

USER INSTUCTIONS FOR TecSonics™ PUMP WITH READER

GET THE APP

DOWNLOAD THE TecSonics™ APP FROM THE APPLE APP STORE OR GOOGLE PLAY STORE FOR <u>FREE</u>. SEARCH: TecSonics

SET-UP

- 1. Your TecSonics[™] Pump will come with the pump information and baseline preprogramed into its reader. It is ready to take readings.
- To access the reader on your pump, you need a Bluetooth capable mobile device or tablet that uses the iOS or Android operating system and has the TecSonics[™] App downloaded on to it.
- 3. The TecSonicsTM App is **free** to download.
- The mobile device or tablet only requires Bluetooth to operate the system. Wi-Fi and cellular data are <u>not</u> required to take and view readings.

OPERATION AND MAINTENANCE

- 1. We recommend taking measurements every 6 months for the first year or two, then once a year afterwards, using the instructions in this document.
- 2. As the connection between the App and the reader is based on Bluetooth Low Energy (BTLE) 5.4, and the process requires pressing a power button on the reader, readings must be taken by station personnel at the pump.
- 3. The readings are stored on the reader, so different station personnel can access the reader and its data, with different mobile devices.
- 4. The reader can hold 100 sets of readings. This equates to 75 to 100 years of data.
- 5. The password for the device is the same as Cardinal Pump's general phone number:

3303328558

If you wish to change this password, please contact your Cardinal or Unifin sales representative for instructions on how to do this. If you forget your password, the reader must be returned for processing.

- 6. The reader is an IP68 housing and has an expected battery life span of up to 10 years. Contact your Cardinal or Unifin sales representative if you require assistance in changing the battery. No other maintenance is required for the reader.
- 7. Updates to the App will be issued through the Apple App and Google Play stores like most other Apps secured from these stores.

WARRANTY

- 1. App updates will be issued through the Apple App and Google Play stores like most other Apps secured from these stores.
- 2. The reader itself has a 12-month hardware warranty, and with most issues requiring replacement rather than repair. The reader must be returned within 30 days of a reported error under this warranty.

USING THE SYSTEM

1. CONNECTING TO THE READER

a. The reader will come physically installed onto the TecSonics[™] pump.



b. Ensure the Bluetooth on your mobile device or tablet is on. Then select the TecSonics ${}^{\rm TM}$ App from the tablet.



c. When you see the starting screen for the TecSonics[™] App, tap on the "Start Scanning" button.

g	button.	
	11:55 LTE 71	
	Peripherals	
	START SCANNING	
	Bluetooth Status: On	
	⊙ Tec Sonics ™	
	Powered by Transmission Dynamics®	

d. Press the power button on the reader. The button should have a flashing green circle and the words "Waiting for connection" on the reader's display screen, indicating it is ready to pair, just a like a set of Bluetooth headphones.



e. The reader should now be listed in the App. Each reader will have a unique address code. If no devices are shown, make sure the Bluetooth Status is "On". If your Bluetooth is "Off", shut down the app, turn on your Bluetooth, and restart. When the reader is shown on the list, tap on its listing.



f. For a first-time connection, the reader will send a pairing code. Enter that in the dialog box on the app.



g. Your device should now be paired. The reader screen will be blank, and the power button will be a solid green. The App will display a log-in screen.



Log in Screen

1:29		at LTE 50
Peripherals	Login	
Choose	your permissio	n level
(Level 1) User		۲
(Level 2) Admin		0
Password		
	ОК	

h. Tap on "(Level 1) User" and then enter the default password: 3303328558. Tap "OK" when done.

9:2	1						ati lite	96	
Peri	pherals		Lo	gin					
	Cho	ose y	our p	ermis	sion	level			
(Level	1) User							۲	
(Level	2) Admir	n						0	
Password 33033	28558								
			0	K					
"3303	328558′	u							
1	2 3	4	5	6	7	8	9	0	
-	:	;	()	\$	&	@	"	
#+=	\cdot	,		?	!	'		\bigotimes	
ABC	;		sp	ace			retu	irn	
							(),	
9		_	_	_	_			-	

- i. This should bring you to the DEVICE STATE tab on the screen. On this tab/screen you can see:
 - i. battery voltage for the reader,ii. temperature of the reader

 - iii. firmware version of the reader
 - iv. status of the baseline
 - v. number of measurements on the reader.

You are now connected to the reader.

