

裂变智能穿戴产品 SDK 使用说明 (iOS)

前言: SDK 希望你理解 BLE (Bluetooth Low Energy) 基本概念, 熟练使用苹果的蓝牙框架 CoreBluetooth。

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➤ 更新记录

版本号	更新内容	发布日期	备注
V1.0.0	<ul style="list-style-type: none"> ✧ 定义 SDK 基础架构，以及功能 api 接口，具体分为四类： ✧ 1、蓝牙管理器 (FBBluetoothManager) ✧ 2、AT 协议指令集 (FBAtCommand) ✧ 3、BG 协议指令集 (FBBgCommand) ✧ 4、OTA 管理器 (FBBluetoothOTA) 	20201231	首次发版
V2.0.0	<ul style="list-style-type: none"> ✧ 1、优化已知问题 ✧ 2、AT 指令回调数据类型由 NSDictionary 字典转换为使用对象模型，详见各回调 block ✧ 3、增加自定义表盘压缩算法协议 	20220414	
V3.0.0	<ul style="list-style-type: none"> ✧ 1、优化已知问题 ✧ 2、重构 block 回调方式，修复 block 回调异常问题 	20220715	
V3.0.1	<ul style="list-style-type: none"> ✧ 1、广播信息解析：适配号兼容 ✧ 2、新增印地语、孟加拉语、乌尔都语、波斯语 ✧ 3、新增获取精神压力记录协议、血压协议暂不可用 	20221119	
V3.0.2	<ul style="list-style-type: none"> ✧ 1、优化 OTA 通知问题 ✧ 2、GPS 运动互联控制增加 确认/取消 指令 	20221214	
V3.0.3	<ul style="list-style-type: none"> ✧ 1、新增定时心率、定时血氧、定时精神压力 检测开关设置协议 ✧ 2、FBMessageModel 新增消息推送类型 ✧ 3、FB_MOTIONMODE 新增运动类型 	20221230	
V3.0.4	<ul style="list-style-type: none"> ✧ 1、新增 get、set 通话音频开关协议 ✧ 2、新增 get、set 多媒体音频开关协议 ✧ 3、EM_FUNC_SWITCH 新增类型 	20230105	
V3.0.5	<ul style="list-style-type: none"> ✧ 1、修正获取血压记录协议 ✧ 2、新增获取运动高频心率记录 (1 秒 1 次) ✧ 3、新增获取精神压力协议 ✧ 4、兼容获取手动测量记录协议 ✧ 5、FBFirmwareVersionObject 新增配置 ✧ 6、自动同步系统时间 (同步 UTC 时间 + 设置时区)、获取 运动统计报告+运动详情记录 	20230130	

	✧ 7、FB_RECORDTYPE 新增类型		
	✧ 8、FB_MULTIPLE RECORDREPORTS 新增类型		

➤ 环境要求

系统 iOS 10 及以上, ARM 架构(由于原厂 SDK 限制, 暂不支持模拟器)

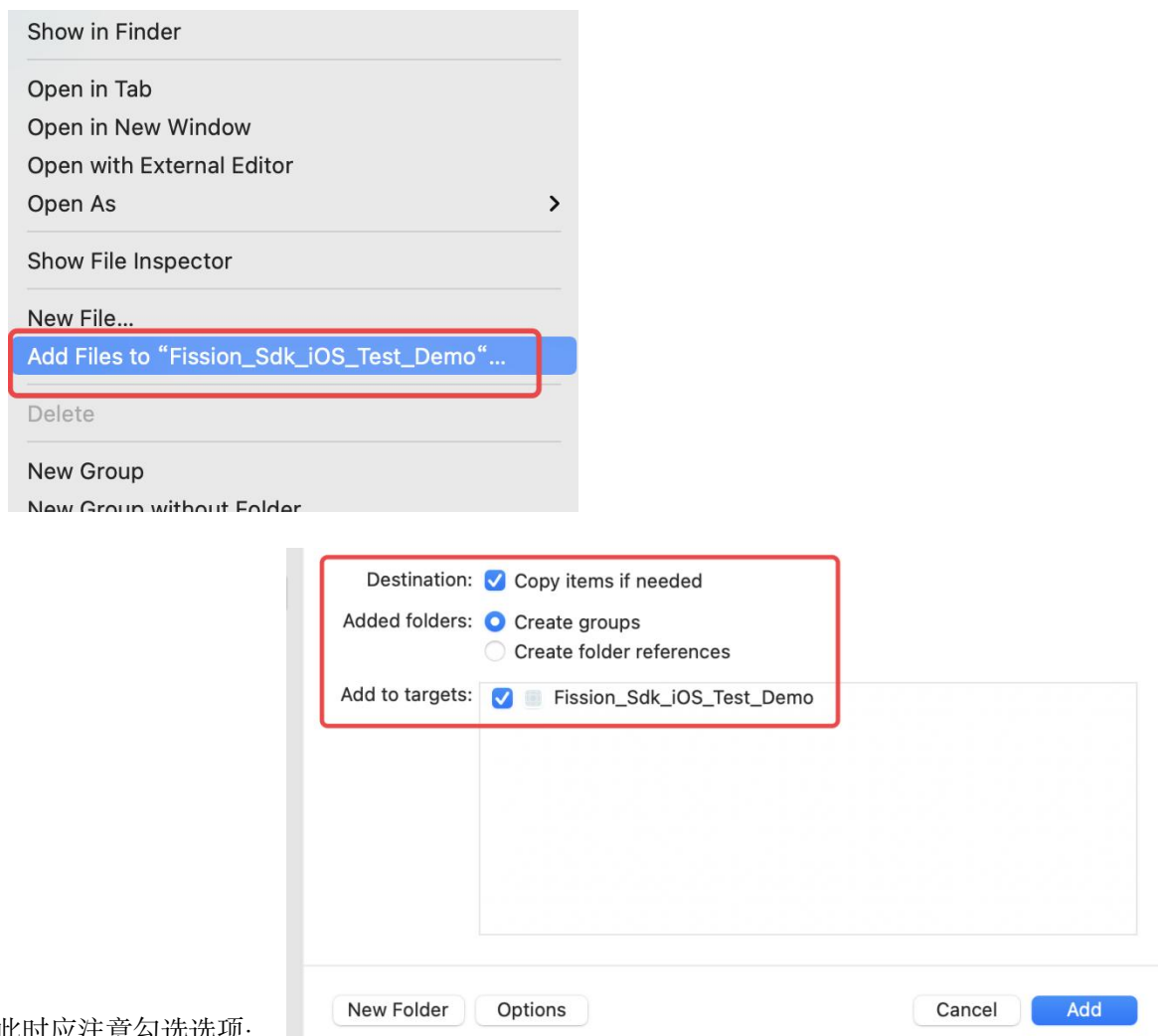
依赖

- CoreBluetooth.framework

➤ 导入 SDK

1、手动导入 SDK

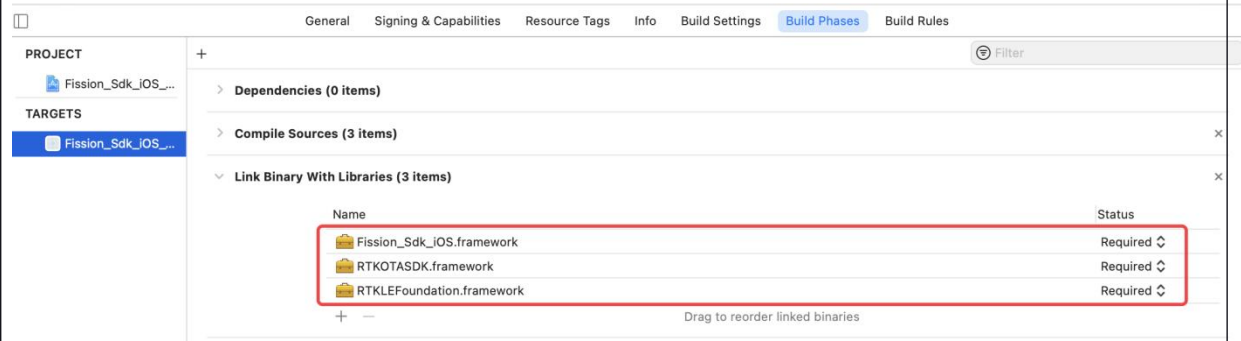
将 `Fission_Sdk_iOS.framework`、`RTKOTASDK.framework`、`RTKLEFoundation.framework` 文件 Add File 导入工程:



此时应注意勾选选项:

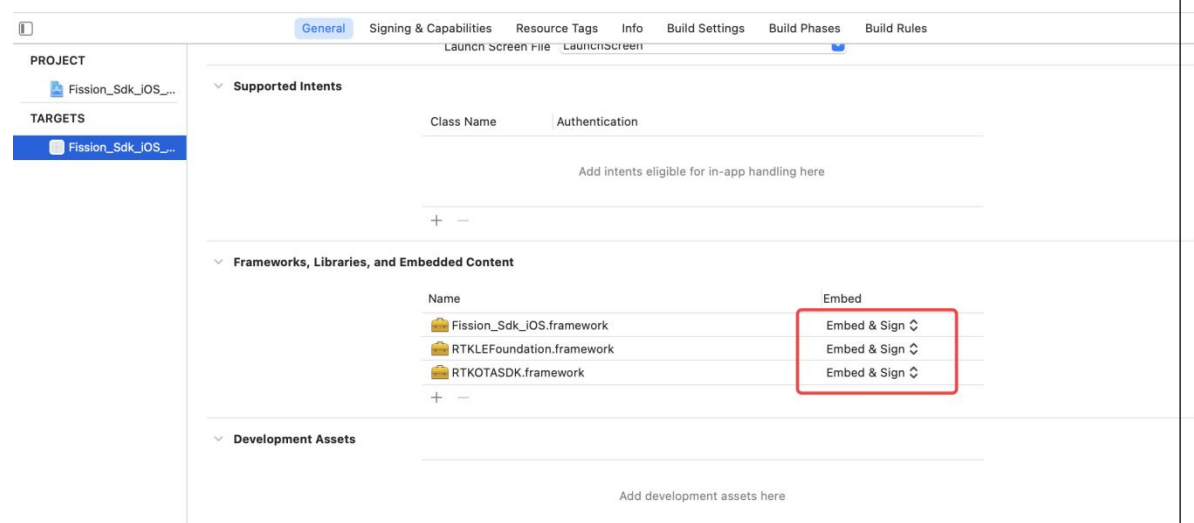
2. 链接 framework

在 project 中添加 Fission_Sdk_iOS.framework、RTKOTASDK.framework、RTKLEFoundation.framework 指定链接的 target:

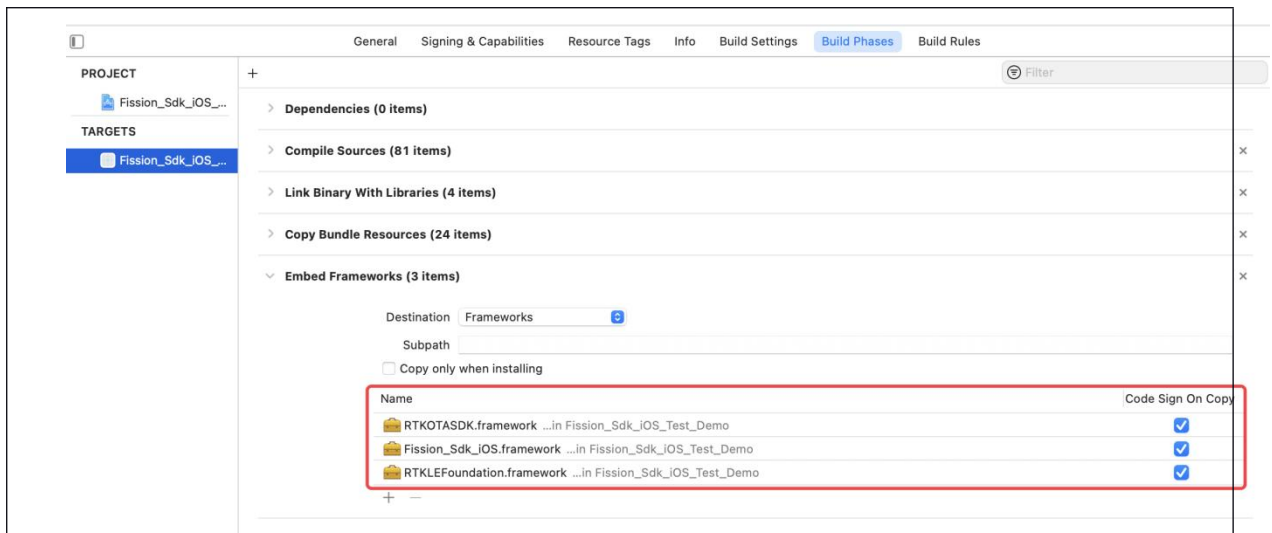


3. Copy framework to destination app bundle

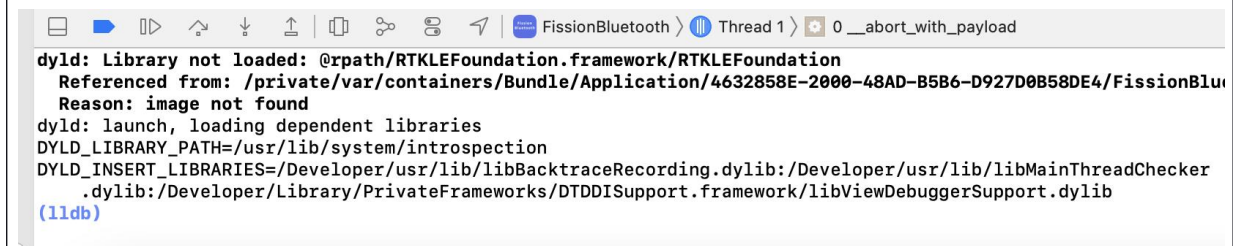
在 project 中修改 RTKOTASDK.framework、RTKLEFoundation.framework 的嵌入方式为 Embed&Sign:



修改完成后查看 Embed framework 如图即表示已成功 Copy framework to destination app bundle:

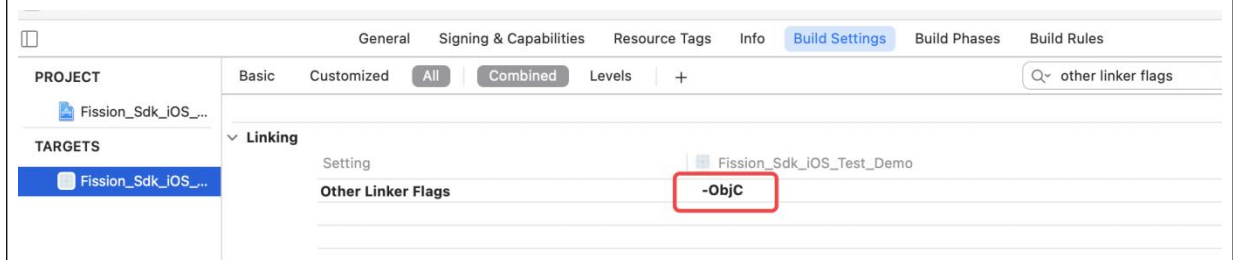


Note: 为了使 app 能够执行 SDK 的代码，framework 需要包含在 app bundle 中。如果无法执行，console 中打印 image not found，表示这一步没有完成。

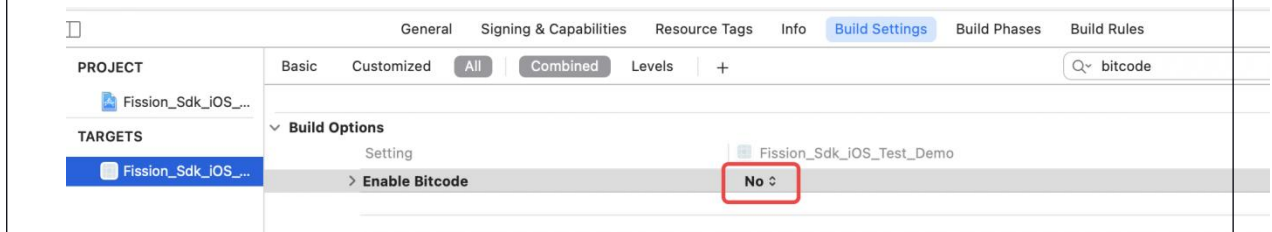


4、配置工程

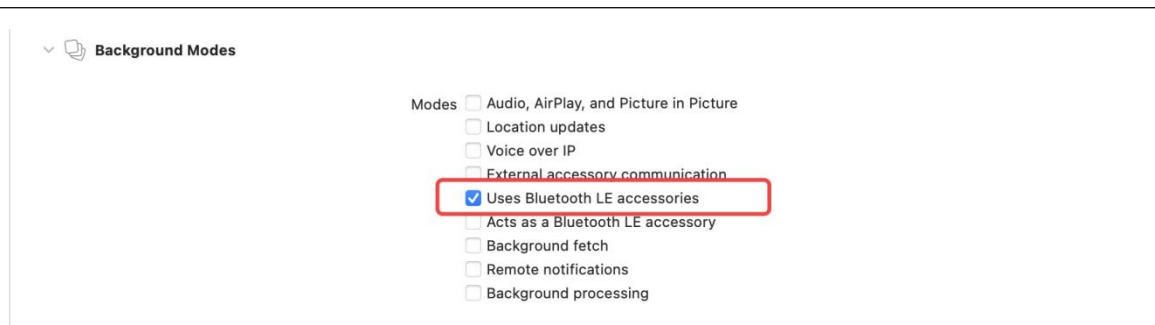
① Build Settings 中 Other Linker Flags 添加 -ObjC



② Build Settings 中 Enable Bitcode 修改为 NO

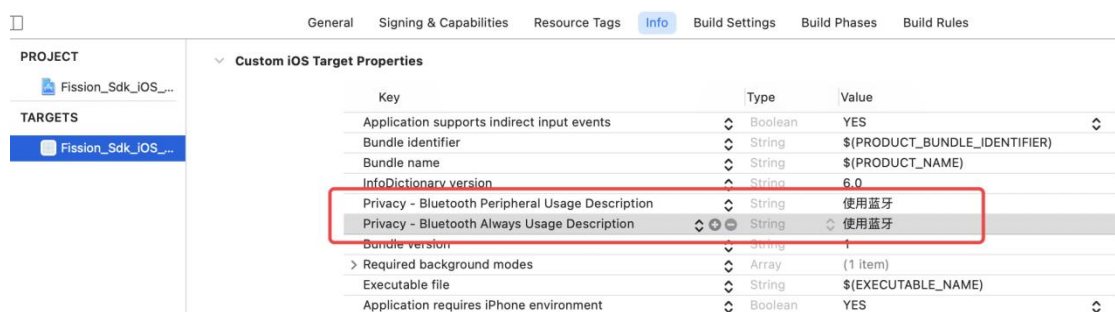


③ 后台运行模式，如果 app 需要在后台运行期间进行升级，需要开启以下 Background mode:



④ 隐私数据使用说明, iOS 需要 app 对使用的隐私数据提供可视化的文字说明描述, 否则 app 无法启动, 需要在 info.plist 中添加以下使用描述:

