**INSIGMA INC** 

# Imbera CMD Phone App User Manual

### V1.6

Bipin Patel 6/10/2017

Understand Operation and basic functionality of Imbera Communication Device

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#### 1 Purpose

To understand Operation and basic functionality of Imbera Communication Device.

#### 2 Scope

Useful for tester and final user.

#### 3 Definition(s) and Abbreviation(s)

Name	Abbreviation
CMD	Communication Device
BLE	Bluetooth Low Energy
ICD	Imbera Communication Device
DFU	Direct Firmware Upgrade

#### 4 Reference(s)

Document No	Title

3		

### 5 Document History

Version	Date completed	Written by	Reviewed by	Approved by
1.0	9 <sup>th</sup> August, 2016	Bipin Patel		
	Initial Version			
1.1	24 <sup>th</sup> November, 2016	Bipin Patel		
	Made change in Log	gin process for applicat	tion	
	Made changes in G	UI of application.		
1.2	28 <sup>th</sup> November, 2016	Bipin Patel		
	<ul> <li>Corrected Wrong m</li> </ul>	essage in DFU in docu	ıment. Point 12 -> (2)	
1.3	14 <sup>th</sup> February, 2017	Bipin Patel		
	Updated latest scree	en shot and text as per	Imbera phone app V1	.21
1.4	13 <sup>th</sup> April, 2017	Bipin Patel		
	Updated latest scree	en shot and text as per	Imbera phone app V1	.45
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1.6	10 <sup>th</sup> June, 2017	Bipin Patel		
	Updated latest screet	en shot and text as per	Imbera phone app V1	.55

#### 6 Introduction

- 1) Imbera Communication Device is BLE enabled and used with EMD module. By using it user can configure EMD module over BLE.
- 2) User can also check diagnostic mode of EMD module.

#### 7 Installation of Imbera CMD

1) CMD has four wire connector to interface with EMD module. Signal name of four wires is associated with its color for user convenience.

WIRE COLOUR	SIGNAL
	VCC
	GND
	Rx
	Тх

2) Connect these four wire connector to EMD module as per shown in figure.



#### 8 Installation of Imbera Phone App

- 1) Install APK received from email in android phone
- Click on "Imbera" application icon. It will launch application.
   <u>Note:</u> Before launch of App, Please ensure Bluetooth & Internet connection (via Mobile Wi-Fi or Mobile Data) must be enabled in Phone.



If user is login first time then it will ask for Email (User id) and Password. Use Email and password received in email for login.
 Note: Internet connectivity must be required during login otherwise login will be fail.

v1.55 Gateway Mac : 24:DA:9B:7F:3D:17
EMAIL
PASSWORD
Remember Me
Run As Service

4) After successful login, application will direct to BLE scanning screen as shown below. G SCANNING. 1C:CA:E3:20:06:D1 CC EMD Sr#: PEQ0000121249007 Imbera CMD - 91745  $\bigtriangledown$ 0 7

5) Scanning screen will show available CMD list. You can identify CMD by its MAC address and short Serial Number.



0

- P1: CMD MAC Address
- P2: To make connection with device
- P3: Connected EMD Serial #
- P4: Device Type with CMD Serial#
- P5: Last Seen: When phone app seen device at last
- P6: Status of CMD device which include following
  - Power Status: Mains/Battery
  - UART Communication: OK/Not OK (If it is OK then it means device communicate with EMD properly)
  - > Standby Mode: ON/OFF (When it is ON, device is not communicating with EMD)

P7: To expand parameters screen. Parameter screen will not expand if device is in following state.

 $\triangleleft$ 

(Battery mode)/ (communication is not OK)/ (Standby is ON).

6) User can verify temperatures, voltage, alarms and door status from scanning screen.

© *: ● sc.	ANNING
1C:CA:E	3:20:06:D1 ග
EMD Sr#: PEQ0000121249 Imbera CMD - 91745	NEAR 2 mtrs
Last Seen Now	Status Power : Mains COM : OK Stand By : OFF
() Alarm 1	Operation Status Alarm
Cabinet 26°C	Evaporator 27°C
Environm nt N/A 5	Condenser N/A 6
Close 7	4 Voltage 235V 8
Compresso 9 OFF	Fan CD Fan : OFF Fan : OFF
Heater OFF	Q: Light N 12
Door Count Today 3 LAST WEEK 9	THIS WEEK 19 THIS MONTH 26
4	0 🗆

- P1: Number of Alarm reported by EMD currently
- P2: Operation Status
- P3: Cabinet Temperature
- P4: Evaporator Temperature
- P5: Environment Temperature
- P6: Condenser Temperature
- <mark>P7:</mark> Door Status
- P8: EMD Voltage
- P9: Compressor Status
- P10: Fan Status
- P11: Heater Status
- P12: Light Status
- P13: Door Counts for Today, This Week, Last Week and This month
- 7) After connection with CMD, following screen appears which shows configuration parameters of CMD.

