,097		
Mild obstruction			
PRE	LLN	Reference	POST
PRE			POST
PRE			POST
Significant bronchodilation with FEV1 >= 80% pred.			

Notes

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Test

Parameters	PRED	PRE	%PRED	POST	%PRED	%CHG	4:28:15
FVC (L)	5,31	3,95	74,39	6,20	116,76	+56,96	6,20
FEV1 (L)	4,37	3,13	71,62	4,80	109,84	+53,35	4,80
FEV1/FVC (%)	82,60	79,20	95,88	84,70	102,54	+6,94	84,70
PEF (L/s)	9,63	8,50	88,27	10,25	106,44	+20,59	10,25
ELA (Years)	37	80	216	37	100	-53,75	37
FEF25/75 (L/s)	4,56	3,50	76,75	4,60	100,88	+31,43	4,60
FET (s)	6,00	2,06	34,33	5,70	95,00	+176,70	5,70
FVC (L)	5,31	3,91	73,63	6,02	113,37	+53,96	6,02
FEV1/VC (%)	-	-	-	-	-	-	-

MIR SPIRO EXPERT

PRE

POST BD

START

Functions

With our devices and the SDK your workload is reduced to a minimum.
We take care of the most complex processes, leaving to your application only a few essential tasks.

What our SDK does	Windows	MacOS	Android	iOS
USB communication	✓	✓		
Bluetooth BLE communication	✓	✓	✓	✓
Device information (firmware version, device type, etc.)	✓	✓	✓	✓
Real-time flow/volume and volume/time curves	✓	✓	✓	✓
Theoretical values (GLI equations)	✓	✓	✓	✓
Acceptability	✓	✓	✓	✓
Reproducibility	✓	✓	✓	✓
Quality grade (A, B, C, D, F, U)	✓	✓	✓	✓
Automatic interpretation	✓	✓	✓	✓
Firmware update	✓	✓	✓	✓
Real-time calibration	✓	✓	✓	✓

Compatibility with the following devices

		Smart One	Smart One Oxi	Spirobank Smart	Spirobank Oxi
Available SDK	SDK iOS	✓	✓	✓	✓
	SDK Android	✓	✓	✓	✓
	SDK Win				
Connection	BLE	✓	✓	✓	✓
	USB				
SDK mode available	FVC			✓	✓
	SVC			✓	✓
	MVV				
	Flow monitoring			✓	✓
	PEF/FEV1	✓	✓	✓	✓
	Oximetry		✓		✓
Parameters	Parameters measured	Spirometry: PEF, FEV1	Spirometry: PEF, FEV1 Oximetry: %SpO2min, %SpO2mean, %SpO2max, BPMmin, BPMmean, BPMmax, Ttotal	Spirometry: PEF, FEV1, FVC, FEF2575, FEV6, EVOL, PEFTIME, FEV1/FVC %, FEF75, FET, FEF25, FEF50, FIVC, FIV1, PIF, FEV3, FEV05, FEV075, FEV2, FEF7585, FIF25, FIF50, FIF75, FEV1/FEV6%, FEV6/FVC%, FIV1/FIVC%, FEV3/FVC%, FEV05/FVC%, FEV075/FVC%, FEV2/FVC%, EVC, IVC, IC, SET, SIT	Spirometry: PEF, FEV1, FVC, FEF2575, FEV6, EVOL, PEFTIME, FEV1/FVC %, FEF75, FET, FEF25, FEF50, FIVC, FIV1, PIF, FEV3, FEV05, FEV075, FEV2, FEF7585, FIF25, FIF50, FIF75, FEV1/FEV6%, FEV6/FVC%, FIV1/FIVC%, FEV3/FVC%, FEV05/FVC%, FEV075/FVC%, FEV2/FVC%, EVC, IVC, IC, SET, SIT Oximetry: %SpO2min, %SpO2mean, %SpO2max, BPMmin, BPMmean, BPMmax, Ttotal
Compatible turbines	Reusable turbine for single patient	✓	✓	✓	✓
	Flowmir disposable turbine			✓	✓
	Reusable turbine				