- Privacy - Bluetooth Peripheral Usage Description
- Privacy - Bluetooth Always Usage Description



5. 开始使用, 导入头文件

在使用 SDK 接口的源代码中, 使用 `#import <Fission_Sdk_iOS/Fission_Sdk_iOS.h>` 引入头文件即可使用相关 API

① 初始化蓝牙管理器 **FBBluetoothManager.sharedInstance** 设置回调监听方法:

```
/// 蓝牙状态改变回调
-(void)fbOnCentralManagerDidUpdateStateWithBlock:(FBOnCentralManagerDidUpdateStateBlock)fbBlock;
```

```
/// 搜索蓝牙设备回调
-(void)fbDiscoverPeripheralsWithBlock:(FBDiscoverPeripheralsBlock)fbBlock;
```

```
/// 设备连接 成功/失败 回调
-(void)fbOnConnectedAtChannelWithBlock:(FBOnConnectedAtChannelBlock)fbBlock;
```

```
/// 设备断开连接回调
-(void)fbOnDisconnectAtChannelWithBlock:(FBOnDisconnectAtChannelBlock)fbBlock;
```

```

/// 蓝牙系统错误回调
- (void)fbBluetoothSystemErrorWithBlock:(FBBluetoothSystemErrorBlock)fbBlock;

/// 开始扫描设备
- (void)scanForPeripherals;

/// 停止扫描设备
- (void)cancelScan;

/// 连接设备
- (void)connectToPeripheral:(CBPeripheral * _Nonnull)peripheral;

/// 断开设备
- (void)disconnectPeripheral;

```

更多 api 接口方法使用参考 **FBBluetoothManager** 类；

代码示例 1，设置监听扫描到设备的回调：

```

// 扫描到设备回调方法
[FBBluetoothManager.sharedInstance fbDiscoverPeripheralsWithBlock:^(BOOL isPair, NSString * _Nonnull device_Name, NSString *
    _Nonnull mac_Address, NSString * _Nonnull adapt_Number, CBPeripheral * _Nonnull peripheral, NSDictionary * _Nonnull
    advertisementData, NSNumber * _Nonnull RSSI) {

    // do something...
}];

```

代码示例 2，开始扫描设备：

```

// 开始扫描设备
[FBBluetoothManager.sharedInstance scanForPeripherals];

```

② AT 指令集 **FBAtCommand.sharedInstance**，更多 api 接口方法使用参考 **FBAtCommand** 类；

代码示例，请求绑定设备：

```
// 绑定设备请求
[FBAtCommand.sharedInstance fbBindDeviceRequestWithBlock:^(NSInteger responseObject, NSError * _Nullable error) {
    if (error) {
        // 失败
    } else {
        // 根据自身业务处理结果
    }
}];
```

③ BG 指令集 **FBBgCommand.sharedInstance**，具体 api 接口方法使用参考

FBBgCommand 类；

代码示例，请求设备硬件信息：

```
// 获取设备硬件信息请求
[FBBgCommand.sharedInstance fbGetHardwareInformationDataWithBlock:^(FB_RET_CMD status, float progress, FBDeviceInfoModel * _Nullable responseObject, NSError * _Nullable error) {
    if (error) {
        // 失败
    } else if (status == FB_DATATRANSMISSIONDONE) {
        // 成功
    }
}];
```

④ OTA 管理器 **FBBluetoothOTA.sharedInstance**，固件升级、在线表盘、自定义表盘、运动推送 · · · 通过传入 **FB_OTANOTIFICATION** 参数，区分 OTA 类型，具体 api 接口方法使用参考 **FBBluetoothOTA** 类；

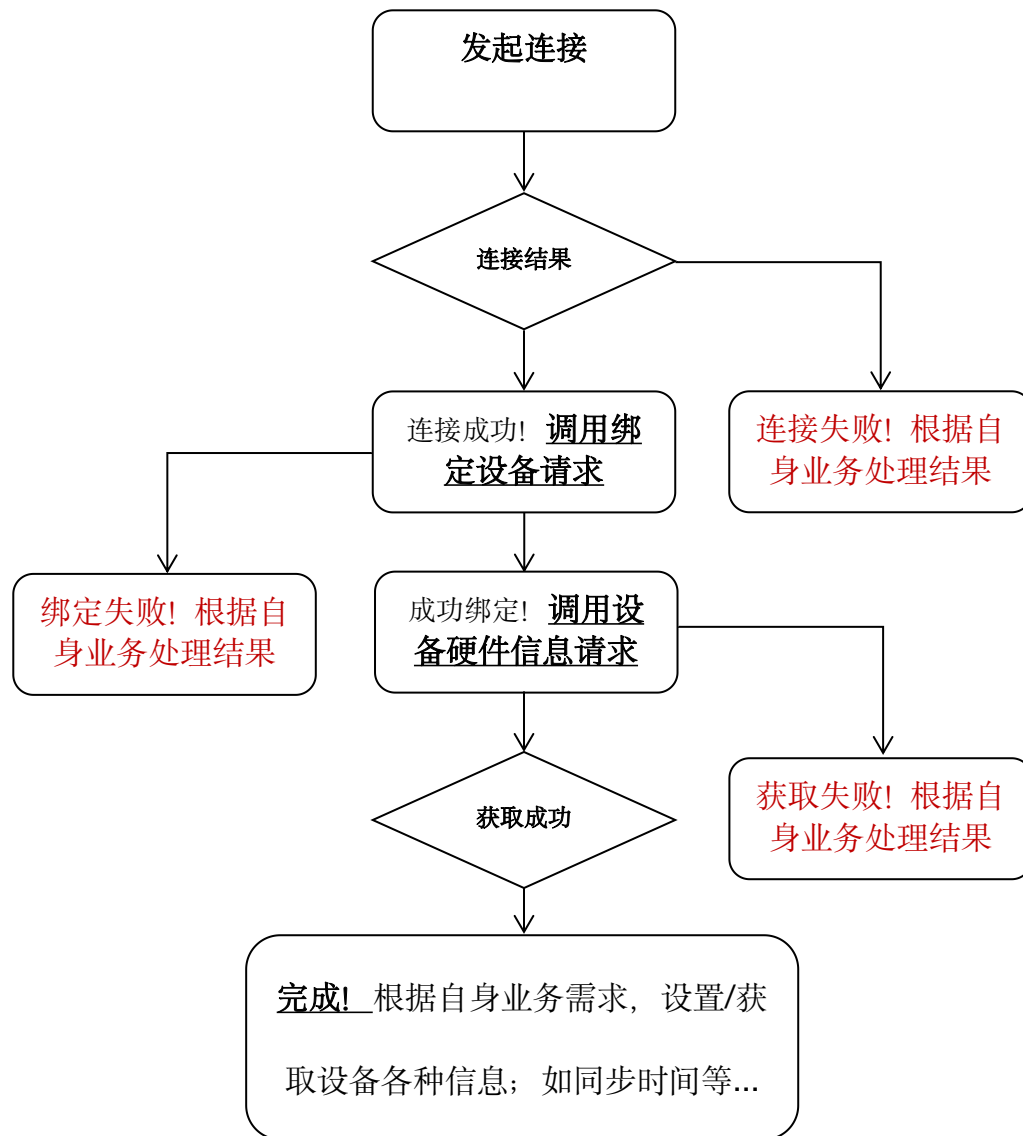
代码示例，固件升级：

```
// 升级固件
[FBBluetoothOTA.sharedInstance fbStartCheckingOTAWithBinFileData:binFile withOTAtype:FB_OTANotification_Firmware
withBlock:^(FB_RET_CMD status, float progress, FBOTADoneModel * _Nonnull responseObject, NSError * _Nonnull error) {
    if (error) {
        // 失败
    } else if (status==FB_DATATRANSMISSIONDONE){
        // 成功
    } else if (status==FB_INDATATRANSMISSION){
        // progress进度
    }
}];
```

自定义表盘 bin 文件支持本地生成，请参考：

```
// 生成自定义表盘文件
NSData *file = [FBCustomDataTools.sharedInstance fbGenerateCustomDialBinFileDataWithDialModel:model];
```


6. 固定流程说明



Note: SDK 底层部分功能处理依赖【设备硬件信息】，硬件功能相关信息

FBAllConfigObject.firmwareConfig 详见 **FBFirmwareVersionObject** 类;

① 发起连接

② 连接成功，请求绑定设备

③ 绑定设备成功，请求获取设备硬件信息

④ 设备硬件信息请求成功，开始根据自身业务需求，调用其他协议接口...

➤ 基础控制与查询 API (FBAAtCommand)

1、获取设备电量信息

```
- (void)fbReqBatteryStatusDataWithBlock:(FBReqBatteryStatusBlock
Nonnull)fbBlock;
```

```
/*
```

```
手表设备电量信息 | Watch device battery info
```

```
*/
```

```
@interface FBBatteryInfoModel : NSObject
```

```
/**
```

```
电池电量状态 | Battery state
```

```
*/
```

```
@property (nonatomic, assign) FB_BATTERYLEVEL batteryState;
```

```
/**
```

```
电池电量 | Battery level
```

```
*/
```

```
@property (nonatomic, assign) NSInteger batteryLevel;
```

```
@end
```

```
typedef enum {
```

```
    BATT_NORMAL      = 0, //正常 | Normal
```

```
    BATT_LOW_POWER   = 1, //低压 | Low power
```

```
    BATT_CHARGING     = 2, //充电中 | Charging
```

```
    BATT_FULL        = 3, //电池满 | Full power
```

```
}FB_BATTERYLEVEL;
```

2、获取设备版本信息

```
- (void)fbReqDeviceVersionDataWithBlock:(FBReqDeviceVersionBlock
Nonnull)fbBlock;
```

```
/*
```

```
设备版本信息 | Device version information
```

```
*/
```

```
@interface FBDeviceVersionModel : NSObject
```

```
/**
```

```
硬件版本号 | Hardware version number
```

```
*/
```

```
@property (nonatomic, copy) NSString *hardwareVersion;
```

```
/**
```

```
软件版本号 | Software version number
```

```
*/  
@property (nonatomic, copy) NSString *softwareVersion;  
@end
```

3、获取协议版本信息

```
- (void)fbReqProtocolVersionDataWithBlock:(FBReqProtocolVersionBlock  
_Nonnull)fbBlock;
```

```
/**  
 协议版本号 | Protocol version number  
*/  
NSString *responseObject;
```

4、获取 UTC 时间

```
- (void)fbReqUTCTimeDataWithBlock:(FBGet_AT_ResultCallbackBlock  
_Nonnull)fbBlock;
```

```
/**  
  UTC 时间（秒） | UTC time (seconds)  
*/  
NSInteger responseObject;
```

5、获取时区

```
- (void)fbReqTimezoneDataWithBlock:(FBGet_AT_ResultCallbackBlock  
_Nonnull)fbBlock;
```

```
/**  
  时区（分钟） | Time zone (minutes)  
*/  
NSInteger responseObject;
```

6、~~同步 UTC 时间~~（弃用，使用 fbAutomaticallySynchronizeSystemTimeWithBlock: 替换）

```
- (void)fbSynchronizeUTCTimeWithBlock:(FBResultCallbackBlock  
_Nonnull)fbBlock;
```

7、~~设置时区~~ (弃用, 使用 fbAutomaticallySynchronizeSystemTimeWithBlock: 替换)

```
- (void)fbUpTimezoneMinuteData:(NSInteger)timeZoneMinute
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;

/**
 时区 (分钟) | Time zone (minutes)
 */
NSInteger timeZoneMinute;
```

8、设置系统时间 (同步 UTC 时间+设置时区)

```
-
(void)fbAutomaticallySynchronizeSystemTimeWithBlock:(FBResultCallbackBlock _Nonnull)fbBlock;
```

9、设置时间显示模式

```
- (void)fbUpTimeModeData:(FB_TIMEDISPLAYMODE)hoursMode
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;

/**
 时间显示模式 | Time display mode
 */
TIMEDISPLAYMODE hoursMode;

typedef enum {
    FB_TimeDisplayMode12Hours = 12, //12 小时制 | 12 hour system
    FB_TimeDisplayMode24Hours = 24, //24 小时制 | 24 hour system
}FB_TIMEDISPLAYMODE;
```

10、设置语言

```
- (void)fbUpLanguageData:(FB_LANGUAGES)language
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;

/**
 语言 | language
 */
LANGUAGES language;

typedef enum {
    FB_SDK_zh_Hans = 0, //中文简体 | Simplified Chinese
```

```

FB_SDK_en      = 1,  //英文 | English
FB_SDK_ja      = 2,  //日语 | Japanese
FB_SDK_fr      = 3,  //法语 | French
FB_SDK_de      = 4,  //德语 | German
FB_SDK_es      = 5,  //西班牙语 | Spanish
FB_SDK_it      = 6,  //意大利语 | Italian
FB_SDK_pt      = 7,  //葡萄牙语 | Portuguese
FB_SDK_ru      = 8,  //俄语 | Russian
FB_SDK_cs      = 9,  //捷克语 | Czech
FB_SDK_pl      = 10, //波兰语 | Polish
FB_SDK_zh_Hant = 11, //中文繁体 | Chinese traditional
FB_SDK_ar      = 12, //阿拉伯语 | Arabic
FB_SDK_tr      = 13, //土耳其语 | Turkish
FB_SDK_vi      = 14, //越南语 | Vietnamese
FB_SDK_ko      = 15, //韩语 | Korean
FB_SDK_he      = 16, //希伯来语 | Hebrew
FB_SDK_th      = 17, //泰语 | Thai
FB_SDK_id      = 18, //印尼语 | Indonesian
FB_SDK_nl      = 19, //荷兰语 | Dutch
FB_SDK_el      = 20, //希腊语 | Greek
FB_SDK_sv      = 21, //瑞典语 | Swedish
FB_SDK_ro      = 22, //罗马尼亚语 | Romanian
FB_SDK_hi      = 23, //印地语 | Hindi
FB_SDK_bn      = 24, //孟加拉语 | Bangla
FB_SDK_ur      = 25, //乌尔都语 | Urdu
FB_SDK_fa      = 26, //波斯语 | Persian

```

```

}FB_LANGUAGES;

```

11、设置距离单位

```

- (void)fbUpDistanceUnitData:(FB_DISTANCEUNIT)units
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;

```

```

/**

```

```

    单位 | Unit

```

```

*/

```

```

FB_DISTANCEUNIT units;

```

```

typedef enum {

```

```

    FB_EnglishUnits = 0, //英制单位 | English units

```

```

    FB_MetricUnit   = 1, //公制单位 | Metric unit

```

```

}FB_DISTANCEUNIT;

```

12、设置震动提醒开关

```
- (void)fbUpShakeAlterSwitchData:(BOOL)switchMode  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;  
/** YES 开 NO 关 | YES ON NO OFF */  
BOOL switchMode;
```

13、设置抬腕亮屏开关

```
- (void)fbUpWristSwitchData:(BOOL)switchMode  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;  
/** YES 开 NO 关 | YES ON NO OFF */  
BOOL switchMode;
```

14、进入/退出拍照模

```
- (void)fbUpTakePhotoStatusData:(BOOL)switchMode  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;  
/** YES 进入 NO 退出 | YES Enter NO Exit */  
BOOL switchMode;
```

15、开启/关闭数据流

```
- (void)fbUpDataStreamData:(NSInteger)second  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;  
/**  
数据返回时间间隔（单位秒） 0 表示关闭 | Data return time interval (unit: second) 0 means closed  
*/  
NSInteger second;
```

16、设置心率开关

```
- (void)fbUpHeartRateData:(BOOL)switchMode  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;  
/** YES 开 NO 关 | YES ON NO OFF */  
BOOL switchMode;
```

17、收到设备即使拍照的回调

```
- (void)fbUpTakePhotoClickDataWithBlock:(FBUpTakePhotoClickBlock  
_Nonnull)fbBlock;
```

// 设备端操作了摇一摇拍照，会主动通过此回调通知 app 端

18、手机查找设备

```
- (void)fbUpFindDeviceDataWithBlock:(FBResultCallbackBlock  
_Nonnull)fbBlock;
```

19、收到设备查找手机的回调

```
- (void)fbUpFindPhoneDataWithBlock:(FBUpFindPhoneBlock _Nonnull)fbBlock;
```

// 设备端操作了查找手机，会主动通过此回调通知 app 端

20、收到设备取消查找手机的回调

```
- (void)fbAbandonFindingPhoneWithBlock:(FBAbandonFindingPhoneBlock  
_Nonnull)fbBlock;
```

// 设备端取消了查找手机，会主动通过此回调通知 app 端

21、收到蓝牙配对成功的回调

```
- (void)fbUpPairingCompleteDataWithBlock:(FBUpPairingCompleteBlock  
_Nonnull)fbBlock;
```

// 设备与手机蓝牙配对成功，会主动通过此回调通知 app 端

22、重启设备

```
- (void)fbUpRebootDeviceDataWithBlock:(FBResultCallbackBlock  
_Nonnull)fbBlock;
```

23、恢复出厂设置

```
- (void)fbUpResetDeviceDataWithBlock:(FBResultCallbackBlock  
_Nonnull)fbBlock;
```

24、软关机

```
- (void)fbUpSoftDownDataWithBlock:(FBResultCallbackBlock  
_Nonnull)fbBlock;
```

25、启动 OTA 升级模式

```
- (void)fbUpOpenOTADDataWithBlock:(FBResultCallbackBlock  
_Nonnull)fbBlock;
```

26、安全确认

```
- (void)fbUpSafetyConfirmDataWithBlock:(FBResultCallbackBlock  
_Nonnull)fbBlock;
```

27、启动/退出自检模式

```
- (void)fbUpSelfTestData:(BOOL)switchMode  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;  
/** YES 启动 NO 退出 | YES Start NO Exit */  
BOOL switchMode;
```

28、清除用户信息

```
- (void)fbUpClearUserInfoDataWithBlock:(FBResultCallbackBlock  
_Nonnull)fbBlock;
```


29、清除运动数据

```
- (void)fbUpClearSportDataWithBlock:(FBResultCallbackBlock  
_Nonnull)fbBlock;
```

30、设置设备主动断开连接

```
- (void)fbUpDisconnectDataWithBlock:(FBResultCallbackBlock  
_Nonnull)fbBlock;
```

31、界面跳转测试

```
- (void)fbUpInterfaceJumpTestData:(NSString * _Nonnull)interfaceCode  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;
```

/**

指定界面代号 | Specify interface code

*/

```
NSString *interfaceCode;
```

32、女性生理状态设定

```
-(void)fbUpFemalePhysiologicalStateData:(FB_FEMALEPHYSIOLOGICALSTATE)stateCode  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;
```

/**

女性生理状态 | Female's physiological state

*/

```
FB_FEMALEPHYSIOLOGICALSTATE stateCode;
```

```
typedef enum {
```

```
    FB_FPS_NotUsed          = 0, //未启用 | Not used
```

```
    FB_FPS_Pregnancy        = 1, //怀孕期 | Pregnancy
```

```
    FB_FPS_Menstruation     = 2, //月经期 | Menstruation
```

```
    FB_FPS_Safety           = 3, //安全期 | Safety period
```

```
    FB_FPS_Ovulation        = 4, //排卵期 | During ovulation
```

```
    FB_FPS_OvulationDay     = 5, //排卵日 | Ovulation day
```

```
    FB_FPS_PregnancyPreparation = 6, //备孕期 | Pregnancy preparation period
```

```
}FB_FEMALEPHYSIOLOGICALSTATE;
```

