



DFM 600

Defibrillator/Monitor

Standard Configuration

ECG, RESP, Thermal Recorder

Optional

12-Lead ECG, NIBP, TEMP, PR, EtCO₂, IBP, SPO₂

Safety Standards

ISO 13485 2003 approved, CE marking according to MDD93/42/EEC

Physical Characteristics

Size: 323 mm × 277 mm × 338 mm
 Weight with battery: 7.21 kg
 Screen Size: 8.4" TFT Screen
 Resolution: 800 × 600
 Waveforms: 4 waveforms
 High contrast feature: Yes

Operation Environment

Temperature: 0~45°C
 Storage: -30°C~ 70°C
 Atmospheric pressure: 700hPa -1060hPa
 Humidity: 10%~95%, non-condensation
 Height: Operating/Storage -381m ± 4575 m
 Shock and Vibration: 21.102, Meets the ISO9919 standards. (for transport)
 Impact: Meets the EN 1789 standards. (for ground ambulance)
 Free Fall: Meets the EN 1789 standards. (Fall height 0.75m)
 EMC: Meets IEC60601-1-2 2
 Safety: Meets EN/IEC 60601-1
 IP Rating: IP44
 Power requirement: 100-240 V~, 50/60 Hz±1 Hz
 Battery type: Rechargeable Lithium-ion battery
 Battery capacity: 7500 mAh, d.c.14.8 V
 Battery number: Max 2
 Battery recharging Time: Less than 2 hours to 80% and less than 3 hours to 100% with equipment power off
 Battery backup: Monitoring Mode: 12 hours;
 (Two new, fully charged battery) Defib Mode: 420 times (360J charge at intervals of 1 minute without recording);
 (detachable, ntegrated battery charger) Pacing Mode: 9 hours (50 Ω load impedance,
 Pacing rate: 80 bpm,
 Pacing output: 60 mA, without recording)
 Brightness: Manual from 1 to 10

Indicators

Two alarm indicators
 Power indicator
 Maintenance indicator
 Maintain indicator
 Error indicator
 QRS beep and alarm sound
 Operating key sound
 AUTO SELF TEST & USER TEST for all functions

Interface

USB interface
 RJ45 interface
 AC power input
 VGA interface
 Multi-functional connector





Data storage

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| Alarm Event: | 200 groups |
| Patient profiles: | 1000 groups |
| Wave Review: | 48 hours |
| NIBP Review: | 2000 groups |
| Trend Graph: | 160 hours |
| Trend Table: | 160 hours |
| ECG report: | 500 cases of 12-lead ECG diagnosis report (Up to 5 case reports per patient) |
| Voice recording: | Max 240 min in total; (Up to 60 min for each patient) |
| Marked events: | Available |
| Power-off storage: | Yes |
| Alarm: | Yes |
| Network: | Connected to Central Monitoring System by hardwire/wireless |
| Exporting Data: | Data can be exported via USB flash memory or It can be transferred to PC via Wi-Fi connection. Supporting HL7 protocol DFM600, the hospital's HIS can transfer data to the system |

Recorder

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| Type: | Built-in; Thermal array |
| Channel: | 4 channel waveforms |
| Real-time recording: | 3s, 5s, 8s, 16s, 32s, auto |
| Speed: | 6,25/12,5/25/50 mm/s |
| Record width: | 80 mm |
| Resolution: | 8 dot/mm (Horizontal and vertical) |
| Background grid: | Configurable |
| External printer: | Yes |

Defibrillator

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| Working mode: | Manual mode, AED mode, Synchronized defibrillation |
| Waveform: | Biphasic Truncated Exponential (360 joule BTE) waveform that can be automatically adjusted according to patient impedance |
| Defibrillation method: | External defibrillation and internal defibrillation |
| Shock application: | External paddles, multifunction electrode pads, internal paddles |

