medical ECONET
GERMANY

defiMASTER

Biphasic Defibrillation and monitoring

Manual defibrillator and monitoring device.

The defiMASTER is the latest defibrillator/monitoring system from medical ECONET, which has been specially designed for professional use, e.g. by rescue services or in hospitals.

As a versatile all-rounder, it is characterised on the one hand by a variable shock output from 1 to 360 joules of output energy and an automatic changeover function for the resuscitation of adults and children. On the other hand, our new defibrillator monitor provides all functions and parameters that a modern monitoring monitor has to offer.
When every second counts to save a human life, you can be sure that the defiMASTER will prove to be a reliable helper in everyday life.

Features and Benefits

- Defibrillation Mode, Monitor Mode, AED Mode and Pacing Mode are all in one
- Cardioversion function enables to deal with atrial fibrillation.
- Internal defibrillation function enables open chest defibrillation.
- 1~360 joules energy selectable.
- Implementing the custom shock sequence by applying Energy escalation function.
- Patient Impedance Range: 25 ~200ohm.
- Optional 12 leads ECG diagnosis function (Glasgow algorithm).
- Automatically change energy based on choice and possible selection of adult and child patients.
- Built-in 5 countries voices / text guide selectable (voice / text group can be specified.
- CPR feedback function enables effective CPR implementation. (Option)
- Voice recording confirms and strengthens on-site measures.
- Multi-parameter function – SpO2, 2 IBP, 2 temp. EtCO2, NIBP. (Option)
- Ambulance holder – Enhances usability by applying rechargeable wall mount.(Option)
- Bed rail function enables patient bed to be fixed, enhancing usability.
- 2 batteries installed, extending the battery life to 9 hours.
- Pacing current max 140mA, 40mS possible.
- Equipped with 80mm thermal printer leads to expressing 3-channel waveforms.

defiMASTER

Biphasic Defibrillation and monitoring

Comfortable design and intuitive display

- Biphasic defibrillation, pacing and complete monitoring including a powerful memory to store numerical data (ECG, EtCo2 and IBP waveforms) in a portable device / storage of data of up to 100 patients and 250 events
- Offers a full range of monitoring options including 3/5/12 channel ECG (Glasgow Algorithm), SpO2, AED, NIBP, IBP, Temp and Respiration EtCO2
- Ergonomic carrying handle with holding function on the back of the device for patient beds or rescue couches to improve user-friendliness and mobility

Biphasic Defibrillation, Pacing and Complete Monitoring in one Portable Device

- Multifunctional Defibrillator / Monitor
- Manual and AED Operation
- Non-invasive Pacing Mode
- Advanced Biphasic Technology
- Defibrillation with Paddles
- Internal defibrillation with Internal spoons
- 12 Lead ECG Monitoring

defiMASTER

Biphasic Defibrillation and monitoring

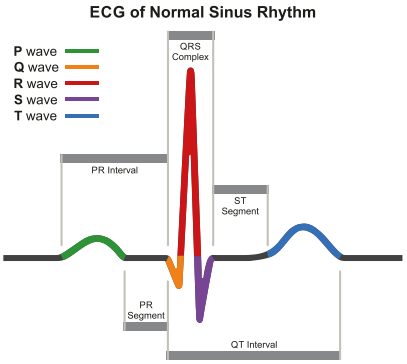
Including Glasgow 12-Lead ECG Algorithm

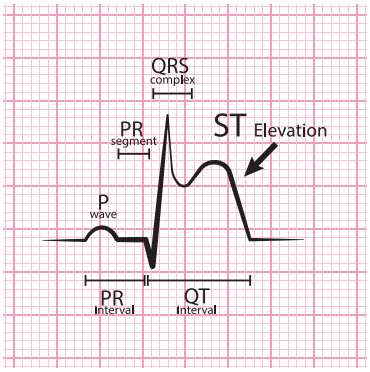
For the last 30 years the Glasgow Algorithm has been improved and updated to become a go-to algorithm for cardiologists around the globe.
The proven performances as an advantage of clinical usage for STEMI analysis is a given.