1:30		.II LTE 50
Peripherals	Home	θ
Device St	ate	
Battery Volta	ge	3.556 V
Temperature		22.6875 °C
Firmware ver	rsion	3.1.0
Measurer	nent informa	tion ^
Baseline Stat	e	Empty
Number of m	easurements	0 / 100
DEVICE STATE		MEASUDEMENT
	FOME DATA	MEASOREMENT

2. VIEWING THE PUMP INFORMATION

a. Tap on the PUMP DATA tab at the bottom of the screen. This screen will display information about the pump and the reader.

11.56		•II LTE 70
Peripherals	Home	Θ
Pump Data	I	
Customer Nam	e	
Unifin		
Pump Model		
31343-6x6		
Station Name		
Unifin		
Serial Number		
12345-8		
Comments		
Reader 250826		
EVICE STATE	PUMP DATA	MEASUREMENT

b. Your reader will come preprogramed with this information. On this screen you will your company name, your pump's serial number, your station name if known at time of shipment, and the pump serial number. Additionally, the serial number for the reader itself, is included in the comments.

Peripherals	Home	θ
Pump Dat	а	
Customer Na	me	
Unifin		
Pump Model		
31343-6x6		
Station Name		
Unifin		
Serial Numbe	r	
12345-8		
Comments		
Reader 25082	6	

c. The pump serial number should match the serial number on the pump for the system to work properly. If this serial number does not match, remove and reattach the reader to the correct pump.

11:58		. II LTE 🔽
Peripherals	Home	θ
Pump Dat	a	
Customer Na	ime	
Unifin		
Pump Model		
31343-6x6		
Station Name	9	
Unifin		
Serial Numbe	er	
12345-8		
Comments		
Reader 25082	26	
DEVICE STATE	PUMP DATA	MEASUREMENT

3. VIEWING THE BASELINE

a. Your reader will come with the baselines shown on the pump nameplate already preprogramed. If you wish to view them, tap on the MEASUREMENT tab at the bottom of the screen. This tab will then display three sub-tabs above the main row of tabs. Tap on the BASELINE tab.

1:35		11 LTE 49
Peripherals	Home	θ
Measureme Baseline State	nt informa	tion ^
Date & time	2025-04-	-10, 1:34:39 PM
Battery voltage		3.513 V
Temperature		22.6875 °C
COM	MMIT BASELIN	E
Meas	urement is va	alid
BACK BEARING	S ® FI	RONT BEARING
Channel		Thickness (MIL)
1		169
2		170.1
3		168.7
4		169.5
BASELINE	TEST	HISTORICAL
DEVICE STATE	PUMP DATA	MEASUREMENT

b. The baseline for each bearing can be viewed by tapping on the "BACK BEARING" or "FRONT BEARING" buttons. Transducers 1 to 6 are found under "BACK BEARING", and transducers 7 to 12 are found under "FRONT BEARING".

	1:35		ILTE 49	1:35		11 LTE 49
<	Peripherals	Home	Θ	Peripherals	Home	θ
	Measuren	nent informat	tion ^	Measuren	nent informat	ion ^
	Date & time	2025-04-1	10 1:34:39 PM	Date & time	2025-04-1	10 1:34:39 PM
	Battery voltag	ge	3.513 V	Battery voltag	ge	3.513 V
	Temperature		22.6875 °C	Temperature		22.6875 °C
	C	COMMIT BASELINE		c	COMMIT BASELINE	
	Me	asurement is va	lid	Me	easurement is va	lid
	BACK BEAR	ING ® FR	ONT BEARING	BACK BEAR	ING 🛛 🔹 FR	ONT BEARING
CII	annel		Thickness (MIL)	Channel		Thickness (MIL)
1			169	7		168.3
2			170.1	8		169.8
3			168.7	9		168.5
4			169.5	10		168.8
	BASELINE	TEST	HISTORICAL	BASELINE	TEST	HISTORICAL
D	EVICE STATE	PUMP DATA	MEASUREMENT	DEVICE STATE	PUMP DATA	MEASUREMENT

4. TAKING MEASUREMENTS

a. Tap on the MEASUREMENT tab at the bottom of the screen. This screen will then display three measurement sub-tabs above the main row of tabs. Tap on the TEST tab.