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| Internal tray options: | Yes. There are 5 different sized paddle options. |
| Paddle contact indicator: | Yes. in 3 different colors |
| External defibrillation external paddles: | Supports charging, shock, energy selection, charge indicator working functions. |
| Charge Time: (Battery power) | Less than 5 seconds to 200 Joules with a new, fully charged battery Less than 8 seconds to 360 Joules with a new, fully charged battery |
| Power ON to charge upto 360J | <25secs |
| Energy accuracy: | $\pm 1.5J$ or $\pm 10\%$ of setting, whichever is higher, into $50\Omega \pm 2J$ or 15% of setting, whichever is higher, into 25Ω , 75Ω , 100Ω , 125Ω , 150Ω , 175Ω , |
| Patient Impedance Range: | $25\sim 300\Omega$ (External defibrillation); $15\sim 250\Omega$ (Internal defibrillation) |
| Defibrillation proof: | Type CF: ECG, RESP, SpO ₂ , NIBP, IBP, TEMP, PR; Type BF: CO ₂ |

Manual Defibrillator Mode

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| External defibrillation: | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 30, 50, 70, 100, 120, 150, 170, 200, 220, 250, 270, 300, 360J |
| Internal defibrillation: | 2, 5, 10, 20, 30, 50 J |
| Synchronized cardioversion: | Energy transfer begins within 60 ms of the QRS peak; Energy transfer remote synchronization starts within 25 ms from the signal |
| Automatic discharge time: | 30 sec, 60 sec, 90 sec, 120 sec user selectable. |
| Energy selection: | It can be made using the buttons on the device and spoon and the rotary knob. |

AED

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| Output Energy: | User configurable |
| AED Shock Series: | Configurable |
| CPR Metronome feature: | Guides the user audibly and visually. |
| CPR Duration: | 30 sec, 60 sec, 90 sec, 120 sec, 150 sec, 180 sec, by user |





Noninvasive Pacing

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| Waveform: | Monophasic square wave pulse |
| Pulse Width: | 20 ms |
| Accuracy: | ±5% |
| Pacing Mode: | Demand or fixed |
| Pacing rate: | 40 bpm to 170 bpm |
| Accuracy: | ±1 bpm or ±1.5% (whichever is higher) |
| Pacing output: | 0 mA to 200 mA |
| Accuracy: | ±5% or ±5 mA, whichever is higher |
| 4:1 pacing: | Pacing pulse frequency reduced by factor of 4 when activated |

Monitoring ECG

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| Lead Type: | 3 lead ECG, 5 lead ECG, 12 leads ECG, AUTO and thru' AED pads & paddless |
| Lead selection: | 12-Lead I; II; III; aVR; aVL; aVF; V1~V6 5-lead: I; II; III; aVR; aVL; aVF; V 3-lead: I; II; III |
| Multi-lead synchronization analysis: | Available ECG size: Auto, 1.25 mm/mV (×0.125), 2.5 mm/mV (×0.25), 5 mm/mV (×0.5), 10 mm/mV (×1), 20 mm/mV (×2), 40 mm/mV (×4), Less than ±5% |
| Accuracy: | 625mm/s, 125mm/s, 25mm/s, 50mm/s |
| Sweep speed: | Less than ±10% Heart Rate |
| Accuracy: | |
| Measurement & alarm range: | Adult: 15~300bpm Pediatric/Neonate: 15~350 bpm |
| Resolution: | 1 bpm |
| Accuracy: | ±1% or ±1bpm (whichever is higher) |
| Bandwidth: | MON: 0.5~40 Hz DIA: 0.05~150 Hz Treat: 1~20 Hz ST: 0.05~40 Hz |
| CMRR: | MON: >105 dB DIA: >90 dB Treat: >105 dB ST: >105 dB |
| Input Impedance: | ≥5 MΩ |
| Input signal range: | ±8 mV |
| HR trigger value: | 200 μV |
| Lead off detection current: | Measuring electrode: <0.1 μA Driving electrode: <1 μA Lead fault alarm |
| Pacemaker pulse suppression switch: | Manual selection when the pacemaker is turned on |
| Analog output: | Magnification: 1:1000; Accuracy: ±5% Bandwidth: 0.5 Hz~40 Hz Delay: ≤35 ms |
| ST Detection: | -2.0 mV~+2.0 mV |
| Resolution: | 0.01 mV |
| Accuracy: | -0.8 mV ~ +0.8 mV: ±0.02 mV or ±10%; Others: Unspecified |

