



# INSPIRE - 100

An Emergency Ventilator








TekMedika Pvt. Ltd.

INSPIRE-100 is a patent-pending ventilator design tailored for adult patients, providing comprehensive ventilatory support from initiation to weaning.

It features a user-friendly Human-Machine Interface with a clear front panel and advanced remote monitoring capabilities accessible via laptops, desktops, tablets, or mobile devices.

This device is particularly suited for facilities without access to compressed gas or oxygen pipelines and is built to withstand challenging environmental conditions.

INSPIRE-100 supports four commonly used ventilation modes: CMV, ACV, SIMV, and PSV. It offers a full range of breath parameters across all modes, ensuring complete assistance for patient-initiated breathing.

-  Unmatched Affordability
-  Unmatched Remote Monitoring via WiFi
-  Unmatched Ease-of-use
-  Works without Compressed Air Pipeline
-  Works with Oxygen Cylinder or Concentrator
-  Field Upgradeable
-  Complete Set of mainstream Parameters

# Intended Use

Adult Patients only

- ✓ Acute Respiratory Distress Syndrome (ARDS)
- ✓ Chronic Obstructive Pulmonary Disease (COPD)
- ✓ Obese Hypoventilation Symptoms (OHS)
- ✓ Cheyne-Stokes breathing (CSR/CSA)
- ✓ Neuromuscular Diseases
- ✓ Pneumonia
- ✓ Asthma
- ✓ Drug Overdose
- ✓ Snake Bites

# Technical Specs

Mode	Description
CMV	Continuous Mandatory
ACV	Synchronized Assist Control
SIMV	Synchronized Intermittent Mandatory
PSV (BiPAP)	Pressure Supported (BiPAP equivalent)

Volume Control Parameter	Range
Tidal Volume (ml)	200 - 600
Respiration Rate (bpm)	10 - 30
I:E Ratio	1:1 - 1:3
PEEP (cmH2O)	4 - 15
FiO2 (System Managed)	External

Pressure Support Parameter	Range
Support Pressure (cmH2O)	5 - 20
Flow Trigger Termination (%)	30 - 50

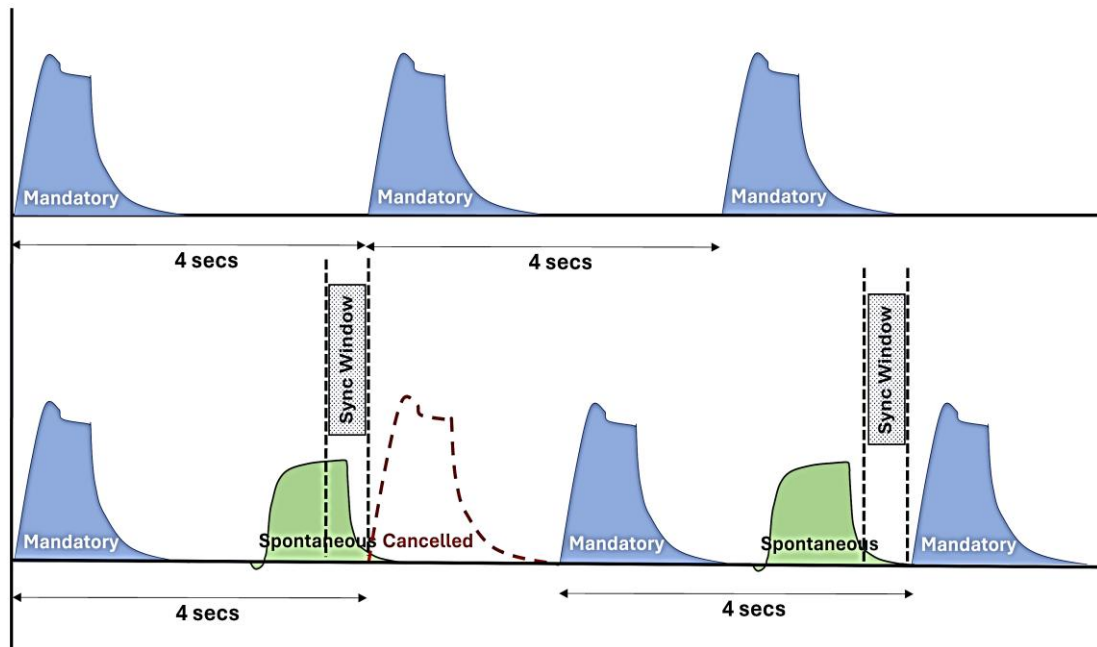
Full Set of ALARMS	
Max Pressure	Pressure Leak
Pressure Loss	Airway Blockage
Cough / Hiccups	System Temperature
Inconsistent Parameters	Extreme Parameters
Replace BVM	BVM Size
and many more ...	

