

Product name: QMAPP Hemo

Article number: 01076101

Product Outline

The QMAPP Hemo, a full-blown hemodynamic monitoring system, is designed to help make examinations even more efficient, by housing all parameters in one amplifier and making operation intuitive (reporting functionalities) in order to optimize the workflow. QMAPP Hemo is user-friendly and is connected with a single cable and mounted to a standard DIN-rail on the X-ray or operating table, which will increase the operational space and freedom of movement in the lab as shorter cables can be used. A QMAPP amplifier is hot swappable by disconnecting a single cable, without loss of patient or exam data.

Features

• Vital parameters

QMAPP Hemo is equipped with the following vital parameters:

- ECG (12 leads), HR, Respiration rate, IBP (4 channels), SpO₂, NiBP, Thermodilution CO, TEMP and FFR

• Bedside operation by Alphenix tablet

- Different types of hemodynamic samples
- IBP Zeroing
- FFR and CO control
- Start/Stop Timers
- Layout settings (scaling, sweep speed, presets, etc.)

• Reporting

QMAPP utilizes a relational database, has local storage, statistical analysis functions and extensive reporting options.

- Patient demographics
- Procedure details
- Event Log
- Hemodynamic Calculations
- Summary
- Customized Reports

• Sampling

The following sampling options are available:

- Normal sample, ECG (12 leads), EDP, NiBP, Pullback, Gradient, Vitals, Marker



• Full disclosure

Full Disclosure records all connected vital parameters, which enables the end-user to create samples for post-processing purposes.

• Presets

To create custom macros to increase user experience and improve user-workflow. The user is able to create multiple presets on user or procedure level. Procedure level presets can automatically be imported when linked to a procedure type.

• Interfaces

To optimize the user workflow within the Cath lab the following communication channels are available.

- **DICOM:** SCP, SCU, MPPS, SR and Encapsulated PDF
- **HL7:** ADT, ORM, SIU and ORU

A QMAPP Hemo has standard two communication channels available*.

• Query & Statistics

Query and Statistics are made easy using the Query interface with pre-defined queries or by exporting to Excel.

• Integrated FFR

QMAPP can connect with third parties' vendors to perform integrated FFR measurements

QMAPP Hemo Features

Features QMAPP Hemo		Description
12 Lead ECG	•	Radiopaque lead wires and trunk cable (320 cm) are included.
Respiration Rate	•	The respiration rate is derived from the ECG.
IBP (4x)	•	All common brands are supported, please state brand/type for connection cable
SpO2	•	A connection cable (320 cm) and reusable silicon softcover sensor are included
NiBP	•	A connection hose (365 cm) and reusable NiBP cuff Adult (23-33 cm) are included
Thermodilution CO	•	Includes temperature (reference) probe and Y-cable
Temp	•	Includes two temperature probes and a Y-cable
FFR	•	Integrated FFR functionality. One FFR cable is included.
Patient Demographics	•	
Procedure Details	•	
Hemodynamic calculations	•	Gradient measurements, valve calculations, shunt calculations, Fick Cardiac Output, and vascular resistances.
Event Log	•	Provides a detailed overview (in time) of all steps taken during the procedure.
Coronary Tree	•	Coronary tree provides an overview of segments, which can be treated. Lesions and Devices can be registered at segment level
Full Relational Database	•	To perform Query and statistics.
Communication Channels	2	Two communication channels are included: 01078027 DICOM SCU 01078025 DICOM Encl. PDF <i>In combination with a Canon Alphenix the following communication channels are included:</i> 01078023 DICOM MPPS 01076050 Alphenix Tablet integration
CPU	2	QMAPP Hemo is standard equipped with two CPUs.
Bedside Operation	•	QMAPP operation by Alphenix tablet (from v9.3)
Vital alarms	•	Visual and audible alarms for vital parameters

Optional items			
01076019	Peripherals kit	o	Includes 3x 21.5" monitors, keyboard, mouse, barcode reader and printer
01076052	Peripherals kit large monitor	o	Includes a 34" monitor, keyboard, mouse, barcode reader and printer
01078023	DICOM MPPS	o	QMAPP can import the dose data from the Angio system
01078028	DICOM ECG Export	o	QMAPP can export a 12 lead ECG in DICOM format
01075052	HL7 SIU	o	QMAPP receives patient information from the hospital information system
01078009	HL7 ORU	o	QMAPP provides discreet data to the hospital information system
01076050	Tablet Integration	o	QMAPP can be controlled from table side (requires Alphenix tablet with SW V9.3)
01076036	EtCO2	o	Side stream EtCO2 module and license key
01076201	8 Channels EP	o	QMAPP 8 Channels EP extension
01076203	32 Channels EP	o	QMAPP 32 Channels EP extension
01076204	ECG/IECG Callipers	o	To enable the option to place callipers to perform time measurement on ECG/IECG
Monitoring			
01076014	QMAPP (IEC or AHA) Basic Monitoring Consumable kit	o	QMAPP 10 Lead (IEC) Basic monitoring - Consumable kit; 01567053, 01567083, 01853004 Includes DOC art.# 01567002, 01567080, 01567082
01076015	QMAPP (IEC or AHA) Basic Monitoring Consumable kit	o	QMAPP 5 Lead (IEC) Basic monitoring - Consumable kit; 01567083, 01567053, 01853004 Includes DOC art.# 01567081, 01567058, 01567082