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| System noise: | Less than 25 μ V |
| Calibration voltage: | 1 mV; |
| Calibration signal: | Can draw 1 mV calibration signal |
| Accuracy: | \pm 5% |
| Arrhythmia Analysis: | 26 Types |
| Pacemaker detection: | Detectable |
| Multiview arrhythmia feature: | Available |

Defibrillation ECG

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|---------------------------------------|--|
| Lead Type: | Single lead ECG |
| Heart Rate measurement & alarm range: | Adult: 15~300 bpm Pediatric/Neonate: 15~350 bpm |
| Resolution: | 1 bpm |
| Accuracy: | \pm 1% or \pm 1 bpm (whichever is higher) |
| Bandwidth: | Defib: 1~20 Hz |
| CMRR: | Defib: >105 dB |
| Input Impedance: | \geq 5 M Ω |
| Input signal range: | \pm 8 mV |
| Wave tracking time: | Post-defibrillation ECG display time maximum 3 seconds |
| HR trigger value | 200 μ V |
| Arrhythmia Analysis: | 5 Types |

Respiration

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| Method: | RA-LL Impedance Method |
| RR measurement range: | Adult: 0~120 bpm Pediatric/Neonate: 0~150 bpm |
| Accuracy: | 7~150 rpm: \pm 2 rpm or \pm 2% (whichever is greater) 0~6 rpm: unspecified |
| Apnea Alarm: | Adult: 10s~60s Ped/Neo: 10s~40s |
| Accuracy: | \pm 5s |
| Alarm: | Audible and visual alarm; alarm events reviewable |

NIBP

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| Method | Automatic oscillometric |
| Work mode: | Manual / Automatic/Continuous |
| Measurement Time: | Adjustable (1~720min) |
| Maximum measurement time: | Adu/Ped: 120s; Neo: 85s |
| Measurement Unit: | mmHg / kPa selectable |
| Measurement types: | Systolic, Diastolic, Mean |
| Range of systolic pressure: | Adult Mode: 40~270 mmHg Pediatric Mode: 40~200 mmHg Neonate Mode 40~135 mmHg |
| Range of diastolic pressure: | Adult Mode: 10~215 mmHg Pediatric Mode: 10~150 mmHg Neonate Mode 10~100 mmHg |
| Range of mean pressure: | Adult Mode: 20~235 mmHg Pediatric Mode: 20~165 mmHg Neonate Mode 20~110 mmHg |
| Over pressure protection: | Both Hardware and software over pressure protection |
| Accuracy: | \pm 3% or \pm 3 bpm, whichever is greater |
| Resolution: | 1 bpm |
| Alarm: | Systolic, Diastolic, Mean PR form |
| NIBP: | 20~300 bpm |

Nellcor SpO₂

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|-----------------------|---|
| Measurement range: | 0~100% |
| Resolution: | 1% |
| Accuracy: | \pm 2% (70~100%, Adu/Ped, motionless) \pm 3% (70~100%, Neo, motionless) 1~69% unspecified |
| Alarm range: | 20~100% |
| PR Measurement Range: | 20~300 bpm |
| Resolution: | 1 bpm |
| Accuracy: | \pm 3 bpm (20~250 bpm) Unspecified (251~300 bpm) |
| Alarm range: | 20~350 bpm |

Masimo SpO₂

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|----------------------------|--|
| Measurement & alarm range: | 1~100% |
| Resolution: | 1% |
| Accuracy: | \pm 2% (70~100%, Ped/Adu, non-motion) \pm 3% (70~100%, Neo, motionless); 1~69% unspecified |
| Alarm range | 1~100% |