33、获取未使用的 记事体醒/闹钟信息 ID

```
- (void)fbGetUnusedClockIDWithBlock:(FBGet_AT_ResultCallbackBlock  
_Nonnull)fbBlock;
```

// 在 app 端新建记事体醒/闹钟信息时，需先调用该接口查询可用的 ID

```
/**  
可用 ID | Available IDs  
*/  
NSInteger responseObject;
```

34、开启/退出短跑模式

```
- (void)fbUpSprintMode:(FB_SPRINTMODE)mode  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;
```

// 开启后采集速度由一分钟一笔运动详情，改为一秒一次

```
/**  
短跑模式开关 | Sprint mode switch  
*/  
FB_SPRINTMODE mode;  
  
typedef enum {  
    FB_SPRINTMODE_OFF = 0, //关闭 | Close  
    FB_SPRINTMODE_ON = 1, //开启 | Open  
}FB_SPRINTMODE;
```

35、监听设备的定位请求

```
- (void)fbUpPositioningSwitchWithBlock:(FBUpPositioningSwitchBlock  
_Nonnull)fbBlock;
```

// app 端接收到该回调时，需要主动上报一次定位信息给设备端

```
15 @interface FBBgCommand : NSObject  
363 #pragma mark - App推送手机定位信息 | App push mobile location information  
364 /**  
365 App推送手机定位信息 | App push mobile location information  
366 @param longitude 经度 | Longitude  
367 @param latitude 纬度 | Latitude  
368 */  
369 - (void)fbPushMobileLocationInformationWithLongitude:(float)longitude withLatitude:(float)latitude withBlock:(FBResultCallbackBlock  
_Nonnull)fbBlock;
```

36、OTA 类型通知

```
- (void)fbUpOTANotificationWithType:(FB_OTANOTIFICATION)type
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;

/**
 OTA 类型 | OTA type
 */
FB_OTANOTIFICATION type;

typedef enum {
    FB_OTANotification_Firmware           = 0,    //升级固件 | Update Firmware
    FB_OTANotification_ClockDial          = 1,    //升级默认动态表盘 | Upgrade default dynamic dial
    FB_OTANotification_SmallFont          = 2,    //升级小字库 | Upgrade small font
    FB_OTANotification_BigFont            = 3,    //升级大字库 | Upgrade big font
    FB_OTANotification_UIPictureResources = 4,    //升级 UI 图片资源 | Upgrade UI image resources
    FB_OTANotification_2_3_4AtTheSameTime = 5,    //同时升级 2,3,4 | Upgrade 2, 3, 4 at the same time
    FB_OTANotification_Motion             = 6,    //推送运动模式 | Push motion mode
    FB_OTANotification_DynamicClockDial   = 10,   //+n, 升级动态表盘 n | +n. Upgrade dynamic dial n
    FB_OTANotification_CustomClockDial    = 20,   //+n, 升级自定义表盘 n | +n. Upgrade custom dial n
    FB_OTANotification_Busy               = 254,   //设备处于禁止 OTA 状态, 稍后再试 | The device is in OTA
    prohibited state, please try again later
    FB_OTANotification_Cancel             = 255,   //放弃当前升级 | Discard current upgrade
}FB_OTANOTIFICATION;
```

37、进入/退出生产模式

```
- (void)fbUpProductionTestModeIsOpen:(BOOL)isOpen withBlock:(FBResultCallbackBlock
_Nonnull)fbBlock;

/** YES 进入 NO 退出 | YES Enter NO Exit */
BOOL isOpen;
```

38、监听设备端功能状态变更回调

```
-(void)fbReceiveFunctionSwitchSynchronizationWithBlock:(FBReceiveFunctionSwitchSynchronizationBlock _Nonnull)fbBlock;

/*
 手表设备功能变更通知 | Watch device function change notice
 */
@interface FBWatchFunctionChangeNoticeModel : NSObject

/**
 变更的功能 | Changed functions
 */
```

```
@property (nonatomic, assign) EM_FUNC_SWITCH functionMode;
```

```
/**
```

```
功能更改值 | Function change value
```

@note 根据变更的功能类型，功能更改值代表的含义不同，具体参考上述枚举 **【EM_FUNC_SWITCH】** / According to the changed function type, the meaning of the function change value is different. Refer to the above enumeration **【EM_FUNC_SWITCH】** for details

```
*/
```

```
@property (nonatomic, assign) NSInteger functionChangeValue;
```

```
@end
```

```
typedef enum {
```

```
    FS_NULL = 0, //无 | Nothing
```

```
    FS_SENSOR_GATHER = 1, //体征数据采集总开关状态, 0 关 1 开 | Sign data acquisition master switch status, 0 off and 1 on
```

```
    FS_MOTOR_ENABLE = 2, //振动开关状态, 0 关 1 开 | Vibration switch status, 0 off, 1 on
```

```
    FS_DONT_DISTURB_WARN = 3, //勿扰开关状态, 0 关 1 开 | Do not disturb switch status, 0 off and 1 on
```

```
    FS_CLOCK_1_WARN = 4, //闹钟 1 的开关状态, 0 关 1 开 | Alarm 1 switch status, 0 off and 1 on
```

```
    FS_CLOCK_2_WARN = 5, //闹钟 2 的开关状态, 0 关 1 开 | Alarm 2 switch status, 0 off and 1 on
```

```
    FS_CLOCK_3_WARN = 6, //闹钟 3 的开关状态, 0 关 1 开 | Alarm 3 switch status, 0 off and 1 on
```

```
    FS_CLOCK_4_WARN = 7, //闹钟 4 的开关状态, 0 关 1 开 | Alarm 4 switch status, 0 off and 1 on
```

```
    FS_CLOCK_5_WARN = 8, //闹钟 5 的开关状态, 0 关 1 开 | Alarm 5 switch status, 0 off and 1 on
```

```
    FS_LOWBATTERY_WARN = 9, //低压提醒功能开关状态, 0 关 1 开 | Low voltage reminder function switch status, 0 off and 1 on
```

```
    FS_TARGET_DAY_WARN = 10, //日目标提醒检测总开关状态, 0 关 1 开 | Daily target alert detection master switch status, 0 off and 1 on
```

```
    FS_TARGET_WEEK_WARN = 11, //周目标提醒检测总开关状态, 0 关 1 开 | Weekly target alert detection master switch status, 0 off and 1 on
```

```
    FS_TARGET_SELF_WARN = 12, //自我鼓励目标提醒检测总开关状态, 0 关 1 开 | Self encouragement target alert detection master switch status, 0 off and 1 on
```

```
    FS_HEARTRATE_LEVEL_WARN = 13, //心率超标提醒开关状态, 为 0 关 非 0 开 | The heart rate exceeds the limit reminder switch status, which is 0 off and not 0 on
```

```
    FS_WEARING_STATE_WARN = 14, //佩戴状态, 0 未佩戴 1 佩戴 | Wearing status, 0 not wearing, 1 wearing
```

```
    FS_TAKEPHOTOS_WARN = 15, //拍照模式开关状态, 0 关 1 开 | Photo mode switch status, 0 off and 1 on
```

```
    FS_STATEOFCHARGE_WARN = 16, //设备充电状态更新, 0 放电状态, 1 低压状态, 2 充电状态, 3 充满状态 | The charging state of the equipment is updated, including 0 discharge state, 1 low voltage state, 2 charging state and 3 full state
```

```
    FS_MUSICINTERFACESTATUS = 17, //进入音乐界面状态 | Music interface status
```

```
    FS_BRIGHTSCREENTIMECHANGES = 18, //亮屏时长改变 | The duration of bright screen changes
```

```
    FS_WRISTLIFT_WARN = 19, //抬腕开关状态, 0 关 1 开 | Wrist lifting switch status, 0 off and 1 on
```

```
    FS_PERCENTAGE_BATTERY = 20, //当前电池电量百分比 | Current battery power percentage
```

```
    FS_WATER_DRINKING_WARN = 21, //喝水提醒开关状态, 0 关 1 开 | Water drinking reminder switch status, 0 off and 1 on
```

```
    FS_SEDENTARY_WARN = 22, //久坐提醒开关状态, 0 关 1 开 | Sedentary reminder switch status, 0 off and 1 on
```

```
    FS_OTA_PERCENTAGE = 23, //OTA 百分比 | OTA percentage
```

```

    FS_MUTE_SWITCH          = 24, //静音开关同步（安卓专用） | Mute switch synchronization (Android only)
    FS_OTA_INTERFACE_STATUS = 25, //手表 OTA 升级界面状态, 1 进入 OTA 界面, 0 退出 OTA 界面 | Watch OTA upgrade
interface status, 1 enters the OTA interface, 0 exits the OTA interface

    FS_ALARM_CLOCK_CHANGE_NOTICE = 26, //手表记事提醒/闹钟信息变更通知事件 | Watch reminder / alarm clock
information change notification event


    FS_TIMING_HR_WARN          = 28, //定时心率检测开关状态, 0 关 1 开 | Timing heart rate detection switch status,
0 off 1 on
    FS_TIMING_SPO2_WARN        = 29, //定时血氧检测开关状态, 0 关 1 开 | Timing blood oxygen detection switch
status, 0 off 1 on
    FS_TIMING_STRESS_WARN      = 30, //定时精神压力检测开关状态, 0 关 1 开 | Timing mental stress detection
switch status, 0 off 1 on
    FS_CALL_AUDIO_WARN         = 31, //通话音频开关状态, 0 关 1 开 | Call audio switch status, 0 off 1 on
    FS_MULTIMEDIA_AUDIO_WARN   = 32, //多媒体音频开关状态, 0 关 1 开 | Multimedia audio switch status, 0 off
1 on


    // 更多类型请查看代码...


    FS_OTHER_EXPAND            = 255 //更多功能待拓展 | More functions to be expanded
}EM_FUNC_SWITCH;

```

39、设置温度单位

```

- (void)fbUpTemperatureUnitWithUnit:(FB_TEMPERATUREUNIT)unit
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;

/**
温度单位 | Temperature unit
*/
FB_TEMPERATUREUNIT unit;

typedef enum {
    FB_Centigrade          = 0, //摄氏度 C | Centigrade(C)
    FB_FahrenheitDegree = 1, //华氏度 F | Fahrenheit degree(F)
}FB_TEMPERATUREUNIT;

```

40、获取亮屏时长

```

- (void)fbGetTheDurationOfBrightScreenWithBlock:(FBGet_AT_ResultCallback
Block _Nonnull)fbBlock;

/**
亮屏时长（秒） | Duration of screen lighting (seconds)
*/

```

```
NSInteger responseObject;
```

41、设置亮屏时长

```
- (void)fbSetTheDurationOfBrightScreenWithDuration:(int)duration  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;
```

```
/**
```

```
亮屏时长（秒） | Duration of screen lighting (seconds)
```

```
*/
```

```
int duration;
```

42、切换至指定表盘

```
- (void)fbTogglesTheSpecifiedDialWithIndex:(int)index  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;
```

```
/**
```

```
表盘索引 | Dial index
```

```
*/
```

```
int index;
```

43、设置震动反馈

```
- (void)fbVibrationFeedbackSwitchWithMode:(BOOL)mode  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;
```

```
/** YES 开 NO 关 | YES ON NO OFF */
```

```
BOOL mode;
```

44、请求绑定设备

```
- (void)fbBindDeviceRequestWithBlock:(FBGet_AT_ResultCallbackBlock  
_Nonnull)fbBlock;
```

```
/**
```

```
绑定结果 | Binding Results
```

```
0 拒绝绑定
```

```
1 同意绑定
```

```
2 已被绑定
```

```
3 确认超时
```

```
4 递交密钥错误
```

```
5 递交密钥正确
```

```
6 无需绑定
```

```
*/  
NSInteger responseObject;
```

45、请求解绑设备

```
– (void)fbUnbindDeviceRequestWithBlock:(FBResultCallbackBlock  
_Nonnull)fbBlock;
```

46、获取当天静息心率

```
–(void)fbGetRestingHeartRateOfTheDayWithBlock:(FBGet_AT_ResultCallbackBlock  
_Nonnull)fbBlock;
```

```
/**  
当天静息心率 | The resting heart rate of the day  
*/  
NSInteger responseObject;
```

47、获取指定提示功能

```
– (void)fbGetPromptFunctionWithMode:(FB_PROMPTFUNCTION)mode  
withBlock:(FBGet_AT_ResultCallbackBlock _Nonnull)fbBlock;
```

```
/**  
提示阈值，等于 0 则代表关闭 | Prompt threshold value, equal to 0 means closed  
*/  
NSInteger responseObject;  
/**  
提示功能 | Prompt function  
*/  
FB_PROMPTFUNCTION mode;
```

```
typedef enum {  
    FB_ExerciseHeartRate = 1, //运动心率超高提示 | Exercise heart rate ultra-high prompt  
    // 更多... 待拓展 | More... To be expanded  
}FB_PROMPTFUNCTION;
```

48、设置指定提示功能

```
- (void)fbSetPromptFunctionWithMode:(FB_PROMPTFUNCTION)mode
withThreshold:(NSInteger)threshold withBlock:(FBResultCallbackBlock
_Nonnull)fbBlock;
// 参考上述参数
```

49、app 端同步 GPS 运动状态到设备端

```
- (void)fbSynchronizationGPS_MotionWithModel:(FBGPSMotionActionModel
*)model withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;
```

```
/*
GPS 运动状态信息 | GPS motion status information
*/
@interface FBGPSMotionActionModel : NSObject
/**
运动模式 | Movement mode
*/
@property (nonatomic, assign) FB_MOTIONMODE MotionMode;
/**
GPS 运动状态 | GPS Motion status
*/
@property (nonatomic, assign) FB_GPS_MOTION_STATE MotionState;
/**
当前运动总时间，单位秒 | Total current movement time, in seconds
*/
@property (nonatomic, assign) NSInteger totalTime;
@end
```

更多运动模式参考 [FB_MOTIONMODE](#)

```
typedef enum {
    FB_SettingStopMotion = 0, //停止运动 | Stop motion
    FB_SettingStartMotion = 1, //开始运动 | Start motion
    FB_SettingPauseMotion = 2, //暂停运动 | Pause motion
    FB_SettingKeepMotion = 3, //继续运动 | Keep motion
}FB_GPS_MOTION_STATE;
```


50、监听设备端 GPS 运动状态变更回调

```
-(void)fbGPS_MotionWatchStatusChangeCallbackWithBlock:(FBGPSPotionWatch  
StatusChangeBlock _Nonnull)fbBlock;  
// 参考上述参数
```

51、定时心率检测开关设置

```
-(void)fbTimingHeartRateDetectionSwitchData:(BOOL)switchMode  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;  
/** YES 开 NO 关 | YES ON NO OFF */  
BOOL switchMode;
```

52、定时血氧检测开关设置

```
-(void)fbTimingBloodOxygenDetectionSwitchData:(BOOL)switchMode  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;  
/** YES 开 NO 关 | YES ON NO OFF */  
BOOL switchMode;
```

53、定时精神压力检测开关设置

```
-(void)fbTimingStressDetectionSwitchData:(BOOL)switchMode  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;  
/** YES 开 NO 关 | YES ON NO OFF */  
BOOL switchMode;
```

54、获取通话音频开关状态

```
-(void)fbGetCallAudioSwitchWithBlock:(FBGet_AT_ResultCallbackBlock  
_Nonnull)fbBlock;
```

55、设置通话音频开关状态

```
-(void)fbSetCallAudioSwitchData:(BOOL)switchMode  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;  
/** YES 开 NO 关 | YES ON NO OFF */
```

```
BOOL switchMode;
```

56、获取多媒体音频开关状态

```
—  
(void)fbGetMultimediaAudioSwitchWithBlock:(FBGet_AT_ResultCallBackBlock  
_Nonnull)fbBlock;
```

57、设置多媒体音频开关状态

```
— (void)fbSetMultimediaAudioSwitchData:(BOOL)switchMode  
withBlock:(FBResultCallBackBlock _Nonnull)fbBlock;  
/** YES 开 NO 关 | YES ON NO OFF */  
BOOL switchMode;
```

➤ 记录报告同步 API (FBBgCommand)

1、获取设备硬件信息

```
-(void)fbGetHardwareInformationDataWithBlock:(FBGetHardwareInformationBlock _Nonnull)fbBlock;
```

```
/*
```

```
设备硬件信息 | Device hardware information
```

```
*/
```

```
@interface FBDeviceInfoModel : NSObject
```

```
/**
```

```
结构体版本 | Structure version
```

```
*/
```

```
@property (nonatomic, assign) NSInteger structVersion;
```

```
/**
```

```
硬件标志 | Hardware logo
```

```
*/
```

```
@property (nonatomic, copy) NSString *hardwareIdentifier;
```

```
/**
```

```
mac 地址 | MAC address
```

```
*/
```

```
@property (nonatomic, copy) NSString *mac;
```

```
/**
```

```
硬件版本 | Hardware version
```

```
*/
```

```
@property (nonatomic, copy) NSString *hardWareVersion;
```

```
/**
```

```
固件版本 | Firmware version
```

```
*/
```

```
@property (nonatomic, copy) NSString *firmwareVersion;
```

```
/**
```

```
UI 版本 | UI version
```

```
*/
```

```
@property (nonatomic, copy) NSString *UI_Version;
```

```
/**
```

```
协议版本 | Protocol version
```

```
*/
```

```
@property (nonatomic, copy) NSString *protocolVeriosn;
```

```
/**
```

```
设备名称 | Equipment name
```

```
*/
```

```
@property (nonatomic, copy) NSString *deviceName;
```

```
/**
设备 ID | Device ID
*/
@property (nonatomic, assign) NSInteger deviceId;
/**
设备 SN 号 | Equipment Sn number
*/
@property (nonatomic, copy) NSString *deviceSN;
/**
固件更新日期 | Firmware update date
*/
@property (nonatomic, copy) NSString *firmwareUpdateTime;
/**
适配号 | Matching number
*/
@property (nonatomic, copy) NSString *fitNumber;
/**
二维码信息 | QR code information
*/
@property (nonatomic, assign) NSInteger QR_code;
/**
MAC 二维码版本 | Mac QR code version
*/
@property (nonatomic, assign) NSInteger Mac_QR_code_version;
/**
显示屏型号 | Display model
*/
@property (nonatomic, assign) NSInteger display_model;
/**
TP 型号 | TP model
*/
@property (nonatomic, assign) NSInteger TP_model;
/**
手表表盘形状 | Watch dial shape
@note shape          手表表盘形状，0:长方形、1:圆形、2:正方形 | Watch dial shape, 0: rectangle, 1: circle, 2: Square
*/
@property (nonatomic, assign) NSInteger shape;
/**
手表显示分辨率宽高 | Watch display resolution width and height
*/
@property (nonatomic, assign) CGSize watchDisplaySize;
/**
表盘缩略图显示分辨率宽高 | Dial thumbnail display resolution width and height
*/
```

```
@property (nonatomic, assign) CGSize dialThumbnailDisplaySize;
```

```
/**
```

```
音频库版本 | Audio library version
```

```
*/
```

```
@property (nonatomic, copy) NSString *audioTimeVersion;
```

```
@end
```