- b. Tap on the "Measure" button. 1:35 ati LTE 49 Contract Peripherals Home θ **Measurement information** ~ Number of measurements 0 / 100 MEASURE BASELINE TEST HISTORICAL MEASUREMENT DEVICE STATE PUMP DATA
- c. The system will then measure all transducers and display the results. Additionally, the system will record and display:
 - i. The total number of measurements on reader.
 - ii. The date and time of the reading.
 - iii. The reader's battery voltage.
 - iv. The reader's temperature

	5:05		•11 LTE 20
<	Peripherals	Home	Θ
	Measuren	nent informa	tion ^
	Number of m	easurements	2 / 100
	Date & time	2025-04	-11, 5:05:27 PM
	Battery volta	ge	3.556 V
	Temperature		23.6875 °C
-			
		MEASURE	
	M	easurement is v	alid
	Me BACK BEAF	easurement is v	alid Ront bearing
CH	Me BACK BEAF	easurement is v RING	alid RONT BEARING Thickness (MIL)
CH	Me BACK BEAR iannel	easurement is v	RONT BEARING Thickness (MIL) 169.03
ch 1 2	Me BACK BEAR annel	easurement is v. RING ® F	alid RONT BEARING Thickness (MIL) 169.03 170.13
CH 1 2 3	Mi BACK BEAR annel	easurement is v	AIId RONT BEARING Thickness (MiL) 169.03 170.13 188.74
C⊨ 1 2 3 4	BACK BEAR	easurement is v	AIG RONT BEARING Thickness (MIL) 169.03 170.13 168.74 169.54
C⊨ 1 2 3 4	BACK BEAR annel BASELINE	TEST	Image: Cont BEARING Thickness (MIL) 168.03 170.13 166.74 169.54
CH 1 2 3 4	Ma BACK BEAR annel BASELINE EVICE STATE	TEST PUMP DATA	Image:



d. You can view readings for each bearing by tapping on the "BACK BEARING" or "FRONT BEARING" buttons.

	5:05		•11 LTE 20	5:05			•11 LTE 20
<	Peripherals	Home	θ	< Perip	herals	Home	θ
	Measuren	nent informat	ion ^	Mea	asurem	ent informat	ion ^
	Number of m	easurements	2 / 100	Nun	nber of mea	asurements	2 / 100
	Date & time	2025-04-1	11, 5:05:27 PM	Date	e & time	2025-04-1	11, 5:05:27 PM
	Battery volta	ge	3.556 V	Bat	tery voltage	e	3.556 V
	Temperature		23.6875 °C	Terr	perature		23.6875 °C
		MEASURE				MEASURE	
_	Me	easurement is va	lid		Mea	asurement is va	lid
	BACK BEAF		ONT BEARING	© BA	CK BEAR	NG 🕸 FR	ONT BEARING
c	hannel		Thickness (MIL)	Channel			Thickness (MIL)
1			169.03	7			168.31
2			170.13	8			169.8
3			168.74	9			168.5
4			169.54	10			168.81
	BASELINE	TEST	HISTORICAL	BASE	LINE	TEST	HISTORICAL
C	DEVICE STATE	PUMP DATA	MEASUREMENT	DEVICE	STATE	PUMP DATA	MEASUREMENT

4. VIEW AND EXPORT THE DATA

a. Tap on the MEASUREMENT tab at the bottom of the screen. This screen will then display three measurement sub-tabs above the main tabs. Tap on the HISTORIAL tab. The process of uploading historical data from the reader to the App could take a few moments.

1:36		at t	TE 48
C Peripherals	Home	Û	θ
Loading h	nistorical measureme	ents (33.33%)	
BASELINE	TEST	HISTOR	
DEVICE STATE	PUMP DATA	MEASURI	EMENT
		_	

b. When the data is loaded, the data for transducer 1 will be displayed.

1:36										att ute 4 🗈		
<	Peri	phera	als		Home			₫	θ)		
Channel Selector												
1	2	3	4	5	6	7	8	9	10	11	12	
Ind	Index Date				Thickness (MIL)			Wear (MIL)				
2025-04-10, 1:34:39 PM								169		Basel	ine	
1		2025- 1:35:4	-04-1 11 PM	0,		169			0		0	
2	2 2025-04-10, 1:36:20 PM				169.01			0.01				
3 2025-04-10, 1:36:22 PM					169			0				

BASELINE	TEST	HISTORICAL
DEVICE STATE	PUMP DATA	MEASUREMENT

c. The baseline reference will be displayed in a yellow bar, with the subsequent readings (or thickness) displayed below. Each reading will have the date and time it was taken, and its variance to the baseline in mils. This will enable you to quickly scan for any wear trends. Variances within +/- 0.3 mils are within the accuracy range of the system and do **not** indicate any wear on the bearing.