Compatibility with the following devices

		Spirobank II Smart	Minispir	Spirodoc	Spirolab
Available SDK	SDK iOS	✓			
	SDK Android	✓			
	SDK Win	✓	✓	✓	✓
Connection	BLE	✓			✓
	USB	✓	✓	✓	✓
SDK mode available	FVC	✓	✓	✓	✓
	SVC	✓	✓	✓	✓
	MVV	✓	✓	✓	✓
	Flow monitoring				
	PEF/FEV1				
	Oximetry	✓		✓	✓
Parameters	Parameters measured	Spirometry: FVC, FEV1, PEF, FEF75, FEF25-75, FET, FEV1/FVC, FEV6, FEV1/FEV6, FEF25, FEF50, FIVC, FEV1/VC, ELA, MVV(cal), Temporal PEF, FEV0.5, FEV0.5/FVC, FEV0.75, FEV0.75/FVC, FEF75-85, Extr. Vol, VC, EVC, IVC, IC, VC, ERV FEV3, FIV1, FIV1/FIVC, PIF, FEV3/FVC, PIF, FEV2, FEV2/FVC, FIF25, FIF50, FIF75, R50, FEV1/PEF (EI), FEV1/FEV0.5 (RFEV), TV, VE, RR, ti Oximetry: %SpO2min, %SpO2mean, %SpO2max, BPMmin, BPMmean, BPMmax, Ttotal	Spirometry: FVC, FEV1, PEF, FEF75, FEF25-75, FET, FEV1/FVC, FEV6, FEV1/FEV6, FEF25, FEF50, FIVC, FEV1/VC, ELA, MVV(cal), Temporal PEF, FEV0.5, FEV0.5/FVC, FEV0.75, FEV0.75/FVC, FEF75-85, Extr. Vol, VC, EVC, IVC, IC, VC, ERV FEV3, FIV1, FIV1/FIVC, PIF, FEV3/FVC, PIF, FEV2, FEV2/FVC, FIF25, FIF50, FIF75, R50, FEV1/PEF (EI), FEV1/FEV0.5 (RFEV), TV, VE, RR, ti	Spirometry: FVC, FEV1, PEF, FEF75, FEF25-75, FET, FEV1/FVC, FEV6, FEV1/FEV6, FEF25, FEF50, FIVC, FEV1/VC, ELA, MVV(cal), Temporal PEF, FEV0.5, FEV0.5/FVC, FEV0.75, FEV0.75/FVC, FEF75-85, Extr. Vol, VC, EVC, IVC, IC, VC, ERV FEV3, FIV1, FIV1/FIVC, PIF, FEV3/FVC, PIF, FEV2, FEV2/FVC, FIF25, FIF50, FIF75, R50, FEV1/PEF (EI), FEV1/FEV0.5 (RFEV), TV, VE, RR, ti Oximetry: SpO2% [Baseline, Min, Max, Mean], BPM [Baseline, Min, Max, Mean], T Total, T Analysis, T<lt;90%, T<lt;89%, T<lt;88%, T<lt;87%, EvSpO2%<lt;89	Spirometry: FVC, FEV1, PEF, FEF75, FEF25-75, FET, FEV1/FVC, FEV6, FEV1/FEV6, FEF25, FEF50, FIVC, FEV1/VC, ELA, MVV(cal), Temporal PEF, FEV0.5, FEV0.5/FVC, FEV0.75, FEV0.75/FVC, FEF75-85, Extr. Vol, VC, EVC, IVC, IC, VC, ERV FEV3, FIV1, FIV1/FIVC, PIF, FEV3/FVC, PIF, FEV2, FEV2/FVC, FIF25, FIF50, FIF75, R50, FEV1/PEF (EI), FEV1/FEV0.5 (RFEV), TV, VE, RR, ti Oximetry: %SpO2min, %SpO2mean, %SpO2max, BPMmin, BPMmean, BPMmax, Ttotal
Compatible turbines	Reusable turbine for single patient				
	Flowmir disposable turbine	✓	✓	✓	✓
	Reusable turbine	✓	✓	✓	✓

Technical Specifications

Personal Spirometers

				
	Smart One	Smart One Oxi	Spirobank Smart	Spirobank Oxi
Portable spirometer	Dimensions 49x109x21mm Weight 61 g Batteries 2xAAA	Dimensions 49x109x21mm Weight 61 g Batteries 2xAAA	Dimensions 49x109x21mm Weight 61 g Batteries 2xAAA	Dimensions 49x109x21mm Weight 61 g Batteries 2xAAA
Reusable turbine for single patient	✓	✓	✓	✓
Flowmir disposable turbine			✓	✓
SDK mode available	4. PEF/FEV1 Test	4. PEF/FEV1 Test 5. Oximetry test	1. FVC test 2. SVC test 3. Flow/Monitoring test 4. PEF/FEV1 Test	1. FVC test 2. SVC test 3. Flow/Monitoring test 4. PEF/FEV1 Test 5. Oximetry test
Parameters measured	Spirometry: PEF, FEV1	Spirometry: PEF, FEV1 Oximetry: %SpO2min, %SpO2mean, %SpO2max, BPMmin, BPMmean, BPMmax, Ttotal	Spirometry: PEF, FEV1, FVC, FEF2575, FEV6, EVOL, PEFTIME, FEV1/FVC %, FEF75, FET, FEF25, FEF50, FIVC, FIV1, PIF, FEV3, FEV05, FEV075, FEV2, FEF7585, FIF25, FIF50, FIF75, FEV1/FEV6%, FEV6/FVC%, FIV1/FIVC%, FEV3/FVC%, FEV05/FVC%, FEV075/FVC%, FEV2/FVC%, EVC, IVC, IC, SET, SIT	Spirometry: PEF, FEV1, FVC, FEF2575, FEV6, EVOL, PEFTIME, FEV1/FVC %, FEF75, FET, FEF25, FEF50, FIVC, FIV1, PIF, FEV3, FEV05, FEV075, FEV2, FEF7585, FIF25, FIF50, FIF75, FEV1/FEV6%, FEV6/FVC%, FIV1/FIVC%, FEV3/FVC%, FEV05/FVC%, FEV075/FVC%, FEV2/FVC%, EVC, IVC, IC, SET, SIT Oximetry: %SpO2min, %SpO2mean, %SpO2max, BPMmin, BPMmean, BPMmax, Ttotal

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