@note 该接口请求成功时，内部会自动更新 **FBFirmwareVersionObject** 本地缓存，更多信息请查看 **FBAIConfigObject.firmwareConfig**

2、获取当日实时测量数据

```
-(void)fbGetCurrentDayActivityDataWithBlock:(FBGetCurrentDayActivityDataBlock _Nonnull)fbBlock;
```

```
/*
```

```
当日实时测量数据 | Real time measurement data of the day
```

```
*/
```

```
@interface FBCurrentDataModel : NSObject
```

```
/**
```

```
本次数据产生时间点，时间戳 GMT 秒 | Time point of data generation, time stamp GMT seconds
```

```
*/
```

```
@property (nonatomic, assign) NSInteger GMTTimeInterval;
```

```
/**
```

```
GMT 转年月日时分秒 | GMT to YYYY-MM-dd HH:mm:ss
```

```
*/
```

```
@property (nonatomic, copy) NSString *dateTimeStr;
```

```
/**
```

```
当前累计步数 | Current cumulative steps
```

```
*/
```

```
@property (nonatomic, assign) NSInteger currentStep;
```

```
/**
```

```
当前累计消耗卡路里（千卡） | Current cumulative calories consumed (kcal)
```

```
*/
```

```
@property (nonatomic, assign) NSInteger currentCalories;
```

```
/**
```

```
当前累计行程（米） | Current cumulative travel (m)
```

```
*/
```

```
@property (nonatomic, assign) NSInteger currentDistance;
```

```
/**
```

```
当前心率（次/分钟） | Current heart rate (times / min)
```

```
*/
```

```
@property (nonatomic, assign) NSInteger currentHeartRate;
```

```
/**
```

```
当前心率等级 | Current heart rate level
*/
@property (nonatomic, assign) FB_CURRENTHEARTRANGE HeartRateRange;
/**
当前血氧（%） | Current blood oxygen (%)
*/
@property (nonatomic, assign) NSInteger currentOxy;
/**
当前血氧等级 | Current blood oxygen level
*/
@property (nonatomic, assign) FB_CURRENTOXYRANGE OxyRange;
/**
当前电池电量（%） | Current battery level (%)
*/
@property (nonatomic, assign) NSInteger batteryLevel;
/**
当前收缩血压（高压，mmHg） | Current systolic blood pressure (high pressure, mmHg)
*/
@property (nonatomic, assign) NSInteger currentShrinkBlood;
/**
当前舒张血压（低压，mmHg） | Current diastolic blood pressure (low pressure, mmHg)
*/
@property (nonatomic, assign) NSInteger currentDiastoleBlood;
/**
当前累计运动时间（分钟） | Current cumulative movement time (minutes)
*/
@property (nonatomic, assign) NSInteger currentSportTimes;
/**
当前累计激烈运动时间（分钟） | Current accumulated intense exercise time (minutes)
*/
@property (nonatomic, assign) NSInteger currentSportFierceTimes;
/**
当前发生久坐累计时间（分钟） | Current accumulated sitting time (minutes)
*/
@property (nonatomic, assign) NSInteger sittingTime;
/**
当前久坐期间平均步数，步数/小时 | Average steps during current sedentary period, steps / hour
*/
@property (nonatomic, assign) NSInteger sittingStep;
/**
当前的经度 | Current longitude
*/
@property (nonatomic) float currentLongitude;
/**
```

当前的纬度 | Current latitude

*/

```
@property (nonatomic) float currentLatitude;
```

/**

当天每小时步数曲线，一小时一笔，固定 24 笔 | Steps per hour curve of the day, one transaction per hour, 24 fixed transactions

@note 第一笔为 0 时~1 时的步数,第二笔为 1 时~2 时,以此类推... | The first stroke is the number of steps from 0 hour to 1 hour, the second stroke is from 1 hour to 2 hours, and so on

*/

```
@property (nonatomic, strong) NSArray <NSNumber *> *currentStepCurve;
```

/**

当前精神压力值 | Current stress value

*/

```
@property (nonatomic, assign) NSInteger currentStress;
```

/**

当前精神压力等级 | Current stress level

*/

```
@property (nonatomic, assign) FB_CURRENTSTRESSRANGE StressRange;
```

@end

```
typedef enum {
```

```
    FB_HR_NORMAL          = 0, //正常的 | Normal
    FB_HR_MODERATE        = 1, //缓和的 | Moderate
    FB_HR_VIGOROUS        = 2, //充沛的 | Vigorous
    FB_HR_MAX_HR           = 3, //心率过快 | The heart rate is too fast
    FB_HR_TAKE_IT_EASY     = 4, //别紧张 | Take it easy
    FB_HR_WATCH_YOUR_LIMITS = 5, //注意你的极限 | Watch your limits
    FB_HR_DONT_OVEREXERT   = 6, //不要用力过猛 | Don't overdo it
```

```
}FB_CURRENTHEARTRANGE;
```

```
typedef enum {
```

```
    FB_OXY_NORMAL    = 0, //正常 | Normal
    FB_OXY_MILD       = 1, //轻度缺氧 | Mild hypoxia
    FB_OXY_MODERATE   = 2, //中度缺氧 | Moderate hypoxia
    FB_OXY_SEVERE     = 3, //重度缺氧 | Severe hypoxia
```

```
}FB_CURRENTOXYRANGE;
```

```
typedef enum {
```

```
    FB_STRESS_RELAX      = 1, //1-25 放松 | 1-25 Relax
    FB_STRESS_NORMAL     = 2, //26-50 正常 | 26-50 normal
    FB_STRESS_SECONDARY  = 3, //51-75 中等 | 51-75 Medium
    FB_STRESS_HIGN       = 4, //76-99 偏高 | 76-99 high
```

```
}FB_CURRENTSTRESSRANGE;
```

3、获取当前睡眠实时统计报告

```
-(void)fbGetCurrentSleepStatisticsReportDataWithBlock:(FBGetSleepStatisticsReportBlock _Nonnull)fbBlock;
```

```
/*
```

```
睡眠统计报告 | Sleep statistics report
```

```
*/
```

```
@interface FBSleepCaculateReportModel : NSObject
```

```
/**
```

```
时间戳 GMT 秒 | Time stamp GMT seconds
```

```
*/
```

```
@property (nonatomic, assign) NSInteger GMTTimeInterval;
```

```
/**
```

```
GMT 转年月日时分秒 | GMT to YYYY-MM-dd HH:mm:ss
```

```
*/
```

```
@property (nonatomic, copy) NSString *dateTimeStr;
```

```
/**
```

```
结构体版本 | Structure version
```

```
*/
```

```
@property (nonatomic, assign) NSInteger structVersion;
```

```
/**
```

```
本次开始睡觉时间，GMT 秒 | Time to go to bed this time, GMT seconds
```

```
*/
```

```
@property (nonatomic, assign) NSInteger startSleepTime;
```

```
/**
```

```
本次开始睡觉时间，GMT 转年月日时分秒 | Time to go to bed this time, GMT to YYYY-MM-dd HH:mm:ss
```

```
*/
```

```
@property (nonatomic, copy) NSString *startDateTimerStr;
```

```
/**
```

```
本次结束睡觉时间，GMT 秒 | The end of the sleep time, GMT seconds
```

```
*/
```

```
@property (nonatomic, assign) NSInteger endSleepTime;
```

```
/**
```

```
本次结束睡觉时间，GMT 转年月日时分秒 | The end of the sleep time, GMT to YYYY-MM-dd HH:mm:ss
```

```
*/
```

```
@property (nonatomic, copy) NSString *endDateTimerStr;
```

```
/**
```

```
本次睡眠持续总时间（分钟） | Total sleep duration (minutes)
```

```
*/
```

```
@property (nonatomic, assign) NSInteger continueSleepTime;
```

```
/**
```

```
本次睡眠清醒累计时间（分钟） | Cumulative time of waking up in this sleep (minutes)
```

```
*/
```

```
@property (nonatomic, assign) NSInteger awakeTime;
```



```

/**
 本次睡眠浅睡累计时间（分钟） | Cumulative time of light sleep (minutes)
*/
@property (nonatomic, assign) NSInteger lightSleepTime;
/**
 本次睡眠深睡累计时间（分钟） | Cumulative time of deep sleep (minutes)
*/
@property (nonatomic, assign) NSInteger deepSleepTime;
/**
 本次睡眠眼动累计时间（分钟） | Cumulative time of eye movement in this sleep (minutes)
*/
@property (nonatomic, assign) NSInteger eyeMoveTime;
/**
 本次睡眠时最大血氧（%） | Maximum blood oxygen during this sleep (%)
*/
@property (nonatomic, assign) NSInteger maxOxy;
/**
 本次睡眠时最小血氧（%） | Minimum blood oxygen during this sleep (%)
*/
@property (nonatomic, assign) NSInteger minOxy;
/**
 本次睡眠时最大心率（次/分钟） | Maximum heart rate during this sleep (times / min)
*/
@property (nonatomic, assign) NSInteger maxHeartRate;
/**
 本次睡眠时最小心率（次/分钟） | Minimum heart rate during this sleep (times / min)
*/
@property (nonatomic, assign) NSInteger minHeartRate;
/**
 本次睡眠零星小睡累计时间（分钟） | Cumulative time of this sporadic nap (minutes)
*/
@property (nonatomic, assign) NSInteger sporadicNapTime;
@end

```

4、获取当前睡眠实时状态记录

```

-(void)fbGetCurrentSleepStateRecordingDataWithBlock:(FBGetSleepStateRecordingBlock _Nonnull)fbBlock;
/*
 睡眠状态记录 | Sleep state recording
*/
@interface FBSleepStatusRecordModel : NSObject
/**

```

```

时间戳 GMT 秒 | Time stamp GMT seconds
*/
@property (nonatomic, assign) NSInteger GMTTimeInterval;
/**
GMT 转年月日时分秒 | GMT to YYYY-MM-dd HH:mm:ss
*/
@property (nonatomic, copy) NSString *dateTimeStr;
/**
结构体版本, 0:不支持眼动, 1:支持眼动 | Structure version, 0: eye movement is not supported, 1: eye movement is supported
*/
@property (nonatomic, assign) NSInteger structVersion;
/**
是否有零星小睡, YES:有零星小睡, NO:无零星小睡 | Whether there are sporadic naps, yes: sporadic naps, No: no sporadic naps
*/
@property (nonatomic, assign) BOOL isNap;
/**
零星小睡数据的偏移位置长度 | Offset position length of sporadic nap data
*/
@property (nonatomic, assign) NSInteger napDataOffset;
/**
开始睡眠时间, GMT 秒 | Sleep start time, GMT seconds
*/
@property (nonatomic, assign) NSInteger startSleepTime;
/**
开始睡眠时间, GMT 转年月日时分秒 | Sleep start time, GMT to YYYY-MM-dd HH:mm:ss
*/
@property (nonatomic, copy) NSString *startDateTimerStr;
/**
睡眠结束时间, GMT 秒 | Sleep end time, GMT seconds
*/
@property (nonatomic, assign) NSInteger endSleepTime;
/**
睡眠结束时间, GMT 转年月日时分秒 | Sleep end time, GMT to YYYY-MM-dd HH:mm:ss
*/
@property (nonatomic, copy) NSString *endDateTimerStr;
/**
当天深度睡眠时间 (分钟) | Deep sleep time of the day (minutes)
*/
@property (nonatomic, assign) NSInteger deepSleepTime;
/**
当天浅睡时间 (分钟) | Light sleep time of the day (minutes)
*/
@property (nonatomic, assign) NSInteger lightSleepTime;
/**

```

```

    当天眼动时间（分钟） | Eye movement time of the day (minutes)
    */
    @property (nonatomic, assign) NSInteger eyeMoveTime;
    /**
    睡眠状态数组有效长度 | Effective length of sleep state array
    */
    @property (nonatomic, assign) NSInteger EffectiveLength;
    /**
    夜间睡眠状态数组 | Night sleep status array
    */
    @property (nonatomic, strong) NSArray <FBSleepStateModel *> *sleepStateArray;
    /**
    零星小睡状态数组 | Sporadic nap status array
    */
    @property (nonatomic, strong) NSArray <FBSleepStateModel *> *napStateArray;
@end

/*
    睡眠状态详细 | Sleep status details
    */
@interface FBSleepStateModel : NSObject
    /**
    睡眠状态起始时间戳 GMT 秒 | Sleep state start timestamp GMT seconds
    */
    @property (nonatomic, assign) NSInteger startStatusGMT;
    /**
    起始 GMT 转年月日时分秒 | From GMT to YYYY-MM-dd HH:mm:ss
    */
    @property (nonatomic, copy) NSString *startDateTimeStr;
    /**
    睡眠状态结束时间戳 GMT 秒 | Sleep state end timestamp GMT seconds
    */
    @property (nonatomic, assign) NSInteger endStatusGMT;
    /**
    结束 GMT 转年月日时分秒 | End GMT to YYYY-MM-dd HH:mm:ss
    */
    @property (nonatomic, copy) NSString *endDateTimeStr;
    /**
    睡眠状态 | Sleep state
    */
    @property (nonatomic, assign) FB_SLEEPSTATE SleepStatus;
    /**
    持续睡眠时间（分钟） | Duration of sleep (minutes)

```

```

*/
@property (nonatomic, assign) NSInteger durationSleepTime;
@end

typedef enum {
    Awake_state    = 0, //清醒状态 | Awake state
    Shallow_sleep  = 1, //浅层睡眠 | Shallow sleep
    Deep_sleep     = 2, //深层睡眠 | Deep sleep

    Eye_move       = 3, //眼动状态（结构体版本不等于 0 时才有此类型） | Eye move (This type is only available when
the structure version is not equal to 0)
}FB_SLEEPSTATE;

```

5、获取每日活动统计报告

– (void)fbGetDailyActivityDataStartTime:(NSInteger)startTime
forEndTime:(NSInteger)endTime withBlock:(FBGetDailyActivityDataBlock
_Nonnull)fbBlock;

```

/*
    每日活动统计报告 | Daily activity statistics report
*/
@interface FBDayActivityModel : NSObject
/**
    时间戳 GMT 秒 | Time stamp GMT seconds
*/
@property (nonatomic, assign) NSInteger GMTTimeInterval;
/**
    GMT 转年月日时分秒 | GMT to YYYY-MM-dd HH:mm:ss
*/
@property (nonatomic, copy) NSString *dateTimeStr;
/**
    结构体版本 | Structure version
*/
@property (nonatomic, assign) NSInteger structVersion;
/**
    当天的累计步数 | Cumulative steps of the day
*/
@property (nonatomic, assign) NSInteger totalSteps;
/**
    当天消耗的卡路里（千卡） | Calories consumed that day (kcal)
*/
@property (nonatomic, assign) NSInteger totalCalories;

```

```
/**
 当天的累计行程（米） | Cumulative itinerary of the day (m)
*/
@property (nonatomic, assign) NSInteger totalDistance;
/**
 当天的平均心率（次/分钟） | Average heart rate of the day (times / min)
*/
@property (nonatomic, assign) NSInteger avgHeartRate;
/**
 当天最高心率（次/分钟） | Maximum heart rate of the day (times / min)
*/
@property (nonatomic, assign) NSInteger maxHeartRate;
/**
 当天最低心率（次/分钟） | Lowest heart rate of the day (times / min)
*/
@property (nonatomic, assign) NSInteger minHeartRate;
/**
 当天平均血氧（%） | Average blood oxygen of the day (%)
*/
@property (nonatomic, assign) NSInteger avgOxy;
/**
 当天累计运动时间（分钟） | Accumulated exercise time of the day (minutes)
*/
@property (nonatomic, assign) NSInteger totalSportTime;
/**
 当天激烈运动时间（分钟） | Intense exercise time of the day (minutes)
*/
@property (nonatomic, assign) NSInteger voilentSportTime;
/**
 当天深度睡眠时间（分钟） | Deep sleep time of the day (minutes)
*/
@property (nonatomic, assign) NSInteger deepSleeTime;
/**
 当天浅睡眠时间（分钟） | Light sleep time of the day (minutes)
*/
@property (nonatomic, assign) NSInteger lightSleepTime;
/**
 当天睡眠眼动时间（分钟） | Sleep eye movement time of the day (minutes)
*/
@property (nonatomic, assign) NSInteger eyeMoveTime;
/**
 当天最高血压（mmHg） | Highest blood pressure of the day (mmHg)
*/
@property (nonatomic, assign) NSInteger maxBlood;
```

```

/**
 当天最低血压（mmHg） | Lowest blood pressure of the day (mmHg)
 */
@property (nonatomic, assign) NSInteger minBlood;
/**
 当天最高精神压力值 | Maximum stress value of the day
 */
@property (nonatomic, assign) NSInteger maximumStress;
/**
 当天最高精神压力等级 | Maximum stress level of the day
 */
@property (nonatomic, assign) FB_CURRENTSTRESSRANGE StressRange;
@end

```

6、获取整点活动统计报告

– (void)fbGetHourlyActivityDataStartTime:(NSInteger)startTime
forEndTime:(NSInteger)endTime withBlock:(FBGetHourlyActivityDataBlock
_Nonnull)fbBlock;

```

/*
 整点活动统计报告 | Statistical report of on-time activities
 */
@interface FBHourReportModel : NSObject
/**
 时间戳 GMT 秒 | Time stamp GMT seconds
 */
@property (nonatomic, assign) NSInteger GMTTimeInterval;
/**
 GMT 转年月日时分秒 | GMT to YYYY-MM-dd HH:mm:ss
 */
@property (nonatomic, copy) NSString *dateTimeStr;
/**
 结构体版本 | Structure version
 */
@property (nonatomic, assign) NSInteger structVersion;
/**
 到此刻为止的累计计步数 | Cumulative steps up to now
 */
@property (nonatomic, assign) NSInteger hourStep;
/**
 到此刻为止的累计行走距离（米） | Accumulated walking distance up to now (m)
 */
@property (nonatomic, assign) NSInteger hourdDistance;

```

```

/**
 到此刻为止的累计消耗卡路里（千卡） | Cumulative calories burned so far (kcal)
 */
@property (nonatomic, assign) NSInteger hourCalories;
@end

```

7、获取睡眠统计报告

```

- (void)fbGetSleepStatisticsReportDataStartTime:(NSInteger)startTime
forEndTime:(NSInteger)endTime
withBlock:(FBGetSleepStatisticsReportBlock _Nonnull)fbBlock;
// 参考上述睡眠实时统计报告参数

```

8、获取睡眠状态记录

```

- (void)fbGetSleepStateRecordingDataStartTime:(NSInteger)startTime
forEndTime:(NSInteger)endTime withBlock:(FBGetSleepStateRecordingBlock
_Nonnull)fbBlock;
// 参考上述睡眠实时状态记录参数

```

9、获取运动记录列表

```

- (void)fbGetMotionRecordListDataStartTime:(NSInteger)startTime
forEndTime:(NSInteger)endTime withBlock:(FBGetMotionRecordListBlock
_Nonnull)fbBlock;