Power Consumption 120W

# Breath Synchronization for Patient Comfort

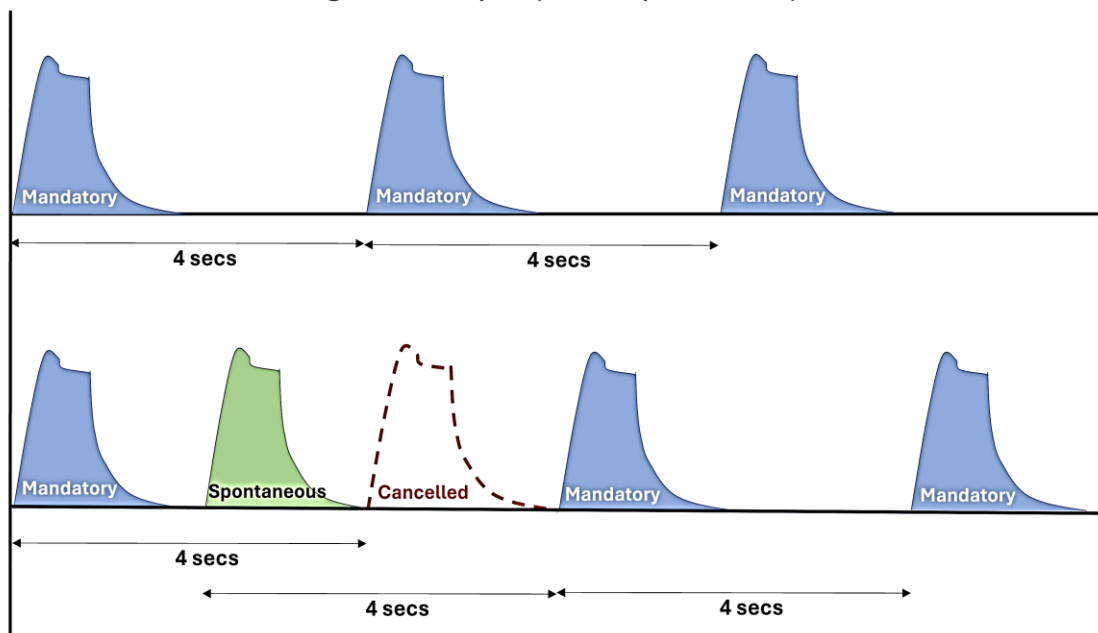
## Breath Synchronization in SIMV Mode

e.g. RR=15 bpm (4 secs per breath)