IBP			
01076029	QMAPP IBP Consumable kit	○	QMAPP 4CH IBP (BD, Argon) - Consumable kit; includes DOC art.# 01567022, 01567034
01076030	QMAPP IBP Consumable kit	○	QMAPP 4CH IBP (Edwards, Baxter) - Consumable kit; includes DOC art# 01567034, 01567071
01076031	QMAPP IBP Consumable kit	○	QMAPP 4CH IBP (Namic, Angiodynamics) - Consumable kit; includes DOC art.# 01567034, 01567064
01076032	QMAPP IBP Consumable kit	○	QMAPP 4CH IBP (Medex Logical, ACIST) - Consumable kit; includes DOC art# 01567034, 01802034
01076033	QMAPP IBP Consumable kit	○	QMAPP 4CH IBP (Utah, ADI) - Consumable kit; includes DOC art# 01567034, 01802032
01076054	QMAPP IBP Consumable kit	○	QMAPP 4CH IBP (Abbott) - Consumable Kit; includes DOC art.# 01567034, 01567045
01076057	QMAPP IBP Consumable kit	○	QMAPP 4CH IBP (Merit) Consumable Kit; includes DOC art.# 01802030, 01567034
01076016	QMAPP IBP Consumable kit	○	QMAPP 2CH IBP (BD, Argon) - Consumable kit; include DOC art.# 01567022
01076025	QMAPP IBP Consumable kit	○	QMAPP 2CH IBP (Edwards, Baxter) - Consumable kit; include DOC art.#01567071
01076027	QMAPP IBP Consumable kit	○	QMAPP 2CH IBP (Medex Logical, ACIST) - Consumable kit; include DOC art.#01802034
01076028	QMAPP IBP Consumable kit	○	QMAPP 2CH IBP (Utah, ADI) - Consumable kit; include DOC art.#01802032
01076022	QMAPP IBP Consumable kit	○	QMAPP 2CH IBP (Namic, Angiodynamics) - Consumable kit; include DOC art.#01567064
01076056	QMAPP IBP Consumable kit	○	QMAPP 2CH IBP (Merit) Consumable Kit; include DOC art.#01802030
01076085	QMAPP IBP Consumable kit	○	QMAPP 2CH IBP (B.Braun) - Consumable kit: Include DOC art# 01802004
01076086	QMAPP IBP Consumable kit	○	QMAPP 4CH IBP (B.Braun) - Consumable kit: Include DOC art# 01567034, 01802004
FFR			
01076061	QMAPP FFR Consumable kit	○	QMAPP FFR Consumable kit - Abbott (SJM) Wibox (320 cm); includes DOC art.# 01567089
01076064	QMAPP FFR Consumable kit	○	QMAPP FFR Consumable kit - Abbott (SJM) Pressure Wire Receiver (320 cm); includes DOC art.# 01567084
01076065	QMAPP FFR Consumable kit	○	QMAPP FFR Consumable kit - Abbott (SJM) Pressure Wire Receiver (320 cm); includes DOC art.# 01567085
01076066	QMAPP FFR Consumable kit	○	QMAPP FFR Consumable kit - Volcano (Philips) Smartmap (320 cm); includes DOC art.# 01567086
01076068	QMAPP FFR Consumable kit	○	QMAPP FFR Consumable kit - Boston FFR Link, Pa Cable (320 cm); includes DOC art.# 01567087
01076069	QMAPP FFR Consumable kit	○	QMAPP FFR Consumable kit - Boston FFR Link, Pd Cable (320 cm); includes DOC art.# 01567088
Temperature			
01076043	QMAPP Temperature Consumable kit	○	QMAPP 2CH (Body) Temperature - Consumable Kit 01567027, 01567029, 01567063
01076044	QMAPP Thermo dilution CO - Consumable Kit	○	QMAPP Thermo dilution CO - Consumable kit; 01567029 includes DOC art#. 01567060

(Per type of kit, 1 option possible)