```

```

/*
 运动记录列表 | Sports record list
 */
@interface FBSportRecordModel : NSObject
/**
 时间戳 GMT 秒 | Time stamp GMT seconds
 */
@property (nonatomic, assign) NSInteger GMTTimeInterval;
/**
 GMT 转年月日时分秒 | GMT to YYYY-MM-dd HH:mm:ss
 */
@property (nonatomic, copy) NSString *dateTimeStr;
/**
 结构体版本 | Structure version
 */
@property (nonatomic, assign) NSInteger structVersion;

```

```

/**
 开始运动时间，GMT 秒 | Start time of exercise, GMT seconds
*/
@property (nonatomic, assign) NSInteger startSportTime;
/**
 开始运动时间，GMT 转年月日时分秒 | Start time of exercise, GMT to YYYY-MM-dd HH:mm:ss
*/
@property (nonatomic, copy) NSString *startDateTimerStr;
/**
 结束运动时间，GMT 秒 | End exercise time, GMT seconds
*/
@property (nonatomic, assign) NSInteger endSportTime;
/**
 结束运动时间，GMT 转年月日时分秒 | End exercise time, GMT to YYYY-MM-dd HH:mm:ss
*/
@property (nonatomic, copy) NSString *endDateTimerStr;
/**
 运动模式 | Motion mode
*/
@property (nonatomic, assign) FB_MOTIONMODE MotionMode;
@end

```

10、获取运动统计报告

```

- (void)fbGetSportsDataReportDataStartTime:(NSInteger)startTime
forEndTime:(NSInteger)endTime withBlock:(FBGetSportsDataReportBlock
_Nonnull)fbBlock;
/*
 运动统计报告 | Sports statistics report
*/
@interface FBSportCaculateModel : NSObject
/**
 时间戳 GMT 秒 | Time stamp GMT seconds
*/
@property (nonatomic, assign) NSInteger GMTTimeInterval;
/**
 GMT 转年月日时分秒 | GMT to YYYY-MM-dd HH:mm:ss
*/
@property (nonatomic, copy) NSString *dateTimeStr;
/**
 结构体版本 | Structure version
*/
@property (nonatomic, assign) NSInteger structVersion;

```



```
/**
运动开始时间戳，作为每笔运动的唯一识别 id， GMT 秒 | The movement start time stamp is used as the unique identification ID of each
movement, GMT seconds.
*/
@property (nonatomic, assign) NSInteger startSportTime;
/**
运动开始时间，GMT 转年月日时分秒 | Start time of exercise, GMT to YYYY-MM-dd HH:mm:ss
*/
@property (nonatomic, copy) NSString *startDateTimerStr;
/**
运动结束时间戳，GMT 秒 | Movement end timestamp, GMT seconds
*/
@property (nonatomic, assign) NSInteger endSportTime;
/**
运动结束时间，GMT 转年月日时分秒 | End time of exercise, GMT to YYYY-MM-dd HH:mm:ss
*/
@property (nonatomic, copy) NSString *endDateTimerStr;
/**
运动总时间（秒） | Total exercise time (seconds)
*/
@property (nonatomic, assign) NSInteger totalSportTime;
/**
运动总步数 | Total movement steps
*/
@property (nonatomic, assign) NSInteger totalSteps;
/**
运动总卡路里（千卡） | Total exercise calories (kcal)
*/
@property (nonatomic, assign) NSInteger totalCalories;
/**
运动总距离（单位米，通过计步估算） | Total distance of movement (in meters, estimated by steps)
*/
@property (nonatomic, assign) NSInteger totalDistance;
/**
本次运动轨迹运动距离（单位米，通过 gps 定位 计算） | The movement distance of this movement track (unit: m, calculated by GPS
positioning)
*/
@property (nonatomic, assign) NSInteger gpsDistance;
/**
运动模式 | Motion mode
*/
@property (nonatomic, assign) FB_MOTIONMODE MotionMode;
/**
本次运动最大心率（次/分钟） | Maximum heart rate of this exercise (times / min)
```

```

*/
@property (nonatomic, assign) NSInteger maxHeartRate;
/**
本次运动最小心率（次/分钟） | Minimum heart rate of this exercise (times / min)
*/
@property (nonatomic, assign) NSInteger minHeartRate;
/**
本次运动平均心率，运动结束时计算，心率和/ 记录次数（次/分钟） | Average heart rate of the exercise, calculated at the end of the
exercise, heart rate and / or record times (times / minute)
*/
@property (nonatomic, assign) NSInteger avgHeartRate;
/**
本次运动最大步频（步/分钟） | Maximum stride frequency (step / min)
*/
@property (nonatomic, assign) NSInteger maxStride;
/**
本次运动平均步频 = 步频和/记录次数（步/分钟） | Average stride frequency = stride frequency and / or recording times (step / minute)
*/
@property (nonatomic, assign) NSInteger avgStride;
/**
运动次数，中途休息次数 | Number of exercises, number of breaks
*/
@property (nonatomic, assign) NSInteger breakTimes;
/**
中断 UTC 记录，同时用于统计运动总时间 | The UTC record is interrupted and used to count the total movement time at the same time
*/
@property (nonatomic, strong) NSArray <FBSportPauseModel *> *sportPauseArray;
/**
本次运动最大速度(单位:米/秒) | Maximum speed of this movement (unit: M / s)
*/
@property (nonatomic, assign) NSInteger maxSpeed;
/**
本次运动平均速度 = 距离/用时（米/秒） | Average speed of this movement = distance / time (M / s)
*/
@property (nonatomic, assign) NSInteger avgSpeed;
/**
本次无轨迹运动平均配速（秒/公里） | Average speed of this trackless movement (s / km)
*/
@property (nonatomic, assign) NSInteger noTrackAvgSpeed;
/**
本次有轨迹运动配速（秒/公里） | This time, there is track movement speed (s / km)
*/
@property (nonatomic, assign) NSInteger trackAvgSpeed;
/**

```

```

重复运动的周期数(来回次数, 圈数)(单位: 圈) | Number of cycles of repeated motion (number of cycles, number of turns) (unit: turns)
*/
@property (nonatomic, assign) NSInteger sportRepeatCount;
/**
摆臂次数, 划水次数(单位:次) | Arm swing times, stroke times (unit: Times)
*/
@property (nonatomic, assign) NSInteger armSwingTimes;
/**
热身运动时间, 单位分钟 | Warm up exercise time in minutes
*/
@property (nonatomic, assign) NSInteger heartRate_level_1;
/**
燃脂运动时间, 单位分钟 | Fat burning movement time, in minutes
*/
@property (nonatomic, assign) NSInteger heartRate_level_2;
/**
有氧耐力运动时间, 单位分钟 | Aerobic endurance exercise time, in minutes
*/
@property (nonatomic, assign) NSInteger heartRate_level_3;
/**
高强度有氧运动时间, 单位分钟 | High strength aerobic exercise time, in minutes
*/
@property (nonatomic, assign) NSInteger heartRate_level_4;
/**
无氧运动时间, 单位分钟 | Anaerobic exercise time in minutes
*/
@property (nonatomic, assign) NSInteger heartRate_level_5;
@end

```

11、获取心率记录

```

- (void)fbGetHeartRateRecordDataStartTime:(NSInteger)startTime
forEndTime:(NSInteger)endTime withBlock:(FBGetHeartRateRecordBlock
_Nonnull)fbBlock;
/*
类型记录/报告 | Type record / Report
*/
@interface FBTypeRecordModel : NSObject
/**
第一条记录(结构体)的形成时间戳 GMT 秒 | Time stamp GMT seconds
*/
@property (nonatomic, assign) NSInteger GMTtimeInterval;
/**

```

GMT 转年月日时分秒 | GMT to YYYY-MM-dd HH:mm:ss

*/

@property (nonatomic, copy) NSString *dateTimeStr;

/**

本次运动的开始时间戳 GMT 秒 (仅记录类型为: 运动详情记录、运动定位记录 时 有值) | The start time stamp of this movement is GMT seconds (only the record types are: motion detail record and motion positioning record)

*/

@property (nonatomic, assign) NSInteger sportTimeStamp;

/**

记录生成周期 (记录类型为心率/计步/血氧/血压记录时, 单位分钟; 为运动详情/运动定位记录时, 单位秒) | Record generation cycle (record type: heart rate / step / blood oxygen / blood pressure record, unit: minute; record type: movement details / movement positioning record, unit: Second)

*/

@property (nonatomic, assign) NSInteger createTime;

/**

有效记录条数 | Number of effective records

*/

@property (nonatomic, assign) NSInteger EffectiveRecord;

/**

单条记录长度 | Length of single record

*/

@property (nonatomic, assign) NSInteger recordLength;

/**

记录类型 | Record type

*/

@property (nonatomic, assign) FB_RECORDTYPE RecordType;

/**

类型记录数组 | Type record array

*/

@property (nonatomic, strong) NSArray <FBRecordDetailsModel *> *recordArray;

@end

/*

* 记录类型 | Record type

*/

typedef enum {

 FB_HeartRecord = 0, //心率记录 | Heart rate recording

 FB_StepRecord = 1, //计步记录 | Step count record

 FB_BloodOxyRecord = 2, //血氧记录 | Blood oxygen recording

 FB_BloodPreRecord = 3, //血压记录 | Blood pressure recording

 FB_SportsRecord = 4, //运动详情记录 | Sports detail record

 FB_MotionGpsRecord = 5, //运动定位记录 | Motion location record

 FB_HFHeartRecord = 6, //运动高频率心率记录(1秒1次) | Sports high-frequency heart rate recording (1 time per second)

```

    FB_StressRecord    = 7, //精神压力记录 | Stress Record
}FB_RECORDTYPE;

/*
    类型记录数组详情（具体参考枚举值 FB_RECORDTYPE） | Type record array details (refer to enumeration value
    FB_RECORDTYPE for details)
*/

@interface FBRecordDetailsModel : NSObject

#pragma mark - 以下值，通用，有值 | The following values, general, have values

/** 记录形成时间戳 GMT 秒 | Record the formation time stamp GMT seconds */
@property (nonatomic, assign) NSInteger GMTTimeInterval;

/** GMT 转年月日时分秒 | GMT to YYYY-MM-dd HH:mm:ss */
@property (nonatomic, copy) NSString *dateTimeStr;

#pragma mark - 当 FB_RECORDTYPE 为 FB_HeartRecord、FB_HFHeartRecord 时（心率记录、运动高频心率记录(1 秒 1 次)），
    以下有值 | When FB_RECORDTYPE is FB_HeartRecord, FB_HFHeartRecord (heart rate record, exercise
    high-frequency heart rate record (1 time per second)), the following values

/** 心率值 | Heart rate value */
@property (nonatomic, assign) NSInteger hr;

#pragma mark - 当 FB_RECORDTYPE 为 FB_StepRecord 时（计步记录），以下有值 | When FB_RECORDTYPE is FB_StepRecord
    (step counting record), the following values

/** 计步数累加值 | Accumulated value of step count */
@property (nonatomic, assign) NSInteger step;

#pragma mark - 当 FB_RECORDTYPE 为 FB_BloodOxyRecord 时（血氧记录），以下有值 | When FB_RECORDTYPE is
    FB_BloodOxyRecord (blood oxygen record), the following values

/** 血氧值（%） | Blood oxygen value (%) */
@property (nonatomic, assign) NSInteger SpO2;

#pragma mark - 当 FB_RECORDTYPE 为 FB_BloodPreRecord 时（血压记录），以下有值 | When FB_RECORDTYPE is
    FB_BloodPreRecord (blood pressure record), the following values

/** 收缩压（高压，mmHg） | Systolic blood pressure (high pressure, mmHg) */
@property (nonatomic, assign) NSInteger pb_max;

/** 舒张压（低压，mmHg） | Diastolic blood pressure (low pressure, mmHg) */
@property (nonatomic, assign) NSInteger pb_min;

#pragma mark - 当 FB_RECORDTYPE 为 FB_StressRecord 时（精神压力记录），以下有值 | When FB_RECORDTYPE is
    FB_StressRecord (mental stress record), the following values

/** 精神压力值 | Mental stress value */
@property (nonatomic, assign) NSInteger stress;

/** 精神压力等级 | Mental stress level */
@property (nonatomic, assign) FB_CURRENTSTRESSRANGE StressRange;

```

```

#pragma mark - 当 FB_RECORDTYPE 为 FB_SportsRecord 时 (运动详情记录), 以下有值 | When FB_RECORDTYPE is
FB_SportsRecord (sports details record), the following values

/** 实时配速 (秒/千米) | Real time pace (SEC / km) */
@property (nonatomic, assign) NSInteger pace;

/** 一分钟内消耗的卡路里值 (千卡) | Calories consumed in one minute (kcal) */
@property (nonatomic, assign) NSInteger calories;

/** 一分钟内的步数 (实时步频, 步/分钟) | Steps in one minute (real time step frequency, step / minute) */
@property (nonatomic, assign) NSInteger stepFrequency;

/** 运动中的实时距离 (米) | Real time distance in motion (m) */
@property (nonatomic, assign) NSInteger distance;

/** 实时心率 (次/分钟) | Real time heart rate (times / min) */
@property (nonatomic, assign) NSInteger heartRate;

/** 实时体力, 0~100 | Real time physical strength, 0-100 */
@property (nonatomic, assign) NSInteger stamina;

/** 运动状态。NO 正常, YES 暂停 | Motion state. NO normal, YES pause */
@property (nonatomic, assign) BOOL isSuspend;

#pragma mark - 当 FB_RECORDTYPE 为 FB_MotionGpsRecord 时 (运动定位记录), 以下有值 | When FB_RECORDTYPE is
FB_MotionGpsRecord (motion positioning record), the following values

/** 纬度 | Real time distance in motion */
@property (nonatomic) float latitude;

/** 经度 | Real time heart rate */
@property (nonatomic) float longitude;

/** GPS 速度 (米/秒) | GPS speed (M / s) */
@property (nonatomic, assign) NSInteger speed;

/** 状态。NO 正常, YES 暂停 | Status. NO normal, YES pause */
@property (nonatomic, assign) BOOL gpsIsSuspend;
@end

```

12、获取计步记录

```

- (void)fbGetStepCountRecordDataStartTime:(NSInteger)startTime
forEndTime:(NSInteger)endTime withBlock:(FBGetStepCountRecordBlock
_Nonnull)fbBlock;
// 参考上述记录参数

```

13、获取血氧记录

```

- (void)fbGetBloodOxygenRecordDataStartTime:(NSInteger)startTime
forEndTime:(NSInteger)endTime withBlock:(FBGetBloodOxygenRecordBlock
_Nonnull)fbBlock;
// 参考上述记录参数

```

14、获取血压记录

```
- (void)fbGetBloodPressureRecordsDataStartTime:(NSInteger)startTime  
forEndTime:(NSInteger)endTime withBlock:(FBGetBloodPressureRecordsBlock  
_Nonnull)fbBlock;  
// 参考上述记录参数
```

15、获取精神压力记录

```
- (void)fbGetStressRecordsDataStartTime:(NSInteger)startTime  
forEndTime:(NSInteger)endTime withBlock:(FBGetStressRecordsBlock  
_Nonnull)fbBlock;  
// 参考上述记录参数
```

16、获取运动详情记录

```
- (void)fbGetExerciseDetailsDataStartTime:(NSInteger)startTime  
forEndTime:(NSInteger)endTime withBlock:(FBGetExerciseDetailsBlock  
_Nonnull)fbBlock;  
// 参考上述记录参数
```

17、获取 运动统计报告+运动详情纪录

```
-  
(void)fbGetSportsStatisticsDetailsReportsWithStartTime:(NSInteger)start  
Time forEndTime:(NSInteger)endTime  
withBlock:(FBGetSportsStatisticsDetailsRecordBlock _Nonnull)fbBlock;  
// 参考上述记录参数
```

18、获取运动定位记录

```
- (void)fbGetMotionLocationRecordDataStartTime:(NSInteger)startTime  
forEndTime:(NSInteger)endTime withBlock:(FBGetMotionLocationRecordBlock  
_Nonnull)fbBlock;  
// 参考上述记录参数
```

19、获取运动高频心率记录(1 秒 1 次)

```
-  
(void)fbExerciseHighFrequencyHeartRateRecordsDataStartTime:(NSInteger)start  
Time forEndTime:(NSInteger)endTime  
withBlock:(FBGetExerciseHFHRRecordsBlock _Nonnull)fbBlock;  
// 参考上述记录参数
```

20、获取手动测量数据记录

```
- (void)fbGetManualMeasurementDataStartTime:(NSInteger)startTime  
forEndTime:(NSInteger)endTime withBlock:(FBGetManualMeasureDataBlock  
_Nonnull)fbBlock;
```

```
/*  
    手动测量数据记录 | Manual measurement data record  
*/  
@interface FBManualMeasureDataModel : NSObject  
/**  
    时间戳 GMT 秒 | Time stamp GMT seconds  
*/  
@property (nonatomic, assign) NSInteger GMTTimeInterval;  
/**  
    GMT 转年月日时分秒 | GMT to YYYY-MM-dd HH:mm:ss  
*/  
@property (nonatomic, copy) NSString *dateTimeStr;  
/**  
    心率值 | Heart rate value  
*/  
@property (nonatomic, assign) NSInteger hr;  
/**  
    血氧值 (%) | Blood oxygen value (%)  
*/  
@property (nonatomic, assign) NSInteger SpO2;  
/**  
    收缩压 (高压, mmHg) | Systolic blood pressure (high pressure, mmHg)  
*/  
@property (nonatomic, assign) NSInteger pb_max;  
/**  
    舒张压 (低压, mmHg) | Diastolic blood pressure (low pressure, mmHg)  
*/  
@property (nonatomic, assign) NSInteger pb_min;  
/**
```


精神压力值 | Mental stress value

*/

@property (nonatomic, assign) NSInteger stress;

/**

精神压力等级 | Mental stress level

*/

@property (nonatomic, assign) FB_CURRENTSTRESSRANGE StressRange;

@end

21、获取指定的记录和报告

```
-(void)fbGetSpecialRecordsAndReportsDataWithType:(FB_MULTIPLERECORDREPORTS)recordTypes startTime:(NSInteger)startTime  
forEndTime:(NSInteger)endTime  
withBlock:(FBGetSpecialRecordsAndReportsBlock _Nonnull)fbBlock;
```

typedef enum {

FB_CurrentDayActivityData = 1<<0, //当日实时测量数据 | Real time measurement data of the day

FB_HeartRateRecording = 1<<1, //心率记录 | Heart rate recording

FB_StepCountRecord = 1<<2, //计步记录 | Step counting record

FB_BloodOxygenRecording = 1<<3, //血氧记录 | Blood oxygen record

FB_BloodPressureRecording = 1<<4, //血压记录 | Blood pressure record

FB_HFHeartRateRecording = 1<<5, //运动高频心率记录(1秒1次) | Sports high-frequency heart
rate recording (1 time per second)