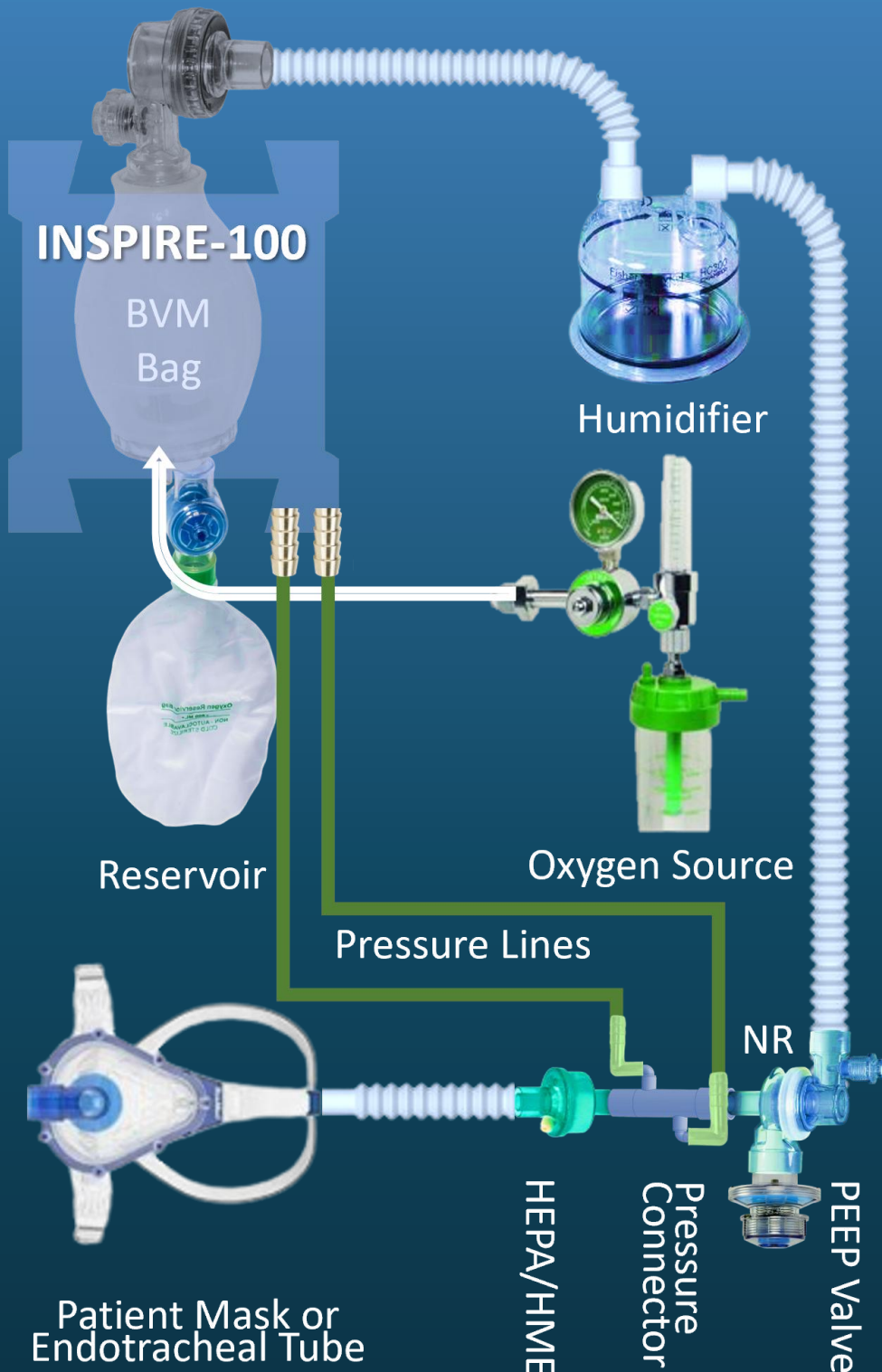
## Breath Synchronization in ACV Mode

e.g. RR=15 bpm (4 secs per breath)

