

Star 50

Multiparameter Monitor

Technical Specifications

Designed to meet the requirements of following international standards:

Class 1, Type CF of IEC 60601-1
EMI/EMC requirements as per IEC 60601-1-2
ECG requirements as per AAMI EC-13

Display

Type : High Resolution Colour TFT
size : 10.4" (diagonally)
Resolution : 640 x 480 dots
Excellent viewing from distance and angle.
Waveform field : Configurable screen for max. four waveforms (ECG, SpO₂, Resp, Invasive BP or CO₂). Possible to view any 4 ECG leads, if 5-lead ECG cable is connected (5-lead version)
Digital field : HR/PR, ST, RR, SpO₂, T1, T2 or ΔT, IBP1, IBP2 & NIBP (Sys., Dia., MN), EtCO₂ and FiCO₂. On screen display of alarm limits/status.
Trace speed : 12.5, 25 or 50 mm/sec for ECG,
Invasive pressure waveforms and Plethysmograph.
6.25, 12.5 or 25 mm/sec for Respiration & CO₂.

Optical Encoder / Keys

Optical encoder : Rapid access to all the functions and setting of parameters through single knob.
Hot keys : Quick action hard keys for Alarm mute,
NIBP Start / stop, IBP Zero, Freeze and Return to the main screen.

3/5 lead ECG monitoring

Automatic detection of 3 or 5lead ECG cable. Display of I, II, III with 3-lead cable and I, II, III, aVR, aVL, aVF and V with 5-lead cable.
In-built cautery and defibrillator protection.
HR range : 20 to 270 bpm.
Programmable arrhythmia detection (Bradycardia, Tachycardia, Asystole, Irregular & Skipped beat)

Respiration

Impedance pneumography principle.
Display of respiration waveform with respiration rate.
Respiration range : 4 to 150 bpm
User selectable apnoea alarm delay : 5 – 90sec. (steps of 5 sec.)

Temperature

Simultaneous monitoring of two temperatures. Display of T1 and T2 or ΔT (if difference between T1 & T2 is less than 9.9°C)
Temperature range: 12°C to 43°C

Pulse Oximetry

Pitch variation with change in oxygen saturation.
SpO₂ range: 0 - 100%
Display of pulse strength, plethysmograph and SpO₂ values.
Accuracy : 100 to 70 % (+/- 2 digits), 69 to 50 % (+/- 3 digits),
49 to 0 % (unspecified)
Accuracy in neonatal monitoring 100 to 70% (+/- 3 digits)

Invasive Blood Pressure

Simultaneous monitoring of 2 channels.
Display of Systolic, Diastolic and Mean pressure with respective waveform of IBP1 and IBP2. Individual and common channel zeroing.
Labeling facility with automatic limits/gain/colour setting.
Pressure channel overlapping option available.
Range : -40 to 300mmHg.
IBP scale : 300, 150, 60, 30, 20 & 10mmHg.

Non-Invasive Blood Pressure

Oscillometric Principle, Display of Systolic, Diastolic & Mean pressure
Modes : Manual, STAT (5min), Automatic (interval 2 min. to 90 min.)
Range : 20 to 255mmHg.
Accuracy : +/-5 mmHg

Capnography

Side stream Capnography with display of CO₂ waveform and digital values of EtCO₂ and FiCO₂.
CO₂ gets priority for calculating Respiration rate.
Gain 20, 40, 60 & 80 mmHg. Flow rate : 140 ml/min. (+20 / -10)
CO₂ measurement is possible in mmHg / Kpa / Vol%
EtCO₂ range : 0 – 80 mmHg, FiCO₂ range : 2 – 20 mmHg
RR Range 0 - 150
Apnoea alarm delay : 30 sec.

Alarms

Alarm setting for all parameters.
Patient alarm : RED flashing with audio and message indicator
Equipment alarm : YELLOW flashing with audio and message indicator. Alarm auto-set facility provided.
Alarm suspend : Continuous YELLOW
Auto setting of alarm for HR/PR, SpO₂, IBP1, IBP2, EtCO₂, FiCO₂, Respiration and Temperature.
Re-alarm facility : 3 min. for acknowledged alarm

Trends

24 hr. of Graphical and Tabular trend for HR/PR, SpO₂, IBP1, IBP2, EtCO₂, FiCO₂, Respiration & Temperature .
NIBP trend : 240 readings tabular
Alarm Recall : Last 16 alarm events with date, time and message.
2hr. zoom for graphical trends with mark, record and print facility.