= <b>0</b>	* **		6:08
=	1C:CA:E3 Imbera CN	20:06:D1 ID - 91745	3
DEVICE	* BLUETOOTH	an: c#	CLOUD
FIMWARE VE	RSION		1.23
CURRENT TIME	DEVICE PHONE	06/06/2017 0 06/06/2017 0	6:0E-49 PM 6:0E-48 PM
Current Ev	ent Index	975	5
Last Event	Index	947	9
Set Hea	alth Event In	iterval	SAVE
Health Even	t interval(in N	tinutes)	1
Set Enviror	nment Even	t Interval	SAVE
$\triangleleft$	C	)	

#### 9 Communication Device Configuration Parameters

After connection, under



Tab, user can set following parameters for CMD.

- 1) Set Date Time
- 2) Set Health Event Interval
- 3) Set Environment Event Interval
- 4) Set Advertisement Interval
- 5) Standby Mode ON/OFF
- 6) Restart Device
- 7) Factory Reset Device
- 8) Put CMD in Deep Sleep

#### 9.1 Set Date Time

1) Click on symbol shown in figure by yellow arrow to set current date time in CMD.



#### 9.2 Set Health event Interval

- 1) User can set Health event Interval in minutes in range of 1 to 240 minutes.
- 2) Health event contains Cooler temperature, Evaporator temperature and Condenser temperature of EMD.
- 3) After changing value, click on save button to save it in CMD.

	Image: Control of the con
12	

#### 9.3 Set Environment event Interval

- 1) User can set Environment event Interval in minutes in range of 1 to 240 minutes.
- 2) Environment event contains Environment temperature and EMD Voltage.
- 3) After changing value, click on save button to save it in CMD.

CA:E3:2 bera CMD conne vent Interval nt Event at Interval	0:06:D1 - 91745 CF erval Interval (In	ESAVE
vent Interval	erval (Interval	SAVE
vent Inte val(In Min nt Event nt Interval	erval nutes) Interval (In	save h save
val(In Mir nt Event nt Interval	nutes) Interval (In	þ save 1
nt Event It Interval	Interval (In	SAVE
t Interval	(In	1
ertisem	ent Interv	al SAVE
nds)		500
	_	
	nds)	nds)

#### 9.4 Set Advertisement Interval

- 1) User can set BLE Advertisement Interval in millisecond in range of 20 to 10000 msec.
- 2) After changing value, click on save button to save it in CMD.

G	* 📼	n rite 🏹 🕤	4 🗋 6:09
3	1C:CA:E3 Imbera CM	20:06:D1 ID - 91745	1
DEVICE	<b>\$</b> вциетодтн	CIF.	CLOUD
Set H	ealth Event In	terval	SAVE
Health Eve	ent Interval(In N	linutes)	þ
Set Envir	ronment Even	t Interval	SAVE
Environme Minutes)	ent Event Interv	al(In	1
ŝ	Set Advertiser	nent Interva	al SAVE
Advertiser Interval(M	ment lilliseconds)		500
			<i></i>

#### 9.5 Set Tx Power

- 1) User can select BLE Tx power for Normal advertisement with option of -20, -16, -12, -8, -4, 0 and 4 dBm.
- 2) After changing value, click on save button to save it in CMD.

	🖘 🖸	* ==	10 VTF 🖌 🤉 🖌	📋 6:10 рм
	=	1C:CA:E3 Imbera CN	20:06:D1 ID - 91745	
	DEVICE	<b>В</b> ШЕТООТН	CIF	CLOUD
	Environm Minutes)	ent Event Interv	al(In	1
	1	Set Advertiser	nent Interval	SAVE
	Advertise Interval(M	ment filliseconds)		500
		Set Tx I	Power	SAVE
	Tx Power	(dBm)	-2	۰
		Set Stand	lby Mode	U
	Standby S	Status	OF	F 🔼
	<	1 C	)	

#### 9.6 Control Standby mode

CMD can be operated into **standby mode** or **normal mode**.

#### To Enable/Disable Standby mode

- 1) User can ON/OFF standby mode.
- 2) If standby mode is ON then it will stop event logging in memory and also don't communicate with EMD module.
- 3) If standby mode is OFF then it will start event logging and communicate with EMD again. This is called Normal mode.