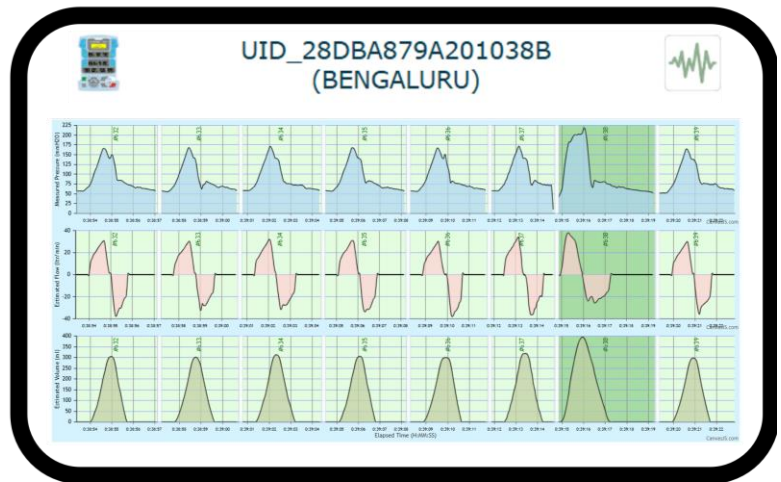
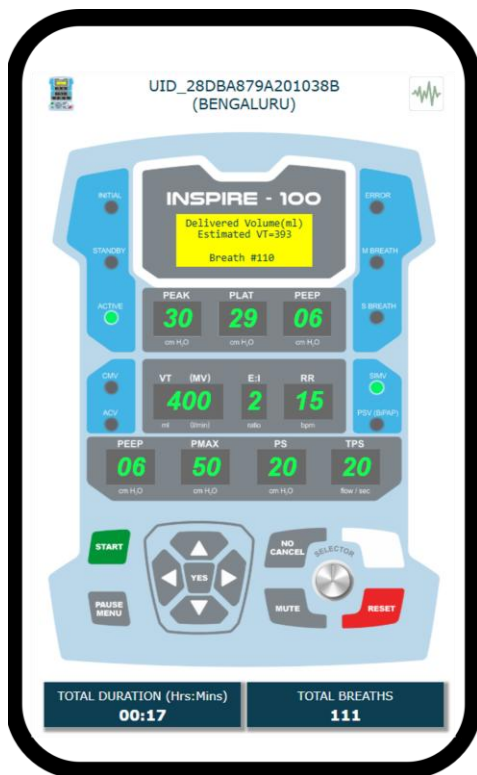


# Breathing Circuit

Simple, Off-the shelf, Single-limbed and compatible with Standard Accessories



# Remote Monitoring



- ✓ Accessible on Laptops & Mobile devices
- ✓ Search & Range Selection
- ✓ Snapshots View
- ✓ Waveforms View
- ✓ Charts View
- ✓ Statistics View
- ✓ Recording and Playback
- ✓ Multi-system Display

1

128

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Demo Long [09-05-2024 17:40:26]

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MATCH CRITERIA

((MODE\_SETTING == "SIMV") AND ((BREATH\_TYPE == "MANDATORY") AND ((TIDAL\_VOLUME < 250) OR (PEAK\_PRESSURE > 30))))

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MODE\_SETTING

EQ

SIMV

AND

📝

BREATH\_TYPE

EQ

MANDATORY

AND

📝

TIDAL\_VOLUME

LT

250

ml

OR

📝

PEAK\_PRESSURE

GT

30

cmH2O

CLEAR

EXPORT

IMPORT

SEARCH

SEARCH RESULTS in Breath number range [1, 128]

Range	Matching Breaths				Parameter Values			
Select	Number	Date	Time	MODE_SETTING	BREATH_TYPE	TIDAL_VOLUME	PEAK_PRESSURE	
<input type="checkbox"/>	9	09-05-2024	17:40:56	SIMV	MANDATORY	229	37	
<input type="checkbox"/>	10	09-05-2024	17:41:00	SIMV	MANDATORY	252	34	
<input type="checkbox"/>	11	09-05-2024	17:41:04	SIMV	MANDATORY	278	36	
<input type="checkbox"/>	43	09-05-2024	17:43:31	SIMV	MANDATORY	216	10	
<input type="checkbox"/>	44	09-05-2024	17:43:35	SIMV	MANDATORY	216	10	
<input type="checkbox"/>	46	09-05-2024	17:43:43	SIMV	MANDATORY	205	22	
<input type="checkbox"/>	47	09-05-2024	17:43:47	SIMV	MANDATORY	227	24	
<input type="checkbox"/>	48	09-05-2024	17:43:51	SIMV	MANDATORY	234	23	