PR

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|-----------------------|---|
| PR Measurement Range: | 25~240 bpm |
| Resolution: | 1 bpm |
| Accuracy: | \pm 3% (non-motion) \pm 5% (in motion); |
| Alarm range: | 20~350 bpm |
| PI value: Resolution: | 0.02~20% 0.01% (0.02%~9.99%) 0.1% (10.0%~20.0%) |
| Accuracy: | Unspecified |
| SIQ: | Available |

Okuman SpO₂

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|----------------------------|--|
| Measurement & alarm range: | 0~100% |
| Resolution: | 1% |
| Accuracy: | \pm 2% (70~100%, Ped/Adu, non-motion) \pm 3% (70~100%, Neo, non-motion); 1~69% unspecified |

PR

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|-----------------------|---|
| PR Measurement Range: | 20~300 bpm |
| Resolution: | 1 bpm |
| Accuracy: | \pm 2 bpm |
| Alarm range: | 1~100% |
| PI value: | 0.05~20% |
| Resolution: | 0.01% (0.05%~9.99%) 0.1% (10.0%~20.0%) |
| Accuracy: | Unspecified |
| SIQ: | Available |

Temperature (Dual Channel)

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|----------------------------|---|
| Measurement & alarm range: | 0~50°C |
| TEMP sensor: | Standard configuration- skin TEMP sensor |
| Resolution: | 0.1°C |
| Accuracy: | \pm 0.1°C (except sensor error) |
| Channel type: | T1, T2, TD (Temperature Difference) |

MASIMO EtCO₂ (Sidestream)

Measurement range: 0~190 mmHg, 0~25% (at 760 mmHg)
 Accuracy: ± (2.25 mmHg +4% of reading)
 Resolution: 1 mmHg
 awRR range: 0~150 rpm
 awRR accuracy: ±1 rpm
 Response time: <240 msec (10% to 90%)
 Delay time: <2s

Respironics EtCO₂ (Sidestream)

Measurement range: 0~150 mmHg, 0to 25% (at 760 mmHg)
 Accuracy: ± 2 mmHg (0 - 40 mmHg)
 ± 5% of reading (41 - 70 mmHg)
 ± 8% of reading (71 -100 mmHg)
 ±10% of reading (101~150 mmHg)
 Resolution: 1 mmHg
 awRR range: 0~150 rpm
 awRR accuracy: ±1 rpm
 Response time: <240 msec (10% to 90%)
 Delay time: <2s