#### 9.7 Restart CMD

1) User can restart (power cycle) CMD module by clicking on following sequence.

ICCALS22006-01 Imbers CMD - 91745     Imbers CMD - 91745       Imbers CMD - 91745     Imbers	* 🚥 475 🖌 🖓 🖌	6:08 PM	- G	9 🕸 💷 🖓 🖌	🖥 🔟 🧂 6:10 рм
Image: Second	1C:CA:E3:20:06:D1 Imbera CMD - 91745	Æ	DIAGNOSTIC		E.
FIMWARE VERSION     1.23     READ UNREAD EVENT(S)       UBRENT TIME     DEVICE     06/06/2017 06:08:49 PM     O       Current Event Index     9755     FACTORY RESET     0	BLUETOOTH OF	CLOUD	READ ALL EV	ENT(S)	CLIME.
URRENT TIME DEVICE 06/06/2017 06/06/49 PM O PHONE 06/06/2017 06/06/49 PM O Current Event Index 9755 FACTORY RESET 0	RSION	1.23	READ UNREA	D EVENT(S)	
Current Event Index 9755 FACTORY RESET 0	DEVICE 06/06/2017 06:08:4 PHONE 06/06/2017 06:08:4	BPM D	RESTART	$\langle \neg \neg$	SAVE
	ent Index 9755		FACTORY RES	SET	0
Last Event Index 9479 STOP ADVERTISEMENT	Index 9479		STOP ADVER	TISEMENT	SAVE
Set Health Event Interval SAVE	alth Event Interval	SAVE			SAVE
Health Event Interval(In Minutes)	t Interval(In Minutes)				
Set Environment Event Interval SAVE	nment Event Interval	SAVE			
	0 🗆		$\bigtriangledown$	0	0

#### 9.8 Factory Reset CMD

- 1) User can restore all settings to factory default by clicking on following sequence.
- 2) By factory reset, all logged event data will be erased and device will start event logging from Initial.

	1C:CA:E3:20:06:D1	E.	DIAGNOSTIC	
DEVICE	<b>ВШЕТООТН</b>	CLOUD	READ ALL EVENT(S)	
FIMWARE VE	RSION	1.23	READ UNREAD EVENT(S	)
CURRENT TIME	DEVICE 06/06/2017 0 PHONE 06/06/2017 0	06:08:49 PM	RESTART	
Current Ev	ent Index 975	55	FACTORY RESET	-
Last Event	Index 947	79	STOP ADVERTISEMENT	8
Set Hea	alth Event Interval	SAVE		
Health Even	t Interval(In Minutes)	1		
Set Enviro	nment Event Interval	SAVE		c
<	0		4 0	

### 9.9 Stop Advertisement

- 1) User can stop advertisement of CMD by clicking on following sequence.
- 2) Advertisement can be started again automatically when Mains supply given to CMD again.

G <b>≭ അ⊒</b> ∰ ∡ ≏ ∡	💼 6:08 рм	🖵 🕜 🛛 🕈 🚥 👯 🖌 🔍	🖌 🔲 6:10 рм
1C:CA:E3:20:06:D1 Imbera CMD - 91745	<b>王</b>	DIAGNOSTIC	(用) (用)
DEVICE BLUETOOTH CIF	CLOUD	READ ALL EVENT(S)	CLOUD
FIMWARE VERSION	1.23	READ UNREAD EVENT(S)	
URRENT TIME DEVICE 06/06/2017 06:00 PHONE 06/06/2017 06:00	8.49 PM 5.48 PM	RESTART	SAVE
Current Event Index 9755		FACTORY RESET	0
Last Event Index 9479		STOP ADVERTISEMENT	
Set Health Event Interval	SAVE		SAVE
Health Event Interval (In Minutes)	1		
Set Environment Event Interval	SAVE		
		< 0	

#### 10 Imbera Communication Device Logged Event Types

- CMD can store up to 13568 events in memory. After that it will over write on old event space.
- CMD logs following events.

#### 10.1 Health Event

Health event contains Cooler temperature, Evaporator temperature and Condenser temperature of EMD at predefined interval.

#### 10.2 Environment Event

Environment event contains Environment temperature and EMD Voltage at predefined interval.

#### 10.3 Power Event

Power event logged when switching occur from EMD Mains power to battery and vice versa with data time.

#### 10.4 Door Event

- > Door Event logged by CMD when door open and close sense.
- > Door Event also contains Door timeout event.

#### 10.5 Event/Alarm log Event

> This event logged when any change in event bits or Alarm bits occur from EMD.