University of Glasgow

STEMI:

ST-Elevation Myocardial Infarction (STEMI is a very serious type of heart attack during which one of the heart's major arteries (one of the arteries that supplies oxygen and nutrient-rich blood to the heart muscle) is blocked.
ST-segment elevation is an abnormality detected on the 12-lead ECG.





The Glasgow program follows the AHA recommendation for STJ measurement at the J point for STEMI which is helpful to analyze the STEMI, ti also includes criteria for left bundle branch blocks (LBBBs) which increase the risk of a reporting error in data in the STEMI analysis. The 12 ECG algorithm (Glasgow type) can even differentiate between age and gender in the STEMI analysis. This is one of the factors that make professionals diagnose STEMI more accurately.

	GLASGOW (defiMASTER)	COMPANY Z	COMPANY P
Pediatric Interpretation	YES	NO	YES
LBBB criteria for STEMI	YES	NO	YES
ST Measurement at J Point	YES	NO	YES
Published results from testing with prehospital ECGs	4 studies	1 study	No study

defiMASTER

Biphasic Defibrillation and monitoring

Comparison defiMASTER with other Brands.

	defiMASTER	COMPANY Z / X	COMPANY P / 15	COMPANY P / HS
Waveform	**Biphasic BTE**	Biphasic (Rectilinear)	Biphasic BTE	Biphasic BTE
Energy level in Manual mode	1-10,15,20,30,40,50,75, 100,125,150,175,200, **300,360J**	1-10,15,20,30,50,70,85, 100,120,150,200J	2-10,15,20,30,50,70,100,125, 150,175,200,225,250,275, 300,325,360J	1-10,15,20,30,50,70, 100,120,150,170,200J
Charge time	**<5 sec. For 200J <8 sec. For 360J**	<7 sec. For 200J	<10 sec. For 360J	<5 sec. For 200J
Paddle's controls	Charge, Shock, Energy select	Charge, Shock, Energy select, Recorder	Charge, Shock, Energy select, Print	Charge, Shock
Energy level semiautomatic mode	120, 150, 200J	120, 150, 200J	150-360J	Fixed at 150J
Voice messages	Available	Available	Available	Available
Self test	Automatic Daily, Weekly, Monthly self-test	self-test of audio & visual alarm indicators upon power-up	Daily, 3AM diagnostic self-test	Automatic daily and weekly self-test with state indicator
MONITOR				
Screen type	LCD	LCD	LCD	LCD
Screen size	**8,4" diagonal Resolution 800x600**	6,5" diagonal Resolution 640 x 480	8,4" diagonal Resolution 640 x 480	8,4" diagonal Resolution 640 x 480
Channels	Up to 4 ECG traces and 12 ECG traces	Up to 4 ECG traces and 12 ECG traces	Up to 3 ECG traces	Up to 4 ECG traces and 12 ECG traces
PaceMaker pulse filter	**Available**	Available	?	Available
ECG size	**Auto, 5.0, 10.0, 15.0, 20.0, 30.0, 40.0 mm/mV**	Auto, 1.25, 2.5, 5.0, 10.0, 20.0, 40.0 mm/mV	2.5, 5.0, 10.0, 15.0, 20.0, 25.0, 30.0, 40.0 mm/mV	2.5, 5, 10, 20, 40 mm/mV

defiMASTER

Biphasic Defibrillation and monitoring

Specifications

Display

Screen Size:	8,4" TFT-LCD
Screen Type/Color:	Liquid Crystal Display (LCD) Color
Resolution:	170 x 128 mm

Controls

Multifunction Knob, Mode selection Knob (Power Off, AED, Manual, Monitor and Pacing), 12 function buttons (Paddle energy selection, Patient selection, ECG Lead change, ECG size change, Print, Paddle charge, Energy selection, charge, ECG analyze, Shock, Sync, Event, Alarm), 5 soft keys.