- Standard in configuration
- Optional items

* If a separate server is required or advised, the server can be setup as a virtual machine



(Minimum) System Specification(s)

• QMAPP Standalone System

OS: MS Windows 10 IoT Enterprise
LTSC 2021
Database: MS SQL 2022 Express
Control device: Keyboard, mouse and barcode reader

• Server Environment*

OS: MS Windows Server 2016
MS Windows Server 2019
MS Windows Server 2022
Database: MS SQL 2016, 2019 or 2022

• QMAPP Reporting Client (Connects to server)

OS: MS Windows 10 Pro
MS Windows 10 Enterprise
Control device: Keyboard, mouse and barcode reader

Technical Specification CPU (Ref B)

Dimensions: 269 x 279 x 77 mm (L x W x H)
Weight: 3400 Gram
CPU Power consumption: max. 120 Watt
QMAPP medical power supply: 90 - 264 VAC, 2.5 A

CPU Hardware

Mainboard: Industrial Mainboard
Processor: Intel® Core™ i5-12500 18M Cache,
up to 4.60 GHz
Memory: 8 Gb
Video: Onboard video
HDD: 500 GB NVME and
500 GB SSD
CDR Drive: n/a
USB ports: 6
LAN: 1x 10/100/1000 MB and
1x 100 MB

Monitor(s)

Native resolution 1280x1024 or 1920x1080

Display

• Waveforms:

ECG: Max 12 channels
IBP: Max 4 channels and 4 Mean traces
Resp: 1 channel
SpO₂: 1 channel
FFR: 1 channel
EtCO₂: 1 channel

• Numerical display parameters:

HR, RESP, IBP (Sys, Dia, Mean), NiBP (Sys, Dia, MAP),
SpO₂, CO, Temp and EtCO₂

• Scale:

1, 2 and 3

• Sweep speed:

3.125, 6.25, 12.5, 25, 50, 100, 200 and 400 mm/s

Analysis

IBP value: Systolic, Diastolic, Mean, a-Wave and v-Wave
Valve area: Area, SET, DFT, Gradient
Oximetry: CO (Fick), Shunt flow, Vascular resistance and
Pulmonary resistance

Technical Specification Amplifier

Dimensions: 298 x 233 x 47 mm (L x W x H)
Weight: 2200 Gram
Power: 24 VDC
Power supply: 90 - 240 V AC ± 10 % to 24 V DC, 2.5 A
Power Consumption: max. 60 Watt
IP Class: IP42
Defib. Protection: Yes
Operating Temp: 10° - 40° C / 50° - 104°F
Relative Humidity: < 85% (non-condensing)
Safety Class: IIb
Safety Requirements: IEC 60601-1, 3rd Edition
Certification: CE MDR, FDA (510K), SFDA,
HSA, TGA, KCL, MHRA.

• Storage conditions

(not being considered transportation conditions)

Temperature: -20° - 40° C / -4° - 104°F

Relative Humidity: ≤ 85% (non-condensing)

Parameters

• Surface ECG

Channels:	12 leads
Leads:	I, II, III, aVR, aVL, aVF, C1 –C6
Scale:	1, 2 or 3
Sampling frequency:	2 – 32 KHz
Input impedance:	> 2.5 MΩ
Tall T-wave rejection capability:	exceeds the minimum of 1,2 mV T-Wave amplitude
CMRR:	> 100 dB
Heart rate:	Response time from 80 bpm to 120 bpm = Average: 2,99 sec. Response time from 80 bpm to 40 bpm = Average: 4.53 sec.
HR measuring range:	15 – 350 bpm
Accuracy HR:	2%
Lead Off detection:	Yes
Lead-off sensing	DC 24 nA
Vital alarm:	Yes
Active noise suppression	RLD at AVDD = 3V is 50 µA

• Respiration

Channels:	1
Measuring method:	Impedance
Sensing electrodes:	RA –LA and RA – LL
Sensing	32 kHz square wave, max 63 µA, max. amplitude 5 Vpp
Sampling frequency:	50 Hz – 2 KHz
Parameters:	Respiration Rate
Respiration effort rate:	0 - 150 breaths/min
Accuracy:	± 1 %
Vital alarm:	Yes

• Invasive blood pressure (IBP)

Channels:	Up to 4
Measuring method:	Pressure Transducer
Sampling frequency:	100 Hz
Sensitivity:	5.0 µV/V/mmHg
Accuracy:	± 3 mmHg
Parameters:	SYS, DIA, MEAN
IBP measuring range:	-30 – 320 mmHg
Vital alarm:	Yes

• Oxygen Saturation (SpO₂)

Channels:	1
Measuring method:	Nellcor OxiMax™
Measuring range:	1 – 100%
Parameters:	% Oxygen Saturation & Pulse Rate
Sampling frequency:	75Hz