#### 10.6 Error log Event

> This event logged when UART communication failure occur between EMD and CMD.

- 🚄 🔳 6:08 PM 🖘 🖸 🕈 🕈 💷 🖓 🖌 🖓 🖉 🖌 🔋 6:10 ค \$ DEED LTE 06:D1 91745 =< DIAGNOSTIC \* 121 BLUETOOTH READ ALL EVENT(S) EVE FIMWARE VERSION READ UNREAD EVENT(S) URRENT TIME 3 RESTART FACTORY RESET Current Event Index 9755 Last Event Index 9479 STOP ADVERTISEMENT SAVE Health Event Interval(In Minutes) 1 SAVE = G \$ DOLD LTE 🖌 💼 6:11 P 🗆 🖸 \* DITEL LTE 1 6:13 BACK READ ALL EVENT(S) BACK READ ALL EVENT(S) DOWNLOAD EVENT DATA DOWNLOAD EVENT DATA 9755 Enviro ent Event Event Time: 06/06/2017 06:08:00 PM Environment Temperature :N/A Cooler Voltage :235.0 V 9754 **Health Event** Event Time : 06/06/2017 06:08:00 PM Cooler Temperature :26.8℃ Evaporator Temperature :27.5°C Condensor Temperature :N/A 0  $\bigtriangledown$  $\bigtriangledown$ 0
- > User can view logged events by clicking on following screen sequence.

> User can filter different event by clicking on following option.



In Event/Alarm change, there is <u>Detail</u> link where user can see status of Event and Alarm bits as shown in below figures.

EACK	३ व्या ५६ य े ये ∎ 6:14 ला READ ALL EVENT(S)	S II = 98 ≯ 0 BACK EVENT/AL	▼ H ⊿ ∠I û 4:56 PM ARM CHANGE	S II = 98 3 C ♥ BACK EVENT/ALARM	CHANGE
	DOWNLOAD EVENT DATA	EVENT CHANGE		ALARM CHANGE	
1	Event/Alarm Change Event 👻	State of Operation	Normal State	Circulation Condensor	OFF
9400	Event/Alarm Change Event	Buzzer	OFF	High Voltage	OFF
Event Time : 06/06/2017 03:10:23 PM  Details		De-icing	OFF	Low Voltage	OFF
		Fan	ON	Temperature Outside extreme	OFF
9227	Event/Alarm Change Event	Lighting	ON	Fan Current	OFF
Event Tir Details	me : 06/06/2017 01:40:20 PM	Compressor	ON	Alarm Door	OFF
		State Lock	OFF	Compressor Current	OFF
	< 0 □	⊲ 0		0 0	

#### **11 EMD(CIF) Configuration Parameters**

1) After connection, under



- Tab, user can set EMD configuration parameters.
- 2) When user switch to EMD tab, Phone app first reads all configuration parameter from EMD and display to user first.

🖬 🖸		🕴 💷 🖬 🖓 🖓 🖉	🚺 🖬 6:16 рм	
≡		1C:CA:E3:20:06:D1 nbera CMD - 91745	(B)	
DEV	A CE BLUI	<b>*</b>	CLOUD	
COOL	.er id	COOLER ID		
EMD	MODEL	OFFC		
EMD	FIRMWARE	¥ 5.50		
-0-0-	DEV	ICE PARAMETERS		
	Serial numbe NULL)	ierial number (18 byte ASCII encoding + IULL)		
	Unit of temp temperature	erature and deployment of with decimal point	ite i	
	Generic Mod	el Recognition		
	Deployed Su	nolv Voltane	-	
	$\bigtriangledown$	0		

3) User can change any parameter by clicking on that parameter. After changing desire value, click on set tab.

		🗄 📕 🛢 6:16 рм
	1C:CA:E3:20:06:D Imbera CMD - 9174	
1		C.000
	Generic Model Recognition	
4	NORMAL MODE SP	v
.5	-1.0	75
-	Min: -35.0 Max: 50.0	
	Set 0	Cancel
2	NORMAL MODE DIF	1.0.10
	SPESI	
	DIF ES1	
		0

#### 12 EMD Diagnostic mode

1) User can enter into diagnostic mode by sequential clicking on symbol shown in below figures.