Peripherals	Home		ф Ө				
	Channel Selec	tor					
1 2 3 4	5 6 7	89	10	11	12		
Index Date	Thick	ness (MIL)	We	ear (M	IL)		
2025-04-10 1:34:39 PM),	169	E	Baseli	ne		
1 2025-04-10 1:35:41PM),	169			0		
2 2025-04-10 1:36:20 PM	р,	169.01		0.	01		
3 2025-04-10 1:36:22PM),	169			0		
BASELINE	TEST	н	ISTO	RICAL	-		
DEVICE STATE	PUMP DATA	м	ASUR	EME	NT		

d. Each transducer can be viewed by tapping on its number in the Channel Selector at the top of the screen.

1:36								•11 LTE 48				
Peripherals			Home			Ů	ф Ө					
			Cha	annel	nnel Selector							
1 2	3	4	5	6	7	8	9	10	11	12		
Index	Date				Thick	ness	(MIL)	W	/ear (M	AIL)		
	2025- 1:34:3	-04-1 89 PM	0,			1	68.5		Base	line		
1	1 2025-04-10, 1:35:41PM				168.5			0				
2	2 2025-04-10, 1:36:20 PM				168.52			0.02				
3	2025- 1:36:2	-04-1 22 PM	0,		168.49			-0.01				

e. To export the data as a *.csv file, tap on the

icon in the top right of the screen.

	1:30	6								LTE 4	18	
<	Peri	phera	als		Home			(也 9			
Channel Selector									\sim			
1	2	3	4	5	6	7	8	9	10	11	12	
Index Date				Thickness (MIL)				Wear (MIL)				
2025-04-10, 1:34:39 PM								169		Basel	ine	
1	2025-04-10, 1:35:41PM					169				0		
2		2025-04-10, 1:36:20 PM				169.01				0.01		
3		2025-04-10, 1:36:22 PM				169			0			

f. Your mobile device's file sharing options will be displayed at the bottom of the screen. You can then email the file or save the file on the mobile device.

1:37				.11	LTE 🛛	3
C Peripher	als	Home	0			
1 2 3	4 5	6 7 E	9	10	11	12
Index Date	W	/ear (N	11L)			
2025 1:34::	-04-10, 39 PM		168.9		Baseli	ine
1 2025 1 1:35:4	-04-10, 41 PM		168.9			0
2 2025 1:36:	-04-10, 20 PM		168.9	0		
3 2025	-04-10, 22 DM		168.9			0
basic Text D	-export-202 ocument - 2 KE	5-04-10_1	3/37/04	1		×
AirDrop	Messages	Mail		Notes	5	Rer
Сору					¢	
New Qu	ick Note				ш	
Save to	Files					
Edge					C	
Authent	icator				0	

g. The data file will include all the information from the PUMP DATA tab, the baseline, and all historical readings.

5. POWERING DOWN THE READER

- a. The reader will power down itself within 3 minutes of inactivity within the App, or when not connected to the App.
 - b. The reader can also be shut down manually. Tap on the Θ icon in the top right corner of the screen.

1:3		all LTE 48									
< Pe	riphera	als		Home			₫	Θ	$\overline{)}$		
Channel Selector											
1 2	3	4	5	6	7	8	9	10	11	12	
Index	Index Date					ness	(MIL)	Wear (MIL)			
	2025- 1:34:3	-04-1 39 PM	0,		168.9				Baseline		
1	2025- 1:35:4	-04-1 11PM	0,		168.9			0			
2	2 2025-04-10, 1:36:20 PM					168.9			0		
3	2025- 1:36:2	-04-1 22 PM	0,			1	68.9			0	

c. Tap on "Power management".

1:3	7		•III LTE 🕘				
< Per	ripherals I	Home 🖞 🤇					
	Chanr	Change Passwo	rd				
1 2	3 4 5 6	Device firmware	update 2				
Index	Date	Power managen) nent				
	2025-04-10, 1:34:39 PM	108.9	Baseiiné				
1	2025-04-10, 1:35:41 PM	168.9	0				
2	2025-04-10, 1:36:20 PM	168.9	0				
3	2025-04-10, 1:36:22 PM	168.9	0				





e. Close the App on your mobile device.

6. ADDITIONAL INFORMAITON AND SUPPORT

- a. If you require additional information or support, contact your Cardinal or Unifin sales representative.
- b. You can also reach out using the information listed below.



U4.10.1.3-1 R1 TecSonics™ App – User Instructions for TecSonics™ Pump with Reader

Rev	Details	Ву	Date
1	Updated App Icon	JWW	4/17/2025
0	Original Issue	JWW	4/12/2025