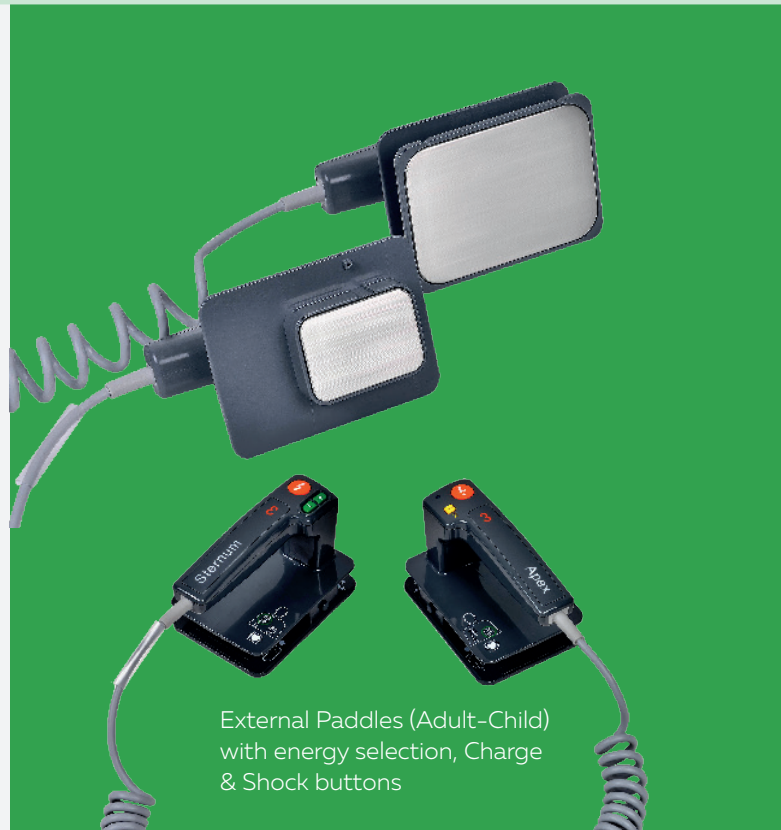
IBP

Channel: 2 Channels
 Measured Pressure: ART, PA, CVP, RAP, LAP, ICP, LV, AO, UAP, BAP, FAP, UVP, IAP, P1, P2, P3, P4

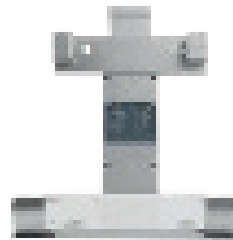
Measurement Unit: mmHg/ kPa/ cmH₂O selectable

Measurement range:
 ART: 0~300mmHg
 PA: -6~120 mmHg
 CVP: -10~40 mmHg
 RAP: -10~40 mmHg
 LAP: -10~40 mmHg
 ICP: -10~40 mmHg
 LV: 0~300 mmHg
 AO: 0~300 mmHg
 UAP: 0~300 mmHg
 BAP: 0~300 mmHg
 FAP: 0~300 mmHg
 UVP: -10~ 40 mmHg
 IAP: -10~40 mmHg
 P1, P2: -50~300 mmHg

Accuracy: ±2% or ±1 mmHg (whichever is greater)
 Resolution: 0.1 kPa or 1 mmHg (-50 mmHg~+300 mmHg)
 Alarm Range: -50 mmHg~+300 mmHg
 PR from IBP: 20 bpm~350 bpm
 Resolution: 1 bpm
 Accuracy: ±1% or ±1 bpm, whichever is higher
 PPV/SPV measurement: Available
 PAWP measurement: Available



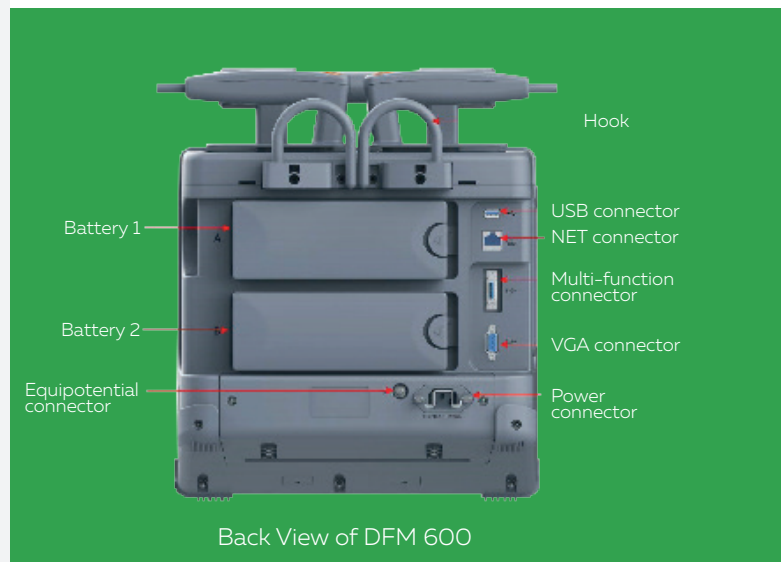
External Paddles (Adult-Child) with energy selection, Charge & Shock buttons



DFM 600 Ambulance Fixing Bracket (It is used together with DFM 600 Packet)



Smart Battery



Back View of DFM 600

OKUMAN

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ISO 13485



ISO 9001



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