Alarms

Categories:	Patient Status and System Status
Priorities:	Low, Medium and High Priorities
Notification:	Audible and Visual
Setting:	Default and Individual
Alarm Volume Level:	45 - 85 dB

Physical Characteristics and Printer

Dimensions:	310 x 290 x 215 (mm) (W H D)
Weight:	6.5 kg

Internal paddle

Type	Length	Weight
Spoon 16 cm^2	16 cm	80 g
Spoom 32 cm^2	23 cm	270 g
Spoon 54 cm^2	24,5 cm	310 g
Interface cable	3,6 m	540 g
Trunk cable	66 cm	190 g

Printer

Type:	Thermal
Weight:	190 g
Number of Channels:	1 - 3 channels
Paper Type:	Thermal transfer paper
Paper Width:	80 mm
Printer Speed:	25 mm/sec, 50 mm/sec

Electrical

Power Requirement AC Mains 100-240 V, 50/60 Hz, 140-130 VA

Battery (Option)	
Type:	Li-ion battery
Dimensions:	105,4 x 143,97 x 36 mm (W H D)
Voltage/Capacity:	4S2P 14.52V / 6600 mAh
Discharge:	A minimum of 200 shocks at 200 Joules (per battery)
Operating Time:	5 hours (per battery) at the following conditions: no printing, no external communication, no audible alarm sound, room temperatur: 25°C
Recharging Time:	8 hours with operating Defibrillation/Patient monitor 5 hours with power off
Dual Battery:	Automatic Switching

Enviromental Conditions

Operation	
Temperature:	0 - 50°C (32 - 113°F)
Humidity:	5 - 95% RH, non-condensing
Atmospheric pressure:	583.28 ~ 1013.25 hpa (0~4,575m at 25°C)
Water Resistance:	IP34
Transport and Storage (in shipping container)	
Temperature:	-20°C - 60°C (-4°F - 140°F)
Humidity:	5 -95% RH; non-condensing
Atmospheric pressure:	200.36 ~ 1013.25 hpa (0~12,192m at 25°C)

Manual Mode

Shock Energy Level

When connecting pads or external paddles:

Adult:	1,2,3,4,5,6,7,8,9,10,15,20,30,40,50,75,100,125,150,175, 200,300,360 J
Pediatric:	1,2,3,4,5,6,7,8,9,10,15,20,30,40,50,75,100 J

When connecting internal paddles:

Adult/Pediatric:	1,2,3,4,5,6,7,8,9,10,15,20,30,40,50 J
Automatic Discharge Time:	20,60 seconds
Charging Time to 200J:	Within 5 sec. at AC/DC rated voltage Within 6 sec. with fully charged battery power
Charging Time to 360J:	Within 8 sec. at AC/DC rated voltage Within 8 sec. with fully charged battery power
Synchronous Cardioversion:	Energy transfer begins within 60msec of the QRS peak

AED Mode

1ch ECG measurement	
Lead:	Lead II
Patient Impedance:	When connecting pads or external paddles: 25 - 175 Ohm When connecting internal pads: 15 - 175 Ohm
Heart Rate:	20 - 300 bpm
Charging Time to 200J:	Within 5 sec. at AC/DC rated voltage Within 6 sec. with fully charged battery power

Pacer

Pacing Mode:	Demand or non-demand
Pacing Rate:	30ppm - 180 ppm (The increment unit is 2 bpm)
Accuracy:	± 1,5%
Output current:	0mA - 140mA
Resolution:	2mA
Accuracy:	± 5% or 5mA, whichever is greater
QRS Marker:	In the demand mode

ECG

Heart Rate		
Measurement Rate:		0,20 - 300 bpm
Resolution:		1 bpm
Accuracy:		±1 bpm or ±1%, whichever is greater
ECG (Electocardiograph)		
Leads:		3/5/12 Lead Lead I, II, III, aVR, aVL, aVL, aVF, V1,V2,V3,V4,V5,V6, Paddles, Pads
Lead Off Detection:		Detected and displayed
Pacer Detection:		Detected pacer pulses of ±2mV - ±700mV with pulse widhts of 0,1 - 2 msec and rise times 10% or width not to exceed 100 msec.
Input		
Input Impedance:		2.5 M Ohm or more (for 0.05 - 40 Hz, with lead cable and relay cable)
Input Dynamic Range:		±5mV AC, ±300mV DC
Voltage Range:		±0.3mV ~ ±5mV
Signal Width:		40 - 120 ms (Q-S)
Output (Frequency Response)		
ECG Filter	Interpretation	0.05 - 150 Hz
	Low	0.05 - 40 Hz
	Med	0.5 ~ 40 Hz
	High	0.5 ~ 30 Hz
	Hum filter	50 Hz, 60 Hz (not shown or 60 db or over)
	ECG size	Auto, 5.0, 10.0, 15.0, 20.0, 30.0, 40.0 mm/mV
Display Sweep Speeds:		25.0 mm/sec.
Display Sensitivity:		10 mm/mV
Pacing Pulse Detection:		On, Off
Electrode Disconnect Alarm:		Display and/or sound
Common Mode Rejection (CMRR):		90 dB or more
Defibrillator Discharge Recovery:		less than 5 sec. per IEC 60601-2-27
Defibrillation Protection:		Protected