FB_StressRecording = 1<<6, //精神压力记录 | Stress Record

FB_SportsDetailsRecord = 1<<7, //运动详情记录 | Sports detail record

FB_SportsPositioningRecord = 1<<8, //运动定位记录 | Sports positioning record

FB_DailyActivityReport = 1<<9, //每日活动报告 | Daily activity report

FB_OnHourActivityReport = 1<<10, //整点活动报告 | On hour activity report

FB_SleepStatisticsReport = 1<<11, //睡眠统计报告 | Sleep statistics report

FB_SleepStateRecording = 1<<12, //睡眠状态记录 | Sleep state recording

FB_CurrentSleepStatisticsReport = 1<<13, //当前睡眠实时统计报告 | Current sleep real time
statistics report

FB_CurrentSleepStateRecording = 1<<14, //当前睡眠实时状态记录 | Current sleep real time status
record

FB_SportsRecordList = 1<<15, //运动记录列表 | Sports record list

FB_SportsStatisticsReport = 1<<16, //运动统计报告 | Sports statistics report

FB_Sports_Statistics_Details_Report = 1<<17, //运动统计报告+运动详情纪录 | Sports statistics report +
sports details record

FB_ManualMeasurementData = 1<<18, //手动测量数据 | Manual measurement data

}FB_MULTIPLERECORDREPORTS;

// 其他参数参考对应的数据模型

22、获取个人用户信息

```
- (void)fbGetPersonalUserInforWithBlock:(FBGetPersonalUserInforBlock
_Nonnull)fbBlock;

/*
  用户个人信息 | User personal information
*/
@interface FBUserInforModel : NSObject

/**
  用户 ID（大于 0，小于 0xFFFFFFFF） | User ID (greater than 0, less than 0xFFFFFFFF)
*/
@property (nonatomic, assign) NSInteger userId;

/**
  用户昵称（长度小于或等于 31 个字节，用户昵称超出最大长度，自动截取） | User nickname (the length is less than or equal to 31 bytes,
  and the user nickname exceeds the maximum length, automatically intercepted)
*/
@property (nonatomic, copy) NSString *userNickname;

/**
  用户身高（单位 cm，大于 100，小于 250） | User's height (in cm, greater than 100, less than 250)
*/
@property (nonatomic, assign) NSInteger userHeight;

/**
  用户体重（单位 kg，大于 30，小于 250） | User's weight (in kg, more than 30, less than 250)
*/
@property (nonatomic, assign) NSInteger userWeight;

/**
  时区偏移时间（分钟） | Time zone offset time (minutes)
*/
@property (nonatomic, assign) NSInteger userTimeZoneMinute;

/**
  用户性别 | User gender
*/
@property (nonatomic, assign) FB_USERGENDER UserGender;

/**
  用户年龄（大于 5 岁，小于 130 岁） | User age (over 5, under 130)
*/
@property (nonatomic, assign) NSInteger userAge;

/**
  用户步幅（单位 cm） | User stride (in cm)
*/
@property (nonatomic, assign) NSInteger userStride;
@end

typedef enum {
```

```

    FB_UserMale    = 0, //男性 | Male
    FB_UserFemale = 1, //女性 | Female
}FB_USERGENDER;

```

23、设置用户个人信息

```

- (void)fbSetPersonalUserInforWithUserModel:(FBUserInforModel *
_Nonnull)userModel withBlock:(FBResultCallBackBlock _Nonnull)fbBlock;
// 参考上述参数

```

24、获取记事提醒/闹钟信息

```

- (void)fbGetClockInforWithBlock:(FBGetClockInforBlock _Nonnull)fbBlock;
/*
    记事提醒/闹钟信息 | Reminder / alarm clock
*/
@interface FBAlarmClockModel : NSObject
#pragma mark 以下值, 通用, 必传 | The following values, general, must be passed
/**
    序号 ID (0, 1, 2, 3, 4) 最多 5 个闹钟 | Serial number ID (0, 1, 2, 3, 4) up to 5 alarm clocks
*/
@property (nonatomic, assign) NSInteger clockID;
/**
    闹钟类别: 备忘提醒 (年月日小时分钟有效), 定时闹钟 (仅小时分钟有效) | Alarm category: reminder (valid for hours and minutes),
    Time alarm clock (only hours and minutes)
*/
@property (nonatomic, assign) FB_ALARMCATEGORY clockCategory;
/**
    使能开关 NO:关 YES:开 (默认 YES) | Enable switch NO: off YES: on (default YES)
*/
@property (nonatomic, assign) BOOL clockEnableSwitch;
/**
    稍后提醒开关 NO:关 YES:开 (默认 NO) | Remind switch later NO: OFF YES: ON (default NO)
*/
@property (nonatomic, assign) BOOL remindLater;
/**
    描述, 长度小于等于 23 个字节 | Description, the length of description is less than or equal to 23 bytes
*/
@property (nonatomic, copy) NSString *clockDescribe;

#pragma mark 当 FB_ALARMCATEGORY==FB_Reminders 时, 为备忘提醒, 以下值, 必传 | When FB_
ALARMCATEGORY==FB_Reminders, for reminders, the following values must be passed
/**

```

年月日小时分钟, 格式: YYYY-MM-dd HH:mm (当闹铃类别为 *FB_Reminders: 备忘提醒*, 必传; 为 *FB_AlarmClock: 定时闹钟* 可不传) | Month, year, day, hour and minute, format: YYYY-MM-dd HH:mm (When the alarm type is *FB_Reminders: reminder*, it must be sent; when it is *FB_AlarmClock: fixed time alarm*, it can not be sent)

```
*/
@property (nonatomic, copy) NSString *clockYMDHm;

#pragma mark 当 FB_ALARMCATEGORY==FB_AlarmClock 时, 为定时闹钟, 以下值, 必传 | When FB_
ALARMCATEGORY==FB_AlarmClock, for alarm clock, the following values must be passed

/**
 重复性, YES:周期有效, NO:一次有效 | Repeatability, YES: cycle effective, NO: once effective
*/
@property (nonatomic, assign) BOOL isRepeat;

/**
 星期中标记 (星期日、星期一、星期二、星期三、星期四、星期五、星期六; 必须设置固定七个数据的数组, 传 0 「未选中」或 1 「选中」) | Week check mark (Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday; fixed array of seven data must be set, transfer 0 (unselected) or 1 (selected))
*/
@property (nonatomic, strong) NSArray <NSNumber *> *clockRepeatArray;

/**
 小时分钟, 格式: HH:mm (当闹铃类别为 FB_AlarmClock: 定时闹钟, 必传; 为 FB_Reminders: 备忘提醒 可不传) | Hours and minutes, format: HH: mm (When the alarm type is FB_AlarmClock: timed alarm, it must be sent; when it is FB_Reminders: reminder, it can not be sent)
*/
@property (nonatomic, copy) NSString *clockHm;
@end

typedef enum {
    FB_Reminders = 0, //备忘提醒 | Reminders
    FB_AlarmClock = 1, //定时闹钟 | Alarm clock
}FB_ALARMCATEGORY;
```

25、设置记事提醒/闹铃信息

```
- (void)fbSetClockInforWithClockModel:(FBAlarmClockModel *
Nonnull)clockModel withRemoved:(BOOL)isRemoved
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;
// 参考上述参数
```

26、获取消息推送开关信息

```
- (void)fbGetMessagePushSwitchWithBlock:(FBGetMessagePushSwitchBlock
Nonnull)fbBlock;

/*
```

消息推送开关信息 | Message push switch information

*/

@interface FBMessageModel : NSObject

/**

没有，其他类型 | No, other types

*/

@property (nonatomic, assign) BOOL none;

/**

电话 | Telephone

*/

@property (nonatomic, assign) BOOL telephone;

/**

短信 | SMS

*/

@property (nonatomic, assign) BOOL sms;

/**

微信 | WeChat

*/

@property (nonatomic, assign) BOOL weChat;

/**

QQ

*/

@property (nonatomic, assign) BOOL qq;

/**

脸书 | Facebook

*/

@property (nonatomic, assign) BOOL facebook;

/**

推特 | Twitter

*/

@property (nonatomic, assign) BOOL twitter;

/**

领英 | LinkedIn

*/

@property (nonatomic, assign) BOOL linkedIn;

/**

Whatsapp

*/

@property (nonatomic, assign) BOOL whatsapp;

/**

Line

*/

@property (nonatomic, assign) BOOL line;

/**

照片墙 | Instagram

*/

@property (nonatomic, assign) BOOL instagram;

/**

色拉布 | Snapchat

*/

@property (nonatomic, assign) BOOL snapchat;

/**

Skype

*/

@property (nonatomic, assign) BOOL skype;

/**

谷歌邮箱 | Gmail

*/

@property (nonatomic, assign) BOOL gmail;

/**

Outlook

*/

@property (nonatomic, assign) BOOL outlook;

/**

Messenger

*/

@property (nonatomic, assign) BOOL messenger;

/**

Viber

*/

@property (nonatomic, assign) BOOL viber;

/**

Googletalk

*/

@property (nonatomic, assign) BOOL googletalk;

/**

Vkontakte

*/

@property (nonatomic, assign) BOOL vkontakte;

/**

Imo

*/

@property (nonatomic, assign) BOOL imo;

/**

Imobeta

*/

@property (nonatomic, assign) BOOL imobeta;

/**

```
Imolite
*/
@property (nonatomic, assign) BOOL imolite;
/**
Chatapp
*/
@property (nonatomic, assign) BOOL chatapp;
/**
Kik
*/
@property (nonatomic, assign) BOOL kik;
/**
Skred
*/
@property (nonatomic, assign) BOOL skred;
/**
Telegramx
*/
@property (nonatomic, assign) BOOL telegramx;
/**
Beechat
*/
@property (nonatomic, assign) BOOL beechat;
/**
Teamtalk
*/
@property (nonatomic, assign) BOOL teamtalk;
/**
Kakao
*/
@property (nonatomic, assign) BOOL kakao;
/**
Ftalk
*/
@property (nonatomic, assign) BOOL ftalk;
/**
Rimet
*/
@property (nonatomic, assign) BOOL rimet;
/**
Wework
*/
@property (nonatomic, assign) BOOL wework;
/**
```

红包 | Red envelope/Hong Bao

```
*/
@property (nonatomic, assign) BOOL hongbao;
/**
Missedcall
*/
@property (nonatomic, assign) BOOL missedcall;
/**
Calendar
*/
@property (nonatomic, assign) BOOL calendar;
/**
Applemusic
*/
@property (nonatomic, assign) BOOL applemusic;
/**
Googlemaps
*/
@property (nonatomic, assign) BOOL googlemaps;
/**
Likee
*/
@property (nonatomic, assign) BOOL likee;
/**
Messages
*/
@property (nonatomic, assign) BOOL messages;
/**
Mono
*/
@property (nonatomic, assign) BOOL mono;
/**
Odnoklassniki
*/
@property (nonatomic, assign) BOOL odnoklassniki;
/**
Privat
*/
@property (nonatomic, assign) BOOL privat;
/**
Youtube
*/
@property (nonatomic, assign) BOOL youtube;
/**
```



```

Youtubemusic
*/
@property (nonatomic, assign) BOOL youtubemusic;
/**
Zoom
*/
@property (nonatomic, assign) BOOL zoom;
/**
Telegram
*/
@property (nonatomic, assign) BOOL telegram;
/**
Tiktok
*/
@property (nonatomic, assign) BOOL tiktok;
/**
Pinterest
*/
@property (nonatomic, assign) BOOL pinterest;
/**
总开关 | MasterSwitch
*/
@property (nonatomic, assign) BOOL masterSwitch;
@end

```

27、设置消息推送开关信息

```

- (void)fbSetMessagePushSwitchWithData:(FBMessageModel *)messageModel
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;
// 参考上述参数

```

28、获取久坐提醒信息

```

- (void)fbGetLongSitInforWithBlock:(FBGetLongSitInforBlock
_Nonnull)fbBlock;
/*
久坐提醒信息 | Sedentary reminder
*/
@interface FBLongSitModel : NSObject
/**
久坐提醒开关 NO:关闭 YES:打开 (默认 YES) | Sedentary reminder switch NO: off YES: on (Default: YES)
*/
@property (nonatomic, assign) BOOL enable;

```

```

/**
检测起始时间，一天的绝对分钟（大于等于 0 分钟，小于 1440 分钟，起始时间小于结束时间）（默认 480，即 08:00） | Detection start
time, absolute minutes of a day (greater than or equal to 0 minutes, less than 1440 minutes, start time less than end time) (the default is
480, i.e. 08:00)
*/
@property (nonatomic, assign) NSInteger startTime;
/**
检测结束时间，一天的绝对分钟（大于等于 0 分钟，小于 1440 分钟，结束时间大于起始时间）（默认 1080，即 18:00） | Detection end
time, absolute minutes of a day (greater than or equal to 0 minutes, less than 1440 minutes, end time greater than start time) (the default
is 1080, i.e. 18:00)
*/
@property (nonatomic, assign) NSInteger endTime;
/**
久坐持续时间检测时间（分钟），在这个时间内步数不达标，进行久坐提醒（默认 45） | The detection time of sedentary duration (minutes).
If the steps are not up to standard within this time, the sedentary reminder will be given (Default: 45)
*/
@property (nonatomic, assign) NSInteger continueTime;
/**
目标步数，在持续时间内低于这个值，进行久坐提醒（默认 100） | If the target step number is lower than this value in the duration, the
sedentary reminder will be given (Default: 100)
*/
@property (nonatomic, assign) NSInteger targetSteps;
@end

```

29、设置久坐提醒信息

```

- (void)fbSetLongSitInforWithModel:(FBLongSitModel *
_Nonnull)longSitModel withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;
// 参考上述参数

```

30、获取心率等级判定信息

```

- (void)fbGetHeartRateInforWithBlock:(FBGetHeartRateInforBlock
_Nonnull)fbBlock;
/*
心率等级判定信息 | Heart rate level determination information
*/
@interface FBHeartRateRatingModel : NSObject
/**
超过这个百分比，认定为 mix_hr / If the percentage exceeds this, it will be regarded as mix_hr
*/
@property (nonatomic, assign) NSInteger min_hr;

```

```

/**
 超过这个百分比，认定为 moderate | If the percentage exceeds this, it will be regarded as moderate
*/
@property (nonatomic, assign) NSInteger moderate;

/**
 超过这个百分比，认定为 vigorous | If the percentage exceeds this, it will be regarded as vigorous
*/
@property (nonatomic, assign) NSInteger vigorous;

/**
 超过这个百分比，认定为 max_hr | If it exceeds this percentage, it is regarded as max_hr
*/
@property (nonatomic, assign) NSInteger max_hr;

/**
 最高心率值 | Maximum heart rate
*/
@property (nonatomic, assign) NSInteger height_hr;

/**
 只有心率值在这个时间宽度都在某个级别以上，才确定新等级 | Only when the heart rate value is above a certain level in this time width
can the new level be determined
*/
@property (nonatomic, assign) NSInteger other_hr;
@end

```

31、设置心率等级判定信息

```

- (void)fbSetHeartRateInforWithModel:(FBHeartRateRatingModel *_Nonnull)heartAlgoModel withBlock:(FBResultCallBackBlock _Nonnull)fbBlock;
// 参考上述参数

```

32、获取喝水提醒信息

```

- (void)fbGetDrinkWaterWithBlock:(FBGetDrinkWaterBlock _Nonnull)fbBlock;

/**
 喝水提醒信息 | Water drinking reminder information
*/

@interface FBWaterClockModel : NSObject

/**
 提醒起始时间，一天的绝对分钟（大于等于 0 分钟，小于 1440 分钟，起始时间小于结束时间）（默认 480，即 08:00） | Reminder start
time, absolute minutes of a day (greater than or equal to 0 minutes, less than 1440 minutes, start time less than end time) (the default is
480, i.e. 08:00)
*/

```

```

@property (nonatomic, assign) NSInteger startTime;

/**
 提醒结束时间，一天的绝对分钟（大于等于 0 分钟，小于 1440 分钟，结束时间大于起始时间）（默认 1080，即 18:00） | Reminder end
time, absolute minutes of a day (greater than or equal to 0 minutes, less than 1440 minutes, end time greater than start time) (the default
is 1080, i.e. 18:00)
*/

@property (nonatomic, assign) NSInteger endTime;

/**
 提醒周期，如果为 0 只提醒一次（默认 60） | Reminder cycle, if it is 0, only remind once (Default: 60)
*/

@property (nonatomic, assign) NSInteger repeatCount;

/**
 提醒开关，NO:关闭 YES:打开（默认 YES） | Reminder switch, NO: off, YES: on (Default: YES)
*/

@property (nonatomic, assign) BOOL alterSwitch;
@end

```

33、设置喝水提醒信息

```

- (void)fbSetDrinkWaterWithModel:(FBWaterClockModel *
_Nonnull)drinkWaterModel withBlock:(FBResultCallbackBlock
_Nonnull)fbBlock;
// 参考上述参数

```

34、获取勿扰提醒信息

```

- (void)fbGetNotDisturbWithBlock:(FBGetNotDisturbBlock _Nonnull)fbBlock;

/*
 勿扰提醒信息 | Do not disturb reminder message
*/

@interface FBNotDisturbModel : NSObject

/**
 勿扰提醒起始时间，一天的绝对分钟（大于等于 0 分钟，小于 1440 分钟，起始时间小于结束时间）（默认 360，即 06:00） | Do not disturb
reminder start time, absolute minutes of a day (greater than or equal to 0 minutes, less than 1440 minutes, start time less than end time)
*/

@property (nonatomic, assign) NSInteger startTime;

/**
 勿扰提醒结束时间，一天的绝对分钟（大于等于 0 分钟，小于 1440 分钟，结束时间大于起始时间）（默认 1260，即 21:00） | Do not disturb
reminder end time, absolute minutes of a day (greater than or equal to 0 minutes, less than 1440 minutes, end time greater than start
time)
*/

@property (nonatomic, assign) NSInteger endTime;

```

```

/**
 勿扰提醒开关，NO:关闭 YES:打开（默认 NO） | Reminder switch, NO: off, YES: on (Default: NO)
*/
@property (nonatomic, assign) BOOL alterSwitch;
@end

```

35、设置勿扰提醒信息

```

- (void)fbSetNotDisturbWithModel:(FBNotDisturbModel *
Nonnull)notDisturbModel withBlock:(FBResultCallbackBlock
Nonnull)fbBlock;
// 参考上述参数

```

36、获取心率检测信息

```

- (void)fbGetHeartTestPeriodsWithBlock:(FBGetHeartTestPeriodsBlock
Nonnull)fbBlock;
/**
 心率检测信息，为全天候检测，建议只可修改提醒周期 | The heart rate detection information is all-weather detection,
and it is recommended that only the reminder cycle can be modified
*/
@interface FBHrCheckModel : NSObject
/**
 心率检测起始时间，一天的绝对分钟（大于等于 0 分钟，小于 1440 分钟，起始时间小于结束时间） | Start time of heart rate detection,
absolute minutes of a day (greater than or equal to 0 minutes, less than 1440 minutes, start time less than end time)
*/
@property (nonatomic, assign) NSInteger startTime;
/**
 心率检测结束时间，一天的绝对分钟（大于等于 0 分钟，小于 1440 分钟，结束时间大于起始时间） | End time of heart rate detection,
absolute minutes of a day (greater than or equal to 0 minutes, less than 1440 minutes, end time greater than start time)
*/
@property (nonatomic, assign) NSInteger endTime;
/**
 心率检测周期，分钟，如果为 0 只检测一次，为 10 的整倍数 | Heart rate detection cycle, minutes, if it is 0, only detect once, it is an
integral multiple of 10
*/
@property (nonatomic, assign) NSInteger repeatCount;
/**
 自动检测开关，NO:关闭 YES:打开 | Automatic detection switch, NO: off, YES: on
*/
@property (nonatomic, assign) BOOL alterSwitch;
@end