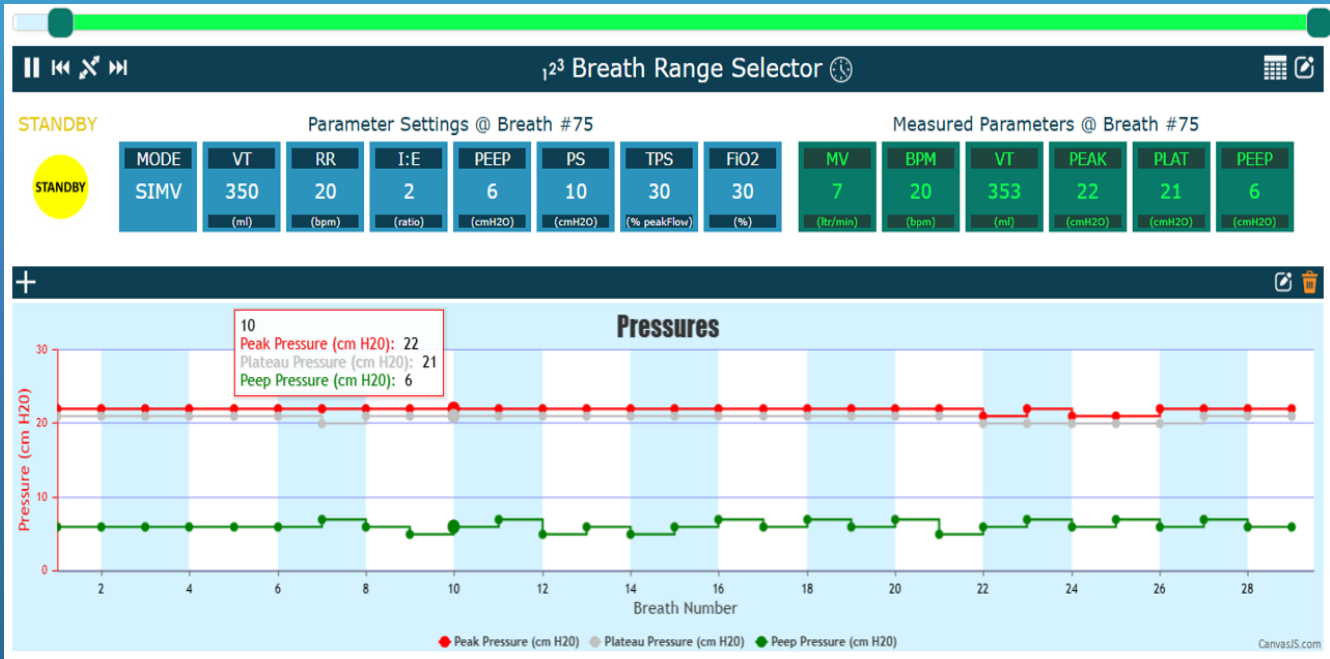
8 Matches: End of Search

The figure shows a control interface for a breath range selector. It features a horizontal bar with a green segment and a dark blue segment. Below the bar is a control bar with icons for play, stop, and settings. The text "123 Breath Range Selector" is displayed in the center of the control bar.