Recording (Optional)

Optional external dual channel thermal recorder for recording two waveforms (selectable) with numerical data and alarm status.
NIBP and tabular trend recording with patient information.
Direct / Delayed / Continuous modes of recording.
Record On Alarm facility (selectable)

General

Dimension : 202 x 310 x 230 mm (H x W x D)
Weight : 7.5 Kg. with in-built batteries.
Direct interface possible with *Skylines* - L&T's colour central station.
Slave display option possible

Power Supply

Universal power : 95-265V AC, 50/60Hz
Power ratings : 40W
Battery type : 12V 4Ah lead acid
Operating time : In-built rechargeable batteries for 30min. of continuous operation under full charge condition (fully loaded, NIBP 2min. & recorder ON for 2min..)
Charging time : 12 hrs. (typical) Ambulatory monitoring possible with car battery interface
External battery : 12 V 2A(min)

Made in India by



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Technological upgradation is a continuous process. Specifications and availability of the products mentioned in the leaflet are subject to change without notice. All the accessories and modules mentioned in the leaflet are optional and are not a part of the standard scope of supply, unless otherwise specified in the written quotation from L&T.



LARSEN & TOUBRO LIMITED

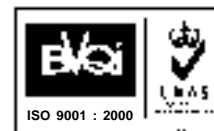
Star 50



An upgradable big screen TFT multiparameter monitor.....
which grows with your needs.

Salient features

- Upgradable 4 channel monitor with in-built colour 10.4" TFT display
- Optional external sidestream capnography
- 24 hr. graphical and tabular trends with zoom facility (non-volatile)
- Graded and colour coded alarms with auto-limit settings (2 stages)
- Critical alarm review page
- Optional dual channel thermal array recorder compatibility
- Interface with *Skylines* - L&T's colour central monitoring system



MED/STAR 50/5000/03.04/REV.0

Best in class... Built with care

ACCESSORIES & SCREEN FORMATS

L&T's *Star 50*, an upgradable, four channel monitor covers up to seven parameters: ECG, Respiration, Dual Temperature, NIBP, SpO₂, Dual IBP and Capnography. Future upgrades includes ST segment analysis & cardiac output.

The user-friendly monitor offers wide flexibility of configurations & screen formats. Accuracy and reliable performance makes *Star 50* a perfect choice for all clinical applications.

Star 50 can be used for adults, paediatric and neonates in various departments for various applications. *Star 50* is light and portable and can be used as a transport or ambulatory monitor due to its in-built and external battery facility.

It is also provided with an in-built demonstration mode for learning and demonstration. It has a facility of optional external dual channel thermal array recorder.

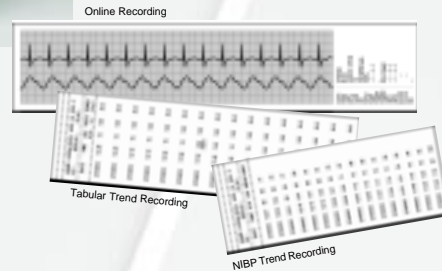
Star 50 confirms to IEC safety standards and AAMI standards.