defiMASTER

Biphasic Defibrillation and monitoring

Interpretive Algorithm

12-Lead Interpretive Algorithm	University of Glasgow 12-Lead ECG Analysis Program

Respiration

IM Respiration

Technique:	Impedance Pneumography
Range:	0 ~ 150 bpm
Resolution:	1 bpm
Accuracy:	±3 bpm
Base impedance:	500 - 2000 ohm
Lead Off Detection:	Yes

AW Respiration

Technique:	Non-dispersive Infrared Spectroscopy
Range:	0 - 150 breaths / min
Accuracy:	±1 breaths / min

NIBP

Pulse Rate:	
Pulse Rate Range:	Adult/Pediatric/Neonatal 30 - 240 bpm
Resolution:	1 bpm
Accuracy:	±5%

NIBP (Non-Invasive Blood Pressure)

Technique:	Oscillometric Measurement
Measurement Modes:	Off, Cont, 1, 2, 2.5, 5, 10, 15, 30, 60, 120 minutes Edit program measurement interval
Measurement Range:	Adult/Pediatric SYS 40 - 270 mmHg DIA 20 - 200 mmHg Neonatal SYS 40 - 120 mmHg DIA 20 - 90 mmHg
Accuracy:	±3 mmHg
Resolution:	1 mmHg
Initial Cuff Inflate Pressure:	Adult/Pediatric Auto, 120,140,160,180,200,220,240,260,280 mmHg (16.0,18.7,21.3,24.0,26.7,29.3,32.0,34.7,37.3 kPa) Neonatal Auto, 80,100,120,140 mmHg (10.7,13.3,16.0,18.7 kPa)
Automated Cuff Protector:	Adult/Pediatric 300 mmHg Neonatal 150 mmHg
Defibrillator Protection:	Protected

IBP

Pulse Rate

Pulse Rate Range:	Adult/Pediatric/Neonatal 20 - 250 bpm
Pulse Rate Resolution:	1 bpm
Pulse Rate Accuracy:	±1 bpm

IBP (Invasive Blood Pressure)

Measurement Range:	BP -50 mmHg - 300 mmHg
Resolution:	BP 1 mmHg
Input Sensitivity:	5μV/V/mmHg
Transducer Volume Displacement:	0.1mm3/100mmHg
Zero Calibration Range:	-50 ~ 100 mmHg
Frequency Response:	25 Hz
Waveform display ratio:	Auto, 0~50, 0~100, 0~200, 0~300 mmHg
Defibrillator Protection:	Protected

Defibrillator

Biphasic Waveform | Biphasic Truncated Exponential
Resuscitation Guidelines: Selectable AHA/ERC

SpO2

Measurement Range:	0 ~100%
Accuracy:	±2 digits (70% - 100%) (Unspecified <70%)