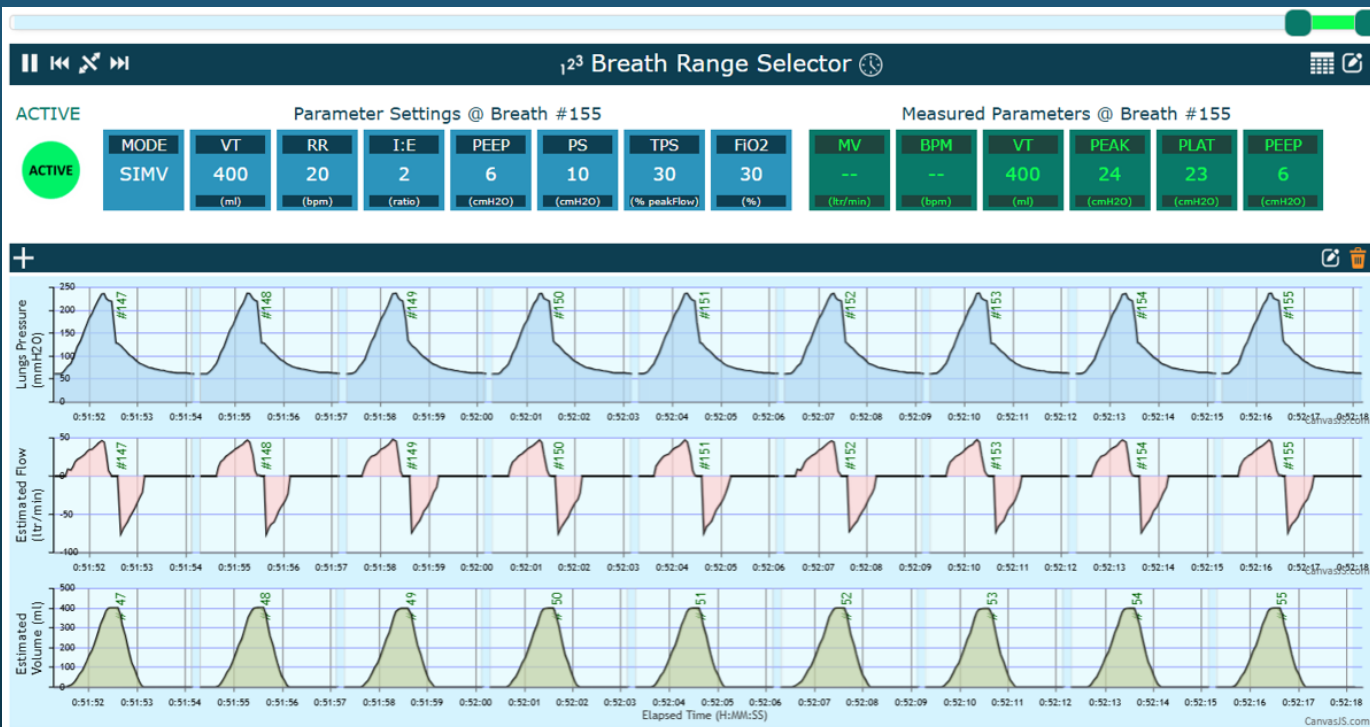
	Breath Number	Breath Start Time		
		Day	Date	Time
From	520	Fri	26-Apr-2024	12:20:05
Upto	579	Fri	26-Apr-2024	12:22:58
SPAN	60	00:02:53		