Sidestream Capnography (optional) for monitoring EtCO₂ & FICO₂ with Respiration



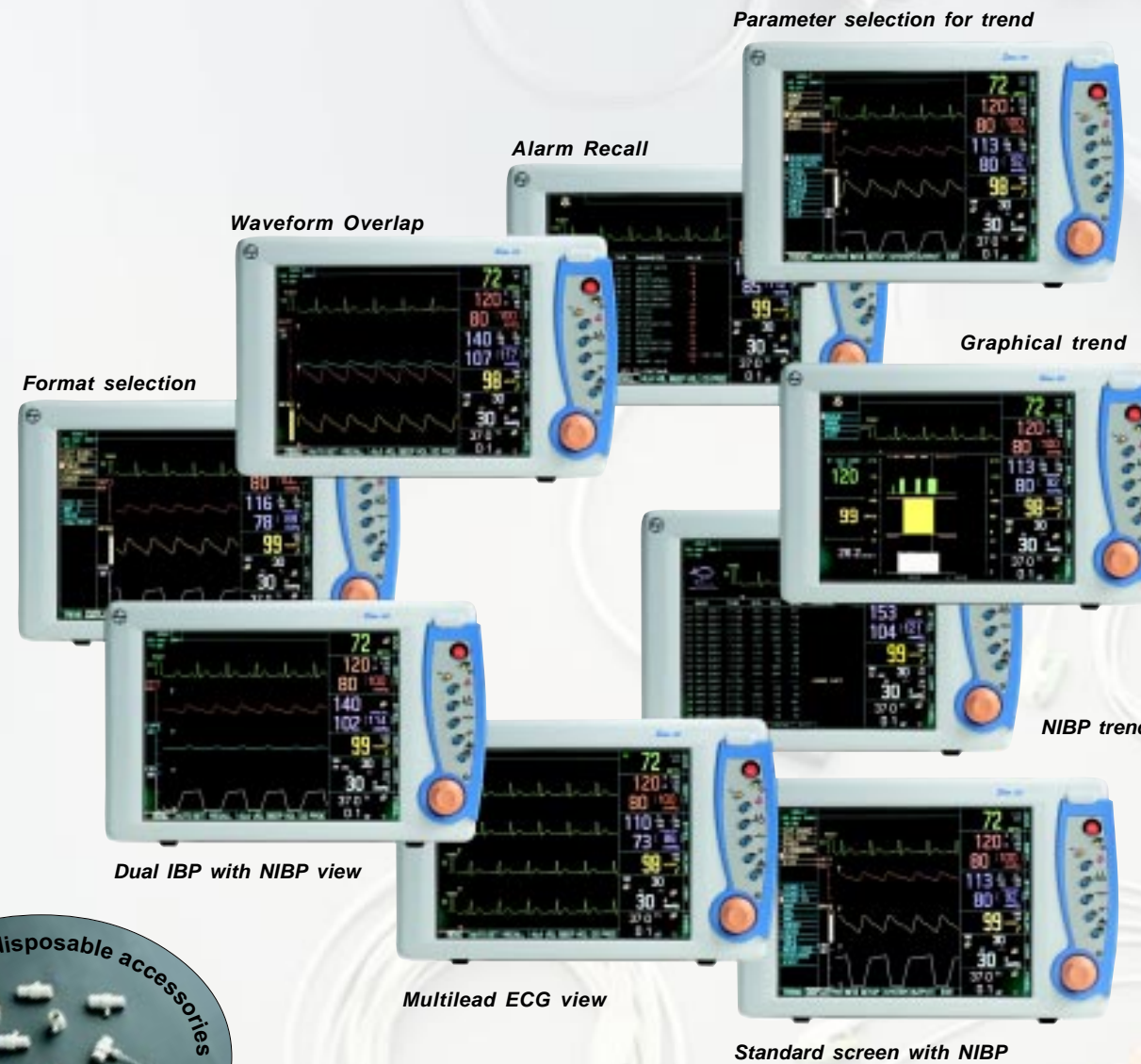
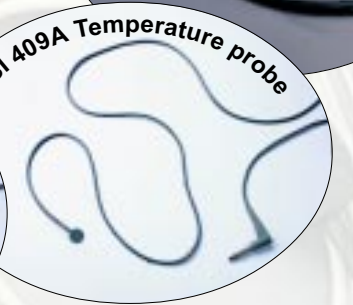
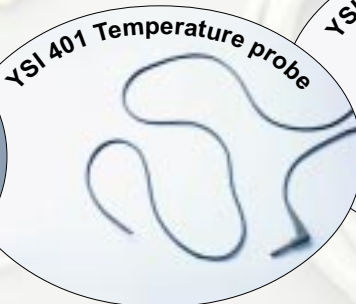
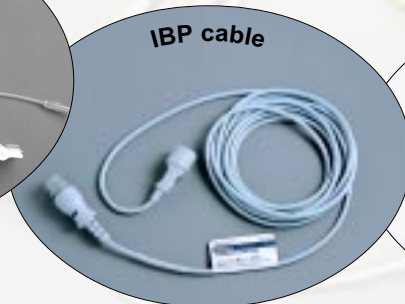
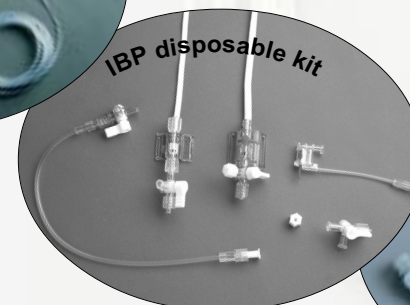
Dual channel thermal array recorder for recording on-line details & tabular trends



Star 50 with slave display option

Model	ECG	Resp.	Dual Temp.	NIBP	SpO ₂	Dual IBP
ERT	•	•	•	•	•	•
ERTN	•	•	•	•	•	•
ERTS	•	•	•	•	•	•
ERTNS	•	•	•	•	•	•
ERT2P	•	•	•	•	•	•
ERTNS2P	•	•	•	•	•	•

External capnography & external thermal recorder upgradation option is available in all the models.



Patient Monitoring System