Capnography

Display parameters:	EtCO2, InCO2
Measurement Range:	0 - 150 mmHg (0kPa-20kPa, 0%-20%)
Accuracy:	0 - 40 mmHg ±2 mmHg of reading 41-70 mmHg ±5% of reading 71-100 mmHg ±8% of reading 101-150 mmHg ±10% of reading Not decreased according to respiratory rate or I/E ratio
Display Accuracy:	±2 mmHg
Response Time:	Mainstream: Less than 60ms Sidestream: Less than 3sec.
Barometric pressure correction:	-152.4-4572 m (-500 - 15,000 feet), 775 - 429 mmHg, Auto
Gas Compensation:	User selective at O2 > 60% and N2O > 50%
Stability:	Short term drift: Less than 0.8 mmHg over 4 hours Long term drift: Maintain accuracy over 120 hours
Accuracy change due to gas and chemical interference:	0-40mmHg ±1 mmHg Additional Error 41-70mmHg ±2.5% Addtional Error 71-100 mmHg ±4% Additional Error 101-150 mmHg ±5% Additional Error
Measurement preperation time:	2 minutes maximum
Sweep Speeds:	6.25, 12.5, 25.0 mm/s
Extraction rate:	100 Hz
Sound Noise Level:	Less than 41dB (when ambient noise level is 22dB)

Temperature

Probe Types:	Thermistor probe YSI compatible type
Measurement Range:	0.0 - 50°C (32.0 - 122°F)
Resolution:	0.1°C
Defibrillator Protection:	Protected

Trend

Type:	12 lead, Events, Trend
Data Storage:	Internal memory, SD card
Memory:	**12 lead** Saves total 100 data Saves ECG waveform, ECG analysis result/data/ date/time, HR/PR, NIBP, SpO2, Respiration, IBP, Temperature, EtCo2 numeric data, alarm condition **Event** Saves total 250 data Saves defibrillation shock information (number of shock, energy selection, actual passed energy, impedance) Pacing information (pace rate, pace current, async mode) Clinical action list 1 channel ECG waveform Event date and time HR/PR, NIBP, SpO2, Respiration, Temperature, IBP, EtCo2 numeric, data, alarm condition **Trend** Saves total 200 data Saves date and time HR/PR, NIBP, SpO2, Respiration, Temperature, IBP, EtCo2 numeric data, alarm condition

defiMASTER

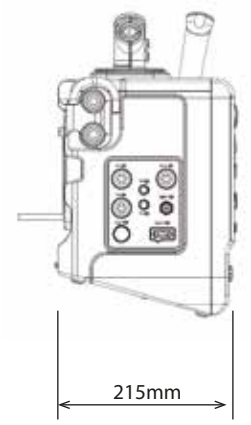
Biphasic Defibrillation and monitoring

Optional Items

Non-Invasive Blood Pressure with cuffs and cuffs hoses
SpO2 (Nellcor) with DS-100A and DOC-10
12 Lead ECG with Interpretation from the University of Glasgow
Continous Temperature Monitoring
EtCo2, selectable either Mainstream or Sidestream
Invasive Blood Pressure Monitoring (2 lines)
Wi-Fi/3G Communication module
Wireless LAN data transmission
Additional Battery

Dimensions

Left

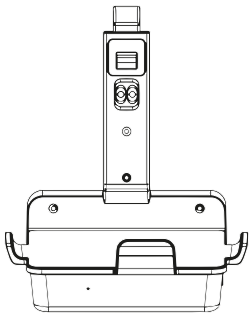


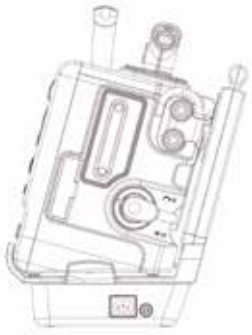
Front

Right

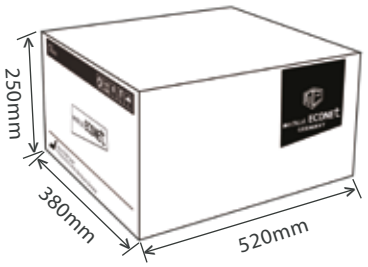
Back

Cradle (Optional)





Packaging



Approx. 7kg

Weiterführende Informationsmedien:
Available further product information:

Image Broschüre defiMASTER
Image brochure defiMASTER

Detailiertes Spezifikationsdatenblatt defiMASTER
Detailed specification sheet for defiMASTER

Contact details:

medical ECONT GmbH
Im Erlengrund 20
46149 Oberhausen
Germany

Distributor

*All specifications are subject to change without notice