# Charts for All Parameters



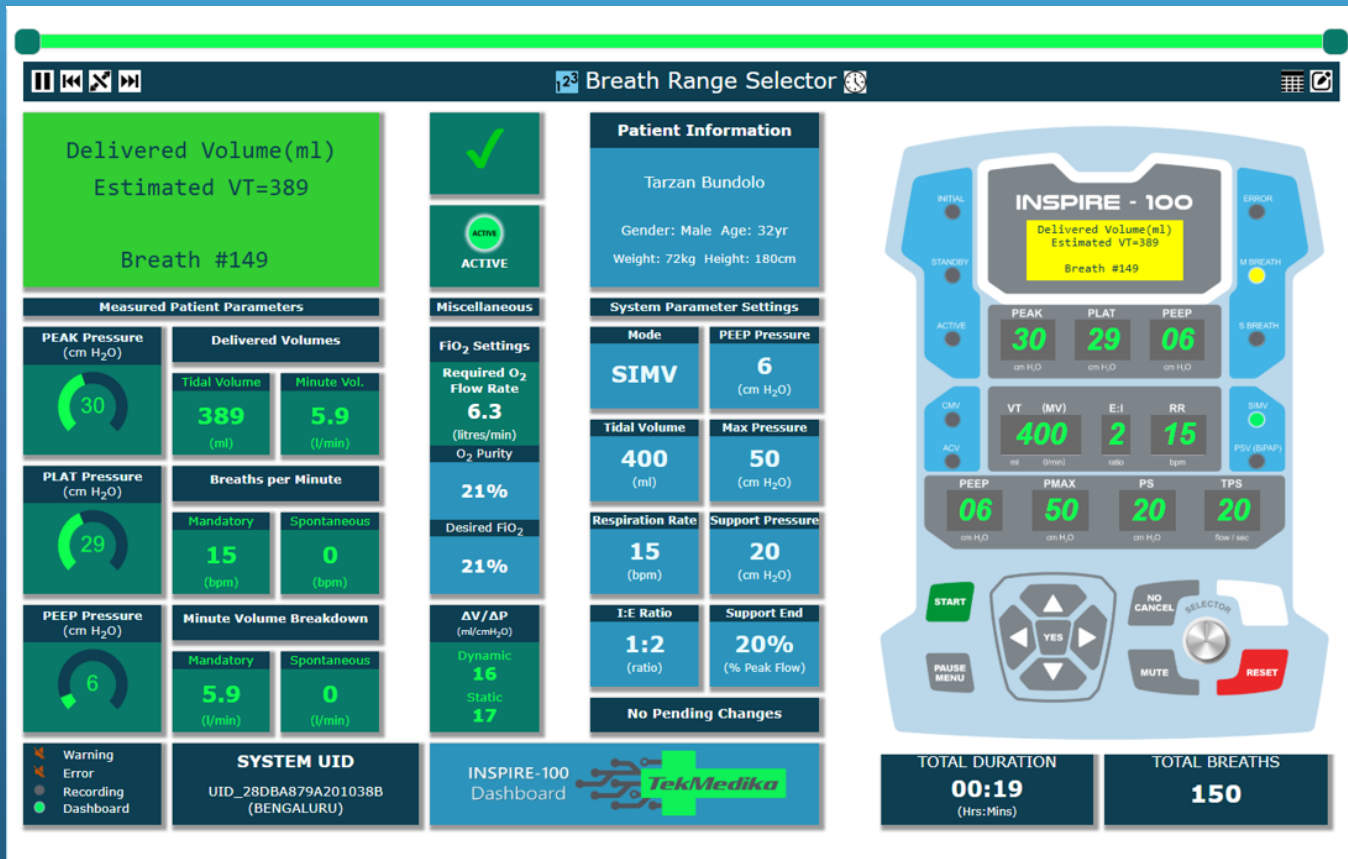
# Pressure & Flow Waveforms



Normal Breaths			Maintenance Breaths			Exception Breaths	
Mandatory	Spontaneous	Spontaneous	Mandatory	PSV Mode	Spontaneous	Abnormal	Error
Volume Control	Volume Control	Pressure Control	Volume Control	Backup Breath	Volume Control	Seeming Breath	Causing Breath

Broken lines indicate few missing datapoints due to internet packet loss

# Snapshots for each Breath



## Detailed Statistics

Parameters Measured

Parameter	Units	Min	Max	Avg
Peak Pressure	cmH2O	21	26	25.7
Plateau Pressure	cmH2O	19	24	23.7
PEEP Pressure	cmH2O	3	6	5.0
Tidal Volume Delivered	ml	284	966	311.9
Total Minute Volume	litres/min	0	5.8	4.3
Mandatory Minute Volume	litres/min	0	4.6	4.1
Spontaneous Minute Volume	litres/min	0	1.9	0.2
Mandatory BPM	bpm	0	15	13.8
Spontaneous BPM	bpm	0	2	0.2
FIO2	%	35	35	35.0
Static ΔV/ΔP	ml/cmH2O	0	18	15.9
Dynamic ΔV/ΔP	ml/cmH2O	0	16	14.4
System Temperature	degC	35	35	35.0

Miscellaneous Information

Information	Value
Number of Breaths	120
Number of Mandatory Breaths	118
Number of Spontaneous Breaths	2
Number of Maintenance Breaths	0
Number of CMV Spontaneous Breaths	0
Number of Missing Intervals (Packet loss)	0
Number of WiFi Disconnects	0
Number of Notifications	0
Number of Warnings	0
Number of Errors	0

Static Information

Patient Name: James Bond007  
Gender: Male Age: 42yr  
Weight: 76kg Height: 185cm

System Location: Bengaluru  
Location Altitude: 3000 ft  
Location Atmospheric Pressure: 930 cmH2O  
Location Atmospheric Oxygen: 19%