```

37、设置心率检测信息

```
- (void)fbSetHeartTestPeriodsWithModel:(FBHrCheckModel *  
_Nonnull)hrCheckModel withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;  
// 参考上述参数
```

38、获取抬腕亮屏信息

```
- (void)fbGetWristTimeWithBlock:(FBGetWristTimeBlock _Nonnull)fbBlock;  
/*  
    抬腕亮屏信息 | Wrist lifting light screen information  
*/  
@interface FBWristModel : NSObject  
/**  
    抬腕有效起始时间, 当天的绝对分钟 (大于等于 0 分钟, 小于 1440 分钟, 起始时间小于结束时间) (默认 360, 即 06:00) | Effective starting  
time of wrist lifting, absolute minutes of the day (greater than or equal to 0 minutes, less than 1440 minutes, start time less than end  
time) (the default is 360, i.e. 06:00)  
*/  
@property (nonatomic, assign) NSInteger startTime;  
/**  
    抬腕有效结束时间, 当天的绝对分钟 (大于等于 0 分钟, 小于 1440 分钟, 结束时间大于起始时间) (默认 1320, 即 22:00) | Effective end  
time of wrist lifting, absolute minutes of the day (greater than or equal to 0 minutes, less than 1440 minutes, end time greater than start  
time) (the default is 1320, i.e. 22:00)  
*/  
@property (nonatomic, assign) NSInteger endTime;  
/**  
    抬腕亮屏开关, NO:关闭 YES:打开 (默认 YES) | Wrist lifting light screen switch, NO: off, 1: YES (Default: YES)  
*/  
@property (nonatomic, assign) BOOL alterSwitch;  
@end
```

39、设置抬腕亮屏信息

```
- (void)fbSetWristTimeWithModel:(FBWristModel * _Nonnull)wristModel  
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;  
// 参考上述参数
```

40、获取运动目标信息

```
- (void)fbGetSportsTagargetWithBlock:(FBGetSportsTagargetBlock
_Nonnull)fbBlock;
```

```
/*
```

```
    运动目标信息 | Moving target information
```

```
*/
```

```
@interface FBSportTargetModel : NSObject
```

```
/**
```

```
    目标步数开关：NO:关 YES:开 | Target step switch: NO:off YES: on
```

```
*/
```

```
@property (nonatomic, assign) BOOL stepSwitch;
```

```
/**
```

```
    目标卡路里开关：NO:关 YES:开 | Target calorie switch: NO:off YES: on
```

```
*/
```

```
@property (nonatomic, assign) BOOL caculateSwitch;
```

```
/**
```

```
    目标距离开关：NO:关 YES:开 | Target distance switch: NO:off YES: on
```

```
*/
```

```
@property (nonatomic, assign) BOOL distanceSwitch;
```

```
/**
```

```
    运动目标参数开关：NO:关 YES:开 | Moving target parameter switch: NO:off YES: on
```

```
*/
```

```
@property (nonatomic, assign) BOOL sportSwicth;
```

```
/**
```

```
    目标之步数 | Step target
```

```
*/
```

```
@property (nonatomic, assign) NSInteger stepTarget;
```

```
/**
```

```
    目标之卡路里消耗（千卡） | Target calorie consumption (kcal)
```

```
*/
```

```
@property (nonatomic, assign) NSInteger calorieTarget;
```

```
/**
```

```
    目标之里程数（米） | Distance target (m)
```

```
*/
```

```
@property (nonatomic, assign) NSInteger distanceTarget;
```

```
/**
```

```
    目标之运动时间（分钟） | Sport time target (minute)
```

```
*/
```

```
@property (nonatomic, assign) NSInteger sportTimeTarget;
```

```
@end
```

41、设置运动目标信息

```
- (void)fbSetSportsTagargetWithModel:(FBSportTargetModel *
_Nonnull)sportTargetModel withBlock:(FBResultCallbackBlock
_Nonnull)fbBlock;
// 参考上述参数
```

42、设置今日天气详情

```
- (void)fbPushTodayWeatherDetailsWithModel:(FBWeatherDetailsModel *
_Nonnull)model withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;
/*
 推送今日天气详情消息参数 | Push today's weather details message parameters
*/
@interface FBWeatherDetailsModel : NSObject
/**
 天气 | Weather
*/
@property (nonatomic, assign) FB_WEATHER Weather;
/**
 空气质量等级 | Air quality level
*/
@property (nonatomic, assign) FB_AIRLEVEL AirCategory;
/**
 空气温度 | air temperature
*/
@property (nonatomic, assign) NSInteger airTemp;
/**
 体感温度 (C) | Somatosensory temperature (c)
*/
@property (nonatomic, assign) NSInteger somatTemp;

/**
 最低温度，可以为负数 | The lowest temperature can be negative
*/
@property (nonatomic, assign) NSInteger tempMin;
/**
 最高温度，可以为负数 | The highest temperature can be negative
*/
@property (nonatomic, assign) NSInteger tempMax;
/**
 日出时间，小时 | Sunrise time, hours
*/
```



```
@property (nonatomic, assign) NSInteger sunriseHours;

/**
日出时间，分钟 | Sunrise time, minutes
*/

@property (nonatomic, assign) NSInteger sunriseMinutes;

/**
日落时间，小时 | Sunset time, hours
*/

@property (nonatomic, assign) NSInteger sunsetHours;

/**
日落时间，分钟 | Sunset time, minutes
*/

@property (nonatomic, assign) NSInteger sunsetMinutes;

/**
湿度（%） | Humidity (%)
*/

@property (nonatomic, assign) NSInteger humidity;

/**
风向 | Wind direction
*/

@property (nonatomic, assign) EM_WINDDIRECTION WindDirection;

/**
风速度（米/秒） | Wind speed (M / s)
*/

@property (nonatomic, assign) NSInteger windSpeed;

/**
最近 2 小时降水概率（%） | Precipitation probability in the last 2 hours (%)
*/

@property (nonatomic, assign) NSInteger probability;

/**
降水量（毫米） | Precipitation (mm)
*/

@property (nonatomic, assign) NSInteger precipitation;

/**
气压（百帕） | Air pressure (HPA)
*/

@property (nonatomic, assign) NSInteger airPressure;

/**
能见度（米） | Visibility (m)
*/

@property (nonatomic, assign) NSInteger visibility;

/**
紫外线指数 | UV index
*/
```

```

@property (nonatomic, assign) NSInteger UV_index;
@end

typedef enum {
    WT_SUNNY           = 0,    //晴 | Sunny
    WT_PARTLY_CLOUDY   = 1,    //多云 | Cloudy
    WT_WIND             = 2,    //风 | Wind
    WT_CLOUDY          = 3,    //阴天 | Overcast
    WT_LIGHT_RAIN       = 4,    //小雨 | Light rain
    WT_HEAVY_RAIN       = 5,    //大雨 | Heavy rain
    WT_SNOW             = 6,    //雪 | Snow
    WT_THUNDER_SHOWER  = 7,    //雷阵雨 | Thunder shower
    WT_SUNNY_NIGHT      = 8,    //晴晚上 | Sunny night
    WT_PARTLY_CLOUDY_NIGHT = 9, //多云晚上 | Cloudy night
    WT_STANDSTORM       = 10,   //沙尘暴 | Sand storm
    WT_SHOWER           = 11,   //阵雨 | Shower
    WT_SHOWER_NIGHT     = 12,   //阵雨晚上 | Shower night
    WT_SLEET            = 13,   //雨夹雪 | Sleet
    WT_SMOG             = 14,   //雾、霾 | Fog and haze
    WT_LIGHT_SNOW       = 15,   //小雪 | Light snow
    WT_HEAVY_SNOW       = 16,   //大雪 | Heavy snow
    WT_MODERATE_RAIN    = 17,   //中雨 | Moderate rain
    WT_RAINSTORM        = 18,   //暴雨 | Rainstorm

    WT_UNKNOWN          = 255, //未知天气 | Unknown weather
}FB_WEATHER;

typedef enum {
    AL_BAD      = 0, //差 | Bad
    AL_GOOD     = 1, //良 | Good
    AL_WONDFUL  = 2, //优 | Wonderful
}FB_AIRLEVEL;

typedef enum{
    WD_0 = 0, //无风 | No wind
    WD_1 = 1, //东风 | East wind
    WD_2 = 2, //东南风 | Southeast wind
    WD_3 = 3, //南风 | South wind
    WD_4 = 4, //西南风 | Southwest wind
    WD_5 = 5, //西风 | Westerly
    WD_6 = 6, //西北风 | Northwest wind
    WD_7 = 7, //北风 | North wind
    WD_8 = 8, //东北风 | Northeasterly wind
}EM_WINDDIRECTION;

```

43、设置未来天气预报信息

```
- (void)fbPushWeatherMessageWithModel:(NSArray <FBWeatherModel *>
*)weatherArray support:(BOOL)support_14days_Weather
withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;

/*
 推送天气消息参数 | Push weather message parameters
*/

@interface FBWeatherModel : NSObject

/**
 序号 ID, 0:昨天、1:今天、2:明天、3:后天..... | Serial number ID, 0: yesterday, 1: today, 2: tomorrow, 3: the day after tomorrow

  @note 根据 FBAllConfigObject.firmwareConfig.support_14days_Weather 来标识是否支持未来14 天天气预报 (YES:序号ID 支持0-15,
  NO: 序号ID 支持0-6) / According to FBAllConfigObject.firmwareConfig.support_14days_Weather to identify whether the weather
  forecast for the next 14 days is supported (YES: serial number ID supports 0-15, NO: serial number ID supports 0-6)
 */

@property (nonatomic, assign) NSInteger days;

/**
 天气 | Weather
 */

@property (nonatomic, assign) FB_WEATHER Weather;

/**
 最低温度, 可以为负数 | The lowest temperature can be negative
 */

@property (nonatomic, assign) NSInteger tempMin;

/**
 最高温度, 可以为负数 | The highest temperature can be negative
 */

@property (nonatomic, assign) NSInteger tempMax;

/**
 空气质量等级 | Air quality level
 */

@property (nonatomic, assign) FB_AIRLEVEL AirCategory;

/**
 PM2.5 等级 | PM2.5
 */

@property (nonatomic, assign) FB_PM25 PM2p5;

@end

typedef enum {
    PM_LEVEL1 = 0, //优 | Wonderful
    PM_LEVEL2 = 1, //良 | Good
```

```
PM_LEVEL3 = 2, //轻度污染 | Light pollution
PM_LEVEL4 = 3, //中度污染 | Moderate pollution
PM_LEVEL5 = 4, //重度污染 | Heavy pollution
}FB_PM25;
```

44、app 推送手机定位信息

```
– (void)fbPushMobileLocationInformationWithLongitude:(float)longitude
withLatitude:(float)latitude withBlock:(FBResultCallbackBlock
_Nonnull)fbBlock;
```

45、获取女性生理周期信息

```
–(void)fbGetFemaleCircadianCycleWithBlock:(FBGetFemaleCircadianCycleBlock
_Nonnull)fbBlock;
```

```
/*
 女性生理周期信息 | Female physiological cycle information
*/
@interface FBFemalePhysiologyModel : NSObject

/**
 健康模式设置 | Health mode setting
*/
@property (nonatomic, assign) FB_FEMALEPHYSIOLOGICALHEALTHMODEL HealthModel;

/**
 经期开始提醒提前天数，范围 1-3 天 | The number of days in advance of menstruation start reminder, ranging from 1 to 3 days
*/
@property (nonatomic, assign) NSInteger daysInAdvance;

/**
 经期的天数，范围 3-15 天 | The number of days of menstruation, ranging from 3 to 15 days
*/
@property (nonatomic, assign) NSInteger daysMenstruation;

/**
 周期长度，范围 17-60 天 | Cycle length, ranging from 17 to 60 days
*/
@property (nonatomic, assign) NSInteger cycleLength;

/**
 最近一次月经，年（最近两年） | Last menstruation, year (last two years)
*/
@property (nonatomic, assign) NSInteger lastYear;

/**
 最近一次月经，月 | Last menstruation, month
*/
```

```

@property (nonatomic, assign) NSInteger lastMonth;

/**
最近一次月经，日 | The last menstruation, day
*/

@property (nonatomic, assign) NSInteger lastDay;

/**
孕期提醒方式：NO 提示已怀孕天数，YES 提示距离预产期天数 | Pregnancy reminder: no indicates the number of days pregnant, yes
indicates the number of days away from the expected delivery date
*/

@property (nonatomic, assign) BOOL isPreProduction;

/**
提醒时间，小时 | Reminder time, hours
*/

@property (nonatomic, assign) NSInteger reminderHours;

/**
提醒时间，分钟 | Reminder time, minutes
*/

@property (nonatomic, assign) NSInteger reminderMinutes;

/**
设备提醒开关，NO 关，YES 开 | Device reminder switch, no off, yes on
*/

@property (nonatomic, assign) BOOL reminderSwitch;

@end

typedef enum {
    FB_HealthModel_NotUsed           = 0, //未启用 | Not used
    FB_HealthModel_Menstrual         = 1, //月经期 | Menstrual period
    FB_HealthModel_PregnancyPreparation = 2, //备孕期 | Pregnancy preparation period
    FB_HealthModel_Pregnancy         = 3, //怀孕期 | Pregnancy
}FB_FEMALEPHYSIOLOGICALHEALTHMODEL;

```

46、设置女性生理周期信息

```

- (void)fbSetFemaleCircadianCycleWithModel:(FBFemalePhysiologyModel *
_Nonnull)physiologyModel withBlock:(FBResultCallbackBlock
_Nonnull)fbBlock;
// 参考上述参数

```

47、获取心率异常提醒信息

```

- (void)fbGetAbnormalHeartRateReminderWithBlock:(FBGetAbnormalHeartRateR
eminderBlock _Nonnull)fbBlock;

```

```

/*
    心率异常提醒信息 | Abnormal heart rate reminder information
*/
@interface FBHrReminderModel : NSObject

/**
    心率异常提醒开关 NO:关闭 YES:打开 | Abnormal heart rate reminder switch No: off yes: on
*/
@property (nonatomic, assign) BOOL enable;

/**
    心率提醒上限，心率超高提醒 | Heart rate reminder upper limit, heart rate ultra-high reminder
*/
@property (nonatomic, assign) NSInteger highReminder;

/**
    心率提醒下限，心率过低提醒 | Low heart rate reminder
*/
@property (nonatomic, assign) NSInteger lowReminder;

/**
    心率值连续超标次数（达到超标的次数时才会提醒） | The number of times the heart rate value exceeds the standard continuously (it will
    be reminded only when the number exceeds the standard)
*/
@property (nonatomic, assign) NSInteger exceedanceTimes;

/**
    检测起始时间，一天的绝对分钟（大于等于 0 分钟，小于 1440 分钟，起始时间小于结束时间） | Detection start time, absolute minutes of
    a day (greater than or equal to 0 minutes, less than 1440 minutes, start time less than end time)
*/
@property (nonatomic, assign) NSInteger startTime;

/**
    检测结束时间，一天的绝对分钟（大于等于 0 分钟，小于 1440 分钟，结束时间大于起始时间） | Detection end time, absolute minutes of
    a day (greater than or equal to 0 minutes, less than 1440 minutes, end time greater than start time)
*/
@property (nonatomic, assign) NSInteger endTime;
@end

```

48、设置心率异常提醒信

```

- (void)fbSetAbnormalHeartRateReminderWithModel:(FBHrReminderModel *
_Nonnull)hrReminderModel withBlock:(FBResultCallbackBlock
_Nonnull)fbBlock;
// 参考上述参数

```

49、GPS 运动互联数据交互

```
-(void)fbGPSPotionInterconnectionWithModel:(FBMotionInterconnectionModel * _Nonnull)model withBlock:(FBMotionInterconnectionBlock _Nonnull)fbBlock;

/*
GPS 运动互联数据交互信息 | Interactive information of GPS motion interconnection data
*/

@interface FBMotionInterconnectionModel : NSObject

#pragma mark - 以下数据由 APP 提供填充 | The following data is filled in by app

/** 当前时间(UTC) | Current time (UTC) */
@property (nonatomic, assign) NSInteger currentTimeUTC;

/** 运动 ID，用运动的开始时间作为每笔运动的唯一识别码 | Motion ID, using the start time of the motion as the unique identification code of each motion */
@property (nonatomic, assign) NSInteger motionID;

/** 运动开始时间戳(UTC) | Motion start timestamp (UTC) */
@property (nonatomic, assign) NSInteger startMotionUTC;

/** 运动结束时间(UTC)，进行中的运动填 0 | Motion end time (UTC), fill in 0 for ongoing exercise */
@property (nonatomic, assign) NSInteger endMotionUTC;

/** 当前运动总时间，单位秒 | Total current movement time, in seconds */
@property (nonatomic, assign) NSInteger totalTime;

/** 当前运动总卡路里（千卡） | Total calories of current exercise (kcal) */
@property (nonatomic, assign) NSInteger totalCalories;

/** 当前本次运动轨迹运动距离（单位米，通过 gps 定位计算） | Motion distance of current trajectory (unit: m, calculated by GPS positioning) */
@property (nonatomic, assign) NSInteger motionDistance;

/** 运动模式 | Motion mode */
@property (nonatomic, assign) FB_MOTIONMODE MotionMode;

/** 本次运动最大步频（单位：步/分钟） | Maximum step frequency of this movement (unit: step / minute) */
@property (nonatomic, assign) NSInteger maxStepFrequency;

/** 本次运动平均步频 = 步数/时间（单位：步/分钟） | Average step frequency of this exercise = steps / time (unit: steps / minute) */
@property (nonatomic, assign) NSInteger avgStepFrequency;

/** 重复运动的周期数（来回次数，圈数）（单位：圈） | Number of cycles of repeated motion (number of turns, turns) (unit: turns) */
@property (nonatomic, assign) NSInteger cyclesNumber;

/** 本次运动最大速度（单位：米/秒） | Maximum speed of this movement (unit: M / s) */
@property (nonatomic, assign) CGFloat maxSpeed;

/** 本次运动平均速度 = 距离/用时（单位：米/秒） | Average speed of this movement = distance / time (unit: M / s) */
@property (nonatomic, assign) CGFloat avgSpeed;

/** 本次有轨迹运动配速（单位：秒/公里） | This time there is track movement pace (unit: S / km) */
@property (nonatomic, assign) NSInteger trackPace;

#pragma mark - 以下数据 APP 或手表由提供（双方都有权修改） | The following data is provided by app or watch (both parties have the right to modify)
```

```

/** 中途休息次数 | Number of breaks */
@property (nonatomic, assign) NSInteger breaksNumber;

/** 运动状态,0 停止,1 进行中,2 暂停(表明当前运动状态,非控制指令) | Motion state, 0 stop, 1 in progress, 2 pause (indicating current motion state, non control command) */
@property (nonatomic, assign) NSInteger motionState;

#pragma mark - 以下数据由手表填充返回, APP 无需设置 | The following data is filled and returned by the watch.
App does not need to be set

/** 当前运动总步数 | Total current motion steps */
@property (nonatomic, assign) NSInteger totalSteps;

/** 本次运动当前实时心率(单位: 次/分钟) | Current real-time heart rate during this exercise (unit: times / minute) */
@property (nonatomic, assign) NSInteger currentHeartRate;

/** 本次运动最大心率(单位: 次/分钟) | Maximum heart rate of this exercise (unit: times / minute) */
@property (nonatomic, assign) NSInteger maxHeartRate;

/** 本次运动最小心率(单位: 次/分钟) | Minimum heart rate of this exercise (unit: times / minute) */
@property (nonatomic, assign) NSInteger minHeartRate;

/** 本次运动实时平均心率(单位: 次/分钟) | Real time average heart rate of this exercise (unit: times / minute) */
@property (nonatomic, assign) NSInteger avgHeartRate;

/** 当前心率处于的区间(热身, 燃脂, 有氧, 高强度有氧, 无氧) | The range of current heart rate (warm-up, fat burning, aerobic, high-strength aerobic, anaerobic) */
@property (nonatomic, assign) FB_MOTIONHEARTRATERANGE currentHrRange;

/** 到当前为止, 热身运动时间, 单位分钟, 随时刷新 | Up to now, the warm-up exercise time, in minutes, is refreshed at any time */
@property (nonatomic, assign) NSInteger heartRate_level_1;

/** 到当前为止, 燃脂运动时间, 单位分钟, 随时刷新 | Up to now, the fat burning movement time, in minutes, can be refreshed at any time */
@property (nonatomic, assign) NSInteger heartRate_level_2;

/** 到当前为止, 有氧耐力运动时间, 单位分钟, 随时刷新 | So far, aerobic endurance exercise time, in minutes, can be refreshed at any time */
@property (nonatomic, assign) NSInteger heartRate_level_3;

/** 到当前为止, 高强度有氧运动时间, 单位分钟, 随时刷新 | So far, the time of high-strength aerobic exercise, in minutes, can be refreshed at any time */
@property (nonatomic, assign) NSInteger heartRate_level_4;

/** 到当前为止, 无氧运动时间, 单位分钟, 随时刷新 | So far, the anaerobic exercise time, in minutes, can be refreshed at any time */
@property (nonatomic, assign) NSInteger heartRate_level_5;
@end