□         * □□□□ ↓ 1 ≤ 6:08 гм           □         ↓         □         ▲         6:08 гм           □         ↓         □         ↓         □         ▲         6:08 гм           □         ↓         □         □         ↓         □         ↓         0:08 гм           □         ↓         □         □         ↓         □         ↓	C     C    C
DEVICE BLUETOOTH CIF CLOUD	READ ALL EVENT(S)
FIMWARE VERSION 1.23	READ UNREAD EVENT(S)
CURRENT TIME DEVICE 06/06/2017 06:08:49 PM O	RESTART
Current Event Index 9755	FACTORY RESET
Last Event Index 9479	STOP ADVERTISEMENT
Set Health Event Interval SAVE	-
Health Event Interval(In Minutes)	
Set Environment Event Interval SAVE	
< 0 □	

2) User can enable/disable Diagnostic mode by clicking on ON/OFF button

DIAGNOSTIC			
DIAGNOSTIC	(m or)		
COMPRESSOR OFF			
EVAPORATOR FAN			
RESISTANCE OFF			
LUMINATE OFF	(10.000)		
DISPLAY	(IN OFF		
DOOR STATUS			



3) User can operate Compressor, Evaporator Fan, Resistance, Light and Display by clicking ON/OFF.

COMPRESSOR	() () () () () () () () () () () () () (
EVAPORATOR FAN	
RESISTANCE	
DISPLAY	
DOOR STATUS	-

4) User can get current Door status by clicking on Door Status.



**Note:** After completion of Testing of Diagnostic mode, User has to disable diagnostic mode. Otherwise EMD will leave in diagnostic mode until next power cycle.

#### 13 Firmware Upgrade Over the air (DFU)

1) Whenever user connects to any CMD, Phone app will check CMD firmware version with latest firmware. If new firmware is available then app will suggest user to upgrade firmware with latest one as per below figure. User needs to tap the text to start DFU.

- G 🛛 🕯 🚥	LTE 🖌 😳 🖌 🔳 6:08 PM			*▼ ★ ■	94% 12:23 PM
TC:CA:E3:20 Imbera CMD	-91745	$\equiv$	CONFIGU	IRATION	<u>ال</u>
DEVICE BLUETODTH	CIF CLOUD	DEVICE	<b>*</b> ВШЕТООТН	CF	CLOVE
FIMWARE VERSION	1.23	FIMWARE	E VERSION E FIRMWARE		1.20
URRENT TIME DEVICE PHONE	06/06/2017 06:08:49 PM 0	CURRENT T	IME DEVICE	30/03/2017 1	2.23:23 PM
Current Event Index Last Event Index	9755 9479	Are y	Device firmw	<b>vare upgrad</b> e firmware upg	e E
Set Health Event Inte	rval SAVE	_		NO	YES
		Set E			SAVE
Health Event Interval(In Min	utes) 1	Environm Minutes)	nent Event Interva	al(In	1
Set Environment Event I	nterval SAVE				
4 0	-	Set	Advertisemen	t Interval	SAVE
7 0		Advartie	ament	ſ	

 After allowing for DFU, user will see following careen in which phone app load latest firmware directly from cloud. User just needs to select CMD from "SELECT DEVICE" button.

-	* 💎 🛧 📋 94% 12:23 (
	DEFAULT DFU
	APPLICATION
	File Name (EMO-COD111.1.2:zip) File Type: Distribution packet (ZIP) File Size: 4008 Bytes Status: OK
	DEVICE FIRMWARE UPDATE
	UPLOAD

3) User have to select device from AVAILABLE DEVICES as per below figure. Device which starts from DFU-XXXXXX where XXXXXX is a unique Last 3 bytes of BLE stack MAC address.

Select device:	
BONDED DEVICES:	
ROBOKITS_BLUETOOTH 20.16.08:29:64:99	
AVAILABLE DEVICES:	
n/a	-
DT 1945E CURSE CD	*
DFU-391FEF	(
EB:05:A0:39:1F:EF	
SBC-ST101100112847	
1C:CA:E3:20:59:3F	Ŷ
n/a	-
1C:CA:E3:20:59:31	
n/a	
CC:8D:63:BE:68:43	
n/a	
FB:10:C7:45:A8:1E	
n/a	
4E:C8:F3:92:AA:A1	÷
8	
CANCEL	

4) Now Click on **UPLOAD** button to start firmware upgrade.

9 6	드 9월 🔰 🕈 🗇 🔻 🤟 🖉 🖬 5:00 PM
	DFU-391FEF
	APPLICATION
	File Name: EMD-CD0111.1.16.zip File Type: Distribution packet (ZIP) File Size: 45918 bytes Status: OK
	DEVICE FIRMWARE UPDATE
	SELECT DEVICE
	⊲ 0 □

5) After successfully upgrade, following screen will appear.



6) User can verify latest firmware upgrade by making connection to CMD again and checking for firmware version.