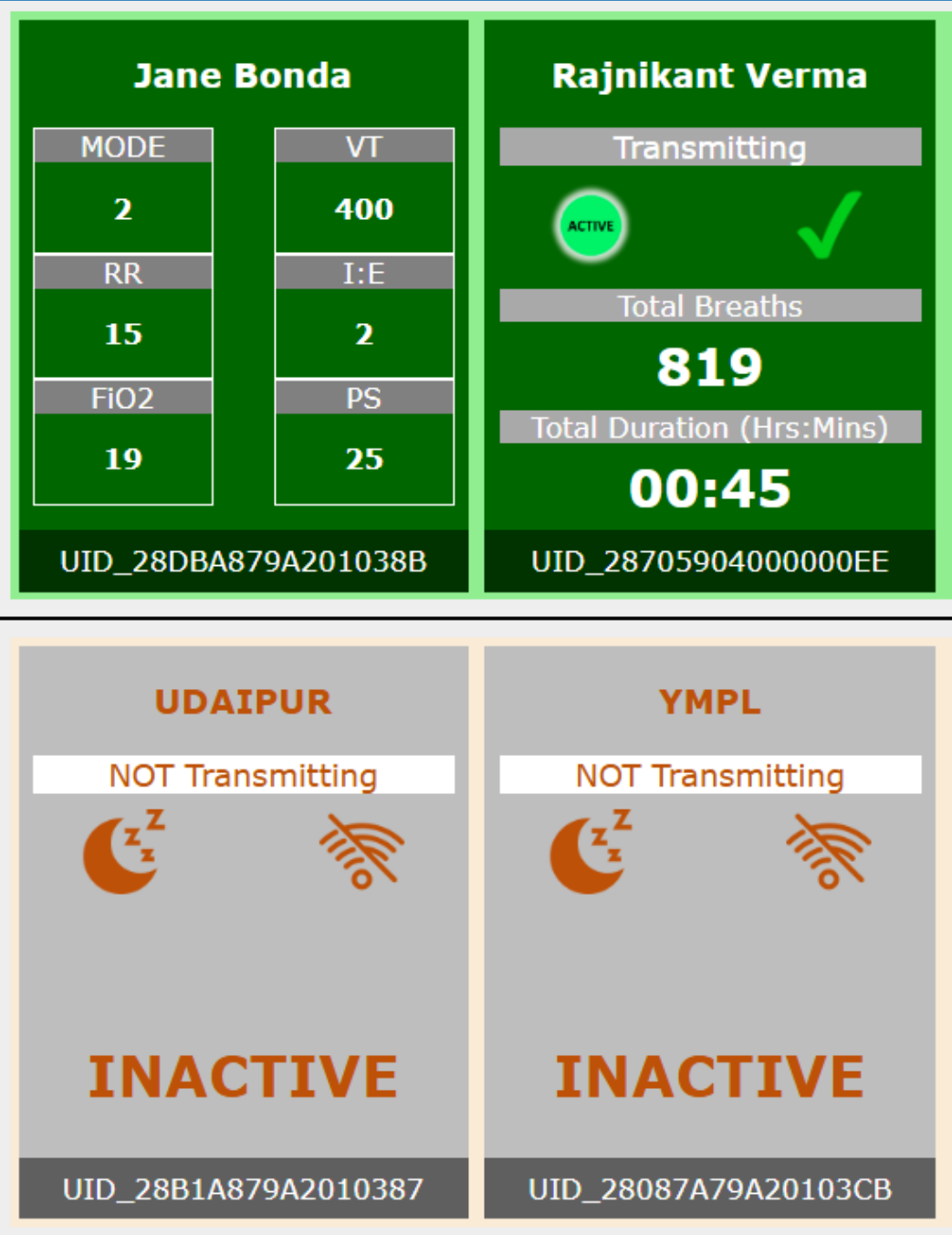
Parameter Settings Used

Parameter	Units	Values
Ventilation Mode	mode	SIMV
Tidal Volume	ml	300
Minute Volume	l/min	2
Respiration Rate	bpm	15
I:E Ratio	ratio	1:2
PEEP Pressure	cmH2O	5
Maximum Pressure	cmH2O	85
Support Pressure	cmH2O	20
Support Pressure Termination	%flow,secs	1.5
FIO2	%	35

Sequence of Parameter Combinations

MODE	VT/MV	RR	I:E	PEEP	PMAX	PS	TPS	FIO2	#BREATHS	Before#
SIMV	300	15	1:2	5	85	20	1.5	35	119	2

# Multi-system Monitoring For Nurses Station



A summary state of all systems can be displayed on one screen. Each system is shown as a tile.



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