```

50、获取常用联系人信息

```

-(void)fbGetFavoriteContactListWithBlock:(FBGetFavoriteContactListBlock
_Nonnull)fbBlock;

/*
  常用联系人信息 | Frequently used contact information
*/

```



```

@interface FB FavContactModel : NSObject

/**
 联系人姓名(长度小于或等于 64 个字节,超出最大长度,自动截取) | Contact name (less than or equal to 64 bytes in length, automatically
intercepted if the maximum length is exceeded)
 */

@property (nonatomic, copy) NSString *contactName;

/**
 号码归属地(长度小于或等于 64 个字节,超出最大长度,自动截取) | Number location (if the length is less than or equal to 64 bytes, it
will be automatically intercepted if the maximum length is exceeded)
 */

@property (nonatomic, copy) NSString *QCellCore;

/**
 联系人号码(长度小于或等于 20 个字节,超出最大长度,自动截取) | Contact number (less than or equal to 20 bytes in length,
automatically intercepted if the maximum length is exceeded)
 */

@property (nonatomic, copy) NSString *contactNumber;
@end

```

51、设置常用联系人信息

```

- (void)fbSetFavoriteContactListWithModel:(NSArray <FB FavContactModel *>
*)modelList withBlock:(FBResultCallbackBlock _Nonnull)fbBlock;
// 参考上述参数

```

➤ 获取流数据 API (FBAtCommand)

1. 开启数据流 **fbUpDataStreamData: withBlock:** 指令后, 有数据更新时, 设备会按设定的时间间隔通过此回调返回数据

```

- (void)fbStreamDataHandlerWithBlock:(FBStreamDataHandlerBlock
_Nonnull)fbBlock;

```

```

/*
 流数据 | Stream data
 */

```

```
@interface FBStreamDataModel : NSObject

/**
 流帧计数，自动递增，0-255，溢出后清零 | Stream frame count, auto increment, 0-255, clear after overflow
 */
@property (nonatomic, assign) NSInteger streamCount;

/**
 当前心率（次/分钟） | Current heart rate (times / minute)
 */
@property (nonatomic, assign) NSInteger currentHeartRate;

/**
 当前心率等级 | Current heart rate level
 */
@property (nonatomic, assign) FB_CURRENTHEARTRANGE HeartRateRange;

/**
 当前累计步数 | Current cumulative steps
 */
@property (nonatomic, assign) NSInteger currentStepCount;

/**
 当前累计距离（米） | Current cumulative distance (m)
 */
@property (nonatomic, assign) NSInteger currentDistance;

/**
 当前累计消耗卡路里（千卡） | Current cumulative calories consumed (kcal)
 */
@property (nonatomic, assign) NSInteger currentCalories;
@end
```

➤ OTA 工具 API (FBBluetoothOTA)

1. 传入不同的 OTAType 进行 OTA 数据同步，为避免变砖，请先确认项目是否支持

```
– (void)fbStartCheckingOTAWithBinFileData:(NSData * _Nonnull)binFile
withOTAtype:(FB_OTANOTIFICATION)OTAtype
withBlock:(FBSetOtaUpgradeManagerBlock _Nonnull)fbBlock;
```

```
typedef enum {
    FB_OTANotification_Firmware           = 0,    //升级固件 | Update Firmware
    FB_OTANotification_ClockDial          = 1,    //升级默认动态表盘 | Upgrade default dynamic dial
    FB_OTANotification_SmallFont          = 2,    //升级小字库 | Upgrade small font
    FB_OTANotification_BigFont            = 3,    //升级大字库 | Upgrade big font
    FB_OTANotification_UIPictureResources = 4,    //升级 UI 图片资源 | Upgrade UI image resources
    FB_OTANotification_2_3_4AtTheSameTime = 5,    //同时升级 2,3,4 | Upgrade 2, 3, 4 at the same time
    FB_OTANotification_Motion             = 6,    //推送运动模式 | Push motion mode
    FB_OTANotification_DynamicClockDial   = 10,   //+n, 升级动态表盘 n | +n. Upgrade dynamic dial n
    FB_OTANotification_CustomClockDial    = 20,   //+n, 升级自定义表盘 n | +n. Upgrade custom dial n
    FB_OTANotification_Busy               = 254,   //设备处于禁止 OTA 状态，稍后再试 | The device is in OTA
    FB_OTANotification_Cancel             = 255,   //放弃当前升级 | Discard current upgrade
}FB_OTANOTIFICATION;
```

```
/*
    OTA 完成信息 | OTA completion information
*/
@interface FBOTADoneModel : NSObject
/**
    ota 类型 | OTA type
*/
@property (nonatomic, assign) FB_OTANOTIFICATION type;
/**
    bin 二进制文件 | Bin binary
*/
@property (nonatomic, retain) NSData *binFile;
/**
    ota 升级总时长（单位秒） | Total OTA upgrade time (in seconds)
*/
@property (nonatomic, assign) NSInteger totalInterval;
/**
    平均速率（单位 KB/s） | Average velocity (in KB / s)
*/
```

```
@property (nonatomic) float velocity;
```

```
@end
```

➤ 错误码枚举定义 FB_RET_CMD

```
typedef enum {  
    //协议定义的通讯错误 | Protocol defined communication error  
    RET_EXEC_ER      = 3,    //执行失败 | Execution failed  
    RET_DATA_INVA     = 4,    //数据无效（格式错误） | Invalid data (format error)  
    RET_COMM_BUSY     = 5,    //通信中（系统忙） | Communication (system busy)  
    RET_COMD_INVA     = 6,    //无效指令 | Invalid instruction  
    RET_PVER_ER       = 7,    //协议版本不符 | Protocol version does not match  
    RET_DATA_OK        = 8,    //数据正确 | The data is correct  
    RET_DATA_ER       = 9,    //数据错误 | Data error  
    RET_DATA_TO       = 10,   //接收超时 | Receive timeout  
    RET_RAM_OF        = 11,   //内存溢出 | Out of memory  
    RET_CHKS_ER       = 12,   //校验和错误 | Check sum error  
    RET_PARA_ER       = 13,   //参数错误 | Parameter error  
    RET LENG_ER       = 14,   //数据长度错误 | Data length error  
  
    //自定义蓝牙通信错误 | Custom Bluetooth communication error  
    RET_FB_ERR_OTA     = 15,   //OTA 失败，不支持 OTA | OTA failed, OTA not supported  
    RET_FB_ERR_OFF     = 16,   //蓝牙未打开或不支持 | Bluetooth is not on or not supported  
    RET_FB_ERR_NOT     = 17,   //尚未连接到设备 | Not yet connected to the device  
    RET_FB_ERR_NOTREADY = 18,   //设备尚未初始化完成 | The device has not been initialized  
    RET_FB_ERR_NET     = 19,   //写指令失败，或缺少连接参数 | Write instruction failed, or connection  
parameters are missing  
    RET_FB_ERR_AT      = 20,   //AT 指令异常，无效指令/无效参数 | At instruction exception, invalid  
instruction / invalid parameter  
    RET_FB_ERR_DATA    = 21,   //失败，数据校验未通过 | Failed, data verification failed  
    RET_FB_ERR_TIMEROUT = 22,   //应答超时 | Response timeout  
  
    //自定义数据传输状态 | Data transmission status  
    FB_INDATATRANSMISSION = 101, //数据传输中 | In data transmission  
    FB_DATATRANSMISSIONDONE = 200, //数据传输完成 | Data transmission complete  
    FB_DATATRANSMISSIONFAILED = 500, //数据传输失败 | Data transfer failed  
  
    //GPS 运动状态执行错误 | GPS motion status execution error  
    FB_GPS_MOTION_STATE_LOWPRESSUREERROR = 200012, //执行失败，低压无法执行 | Execution failed, low  
voltage cannot be executed  
    FB_GPS_MOTION_STATE_COMMANDSTATUSERROR = 200013, //指令状态错误 | Command status error  
    FB_GPS_MOTION_STATE_INREGULARMOTIONERROR = 200014, //常规运动中，请先停止当前运动 | In normal motion,  
please stop the current motion first
```

```
FB_GPS_MOTION_STATE_INCALLERROR          = 200015, //正在通话中，无法执行此指令 | This command cannot be
executed while a call is in progress
}FB_RET_CMD;
```

➤ 运动模式枚举定义 FB_MOTIONMODE

```
typedef enum {
    FBNotUsed                = 0,    //不使用 | Not used
    FBRunning                = 1,    //跑步 | Running
    FBMountaineering         = 2,    //登山 | Mountaineering
    FBCycling                = 3,    //骑行 | Cycling
    FBFootball               = 4,    //足球 | Football
    FBSwimming               = 5,    //游泳 | Swimming
    FBBasketball             = 6,    //篮球 | Basketball
    FBNo_designation         = 7,    //无指定 | No designation
    FBOutdoor_running        = 8,    //户外跑步 | Outdoor running
    FBIndoor_running         = 9,    //室内跑步 | Indoor running
    FBFat_reduction_running = 10,    //减脂跑步 | Fat reduction running

    FBOutdoor_walking        = 11,   //户外健走 | Outdoor walking
    FBIndoor_walking         = 12,   //室内健走 | Indoor walking
    FBOutdoor_cycling        = 13,   //户外骑行 | Outdoor cycling
    FBIndoor_cycling         = 14,   //室内骑行 | Indoor cycling
    FBFree_training          = 15,   //自由训练 | Free training
    FBFitness_training       = 16,   //健身训练 | Fitness training
    FBBadminton              = 17,   //羽毛球 | Badminton
    FBVolleyball             = 18,   //排球 | Volleyball
    FBTable_Tennis           = 19,   //乒乓球 | Table Tennis
    FBElliptical_machine     = 20,   //椭圆机 | Elliptical machine

    FBRowing_machine         = 21,   //划船机 | Rowing machine
    FBYoga_training          = 22,   //瑜伽 | Yoga
    FBStrength_training       = 23,   //力量训练 (举重) | Strength training (weightlifting)
    FBCricket                = 24,   //板球 | Cricket
    FB Rope_skipping          = 25,   //跳绳 | Rope skipping
    FBAerobic_exercise       = 26,   //有氧运动 | Aerobic exercise
    FBAerobic_dancing        = 27,   //健身舞 | Aerobic dancing
    FBTaiji_boxing           = 28,   //太极拳 | Taiji boxing
    FBAuto_runing            = 29,   //自动识别跑步运动 | Automatically recognize running
    FBAuto_walking           = 30,   //自动识别健走运动 | Automatic recognition of walking movement

    FBWALK                   = 31,   //室内步行 | Indoor walking
    FBSTEP_TRAINING          = 32,   //踏步 | Step training
    FBHORSE RIDING            = 33,   //骑马 | Ride a horse
}
```

FBHOCKEY	= 34, //曲棍球 Hockey
FBINDOOR_CYCLE	= 35, //室内单车 Aerodyne bike
FBSHUTTLECOCK	= 36, //毽球 Shuttlecock
FBBOXING	= 37, //拳击 Boxing
FBOUTDOOR_WALK	= 38, //户外走 Outdoor walk
FBTRAIL_RUNNING	= 39, //越野跑 Cross country running
FBSKIING	= 40, //滑雪 Skiing
FBGYMNASTICS	= 41, //体操 Artistic Gymnastics
FBICE_HOCKEY	= 42, //冰球 Ice hockey
FBTAEKWONDO	= 43, //跆拳道 Taekwondo
FBVO2MAX_TEST	= 44, //有氧运动 Aerobic exercise
FBAIR_WALKER	= 45, //漫步机 Walking machine
FBHIKING	= 46, //徒步 On foot
FBTENNIS	= 47, //网球 Tennis
FBDANCE	= 48, //跳舞 Dance
FBTRACK_FIELD	= 49, //田径 Athletics
FBABDOMINAL_TRAINING	= 50, //腰腹运动 Lumbar abdominal movement
FBKARATE	= 51, //空手道 Karate
FBCOOLDOWN	= 52, //整理放松 Organize and relax
FBCROSS_TRAINING	= 53, //交叉训练 Cross training
FBPILATES	= 54, //普拉提 Pilates
FBCROSS_FIT	= 55, //交叉配合 Cross fit
FBFUNCTIONAL_TRAINING	= 56, //功能性训练 Functional training
FBPHYSICAL_TRAINING	= 57, //体能训练 Physical training
FBARCHERY	= 58, //射箭 Archery
FBFLEXIBILITY	= 59, //柔韧度 Flexibility
FBMIXED_CARDIO	= 60, //混合有氧 Mixed aerobic
FBLATIN_DANCE	= 61, //拉丁舞 Latin dance
FBSTREET_DANCE	= 62, //街舞 Hip hop
FBKICKBOXING	= 63, //自由搏击 Free fight
FBBARRE	= 64, //芭蕾舞 Ballet
FBAUSTRALIAN_FOOTBALL	= 65, //澳式足球 Australian football
FBMARTIAL_ARTS	= 66, //武术 Australian football
FBSTAIRS	= 67, //爬楼 Climb a building
FBHANDBALL	= 68, //手球 Handball
FBBASEBALL	= 69, //棒球 Baseball
FBBOWLING	= 70, //保龄球 Bowling
FBACQUETBALL	= 71, //壁球 Squash
FBCURLING	= 72, //冰壶 Curling
FBHUNTING	= 73, //打猎 Go hunting

FBSNOWBOARDING	= 74, //单板滑雪 Snowboarding
FBPLAY	= 75, //休闲运动 Leisure sports
FBAMERICAN_FOOTBALL	= 76, //美式橄榄球 American football
FBHAND_CYCLING	= 77, //手摇车 Handcart
FBFISHING	= 78, //钓鱼 Go fishing
FBDISC_SPORTS	= 79, //飞盘 Frisbee
FBRUGBY	= 80, //橄榄球 Rugby
FBGOLF	= 81, //高尔夫 Golf
FBFOLK_DANCE	= 82, //民族舞 Folk dance
FBDOWNHILL_SKIING	= 83, //高山滑雪 Alpine skiing
FBSNOW_SPORTS	= 84, //雪上运动 Snow Sports
FBMIND_BODY	= 85, //舒缓冥想类运动 Soothing meditation exercise
FBCORE_TRAINING	= 86, //核心训练 Core training
FBSKATING	= 87, //滑冰 Core training
FBFITNESS_GAMING	= 88, //健身游戏 Fitness games
FBAEROBICS	= 89, //健身操 Aerobics
FBGROUP_TRAINING	= 90, //团体操 Group Gymnastics
FBKENDO	= 91, //搏击操 Kickboxing
FBLACROSSE	= 92, //长曲棍球 Lacrosse
FBROLLING	= 93, //泡沫轴筋膜放松 Foam shaft fascia relax
FBWRESTLING	= 94, //摔跤 Wrestling
FBFENCING	= 95, //击剑 Fencing
FBSOFTBALL	= 96, //垒球 Softball
FBSINGLE_BAR	= 97, //单杠 Horizontal bar
FBPARALLEL_BARS	= 98, //双杠 Parallel bars
FBROLLER_SKATING	= 99, //轮滑 Roller-skating
FBHULA_HOOP	= 100, //呼啦圈 Hu la hoop
FBDARTS	= 101, //飞镖 Darts
FBPICKLEBALL	= 102, //匹克球 Pickleball
FBSIT_UP	= 103, //仰卧起坐 Abdominal curl
FBHIIT	= 104, //HIIT HIIT
FBWAIST_TRAINING	= 105, //腰腹训练 Waist and abdomen training
FBTREADMILL	= 106, //跑步机 Treadmill
FBBOATING	= 107, //划船 Rowing
FBJUDO	= 108, //柔道 rowing
FBTRAMPOLINE	= 109, //蹦床 Trampoline
FBSKATEBOARDING	= 110, //滑板 Skate
FBHOVERBOARD	= 111, //平衡车 Balance car
FBBLADING	= 112, //溜旱冰 Roller skating
FBPARKOUR	= 113, //跑酷 Parkour

```
FBDIVING          = 114, //跳水 | Diving
FBSURFING         = 115, //冲浪 | Surfing
FBSNORKELING      = 116, //浮潜 | Snorkeling
FBPULL_UP         = 117, //引体向上 | Pull up
FBPUSH_UP         = 118, //俯卧撑 | Push up
FBPLANKING        = 119, //平板支撑 | Plate support
FBROCK_CLIMBING   = 120, //攀岩 | Rock Climbing

FBHIGHTJUMP       = 121, //跳高 | High jump
FBBUNGEE_JUMPING  = 122, //蹦极 | Bungee jumping
FBLONGJUMP        = 123, //跳远 | Long jump
FBSHOOTING        = 124, //射击 | Shooting
FBMARATHON        = 125, //马拉松 | Marathon

FB0ther_reservation = 255, //其他预留 | Other reservation
}FB_MOTIONMODE;
```