SpO ₂ Measuring range:	70% - 100%
Accuracy:	± 1%
Pulse Rate:	20 – 300 bpm
Vital alarm:	Yes

• Non-invasive Blood pressure (NiBP)

Channels:	1
Measuring method:	CAS MAX, Oscillometric
Measuring range:	15 - 260 mmHg
Measuring mode:	Manual, Auto or STAT
Accuracy:	± 5 mmHg and Cufflink Functional test ± 10 mmHg
Parameters:	SYS, DIA, MAP
Vital alarm:	Yes

• Cardiac Output (CO)

Channels:	1
Measuring method:	Thermodilution
Sampling frequency:	10 Hz
Measuring range:	0.1 - 20 L
Accuracy:	C.O. range 0-20 L/Min ± 0.1 L (2.5 L/Min) ± 0.2 L (5.0 L/Min) ± 0.5 L (10 L/Min) 3% (20L/Min)
T Measuring range:	30° - 42°C / 86° - 107°F (Blood) 0° - 26°C / 32° - 78°F (Injectate)

• Skin Temperature (TEMP)

Channels:	2
Measuring Method:	Thermistor probe
Sampling frequency:	1Hz
Parameters:	Temperature
Measuring range:	20° - 45° C / 68° – 113 °F
Resolution:	0.1° C / 0.18 °F
Accuracy:	± 0.1°C (37-39°C) ± 0.18° F (98.6°–102.2 °F) ± 0.2°C (36–37, 39–41°C) ± 0.36° F (96.8°–98.6 °F, 102.2°– 105.8 °F)
Vital alarm:	Yes

• Auxiliary Output

Ports:	2x QMAPP-Amplifier 2x QMAPP CPU
Channels:	4
Bandwidth:	0,5Hz -36Hz (-3dB)
Gain:	1V/1mV
Propagation delay time:	AUX1 (R-top detection pulse) is <20ms AUX2 <15ms AUX3 <15ms AUX4 <15ms

Pacemaker pulses are included in the output ECG signal and no enhancement is performed.

Optional Items

• End-tidal CO2 (EtCO2)

Channels:	1
Measuring method:	C300 (NDIR), Side stream
Sampling frequency:	10 Hz
Measuring range:	0 – 150 mmHg, 0 – 19.7%
Resolution:	0.1 mmHg (0-49 mmHg) 0.2 mmHg (50-150 mmHg)
Accuracy:	±2 mmHg (0-40 mmHg) ±5% mmHg (41-70 mmHg) ±8% mmHg (71-100 mmHg) ±10% mmHg (101-150 mmHg) above HR of 80 BPM ± 12%
Compensation:	Barometric 400-800 mmHg (automatically)
Vital alarm:	Yes

What's in the box?

01076001 QMAPP Amplifier
01076008 QMAPP DIN-Rail clamp
01076010 QMAPP Reporting CPU
01076010 QMAPP Live CPU
01076006 QMAPP System cable, blue (2500cm)
01076009 QMAPP System cable, white (265cm)
01076043 QMAPP 2CH (Body) Temperature - Consumable Kit; 01567027,01567029,01567063
01076044 QMAPP Thermo dilution CO - Consumable kit; 01567029 Includes DOC art#. 01567060
FB9725 SSTP cable green (2500cm)
- QMAPP (IEC or AHA) Basic Monitoring Consumable kit
- QMAPP IBP Consumable kit
- QMAPP User Manual

Consumables

ECG

01567080	QMAPP 10 Lead ECG Trunk Cable, IEC, 320 cm
01567031	QMAPP 10 Lead ECG Trunk Cable, IEC, 165 cm
01567002	QMAPP 10 Lead, IEC, Radiopaque Lead wire set with grabber, (4x Limb 130cm – 6x Chest, 70 cm)
01567081	QMAPP 5 Lead ECG Trunk Cable, IEC, 300 cm
01567095	QMAPP 5 Lead, IEC, Radiopaque Lead wire set with snap, 5x 70cm
01567056	QMAPP 5 lead ECG trunk cable, IEC 165 cm
01567058	QMAPP 5 Lead, IEC, Radiopaque Lead wire set with grabber, 5x 130cm
01567096	QMAPP 10 Lead ECG Trunk Cable, AHA, 320 cm
01567032	QMAPP 10 Lead ECG Trunk Cable, AHA, 165 cm
01567033	QMAPP 10 Lead, AHA, Radiopaque Lead wire set with grabber, (4x Limb 130cm – 6x Chest, 70 cm)
01567057	QMAPP 5 Lead ECG Trunk Cable, AHA, 320 cm
01567091	QMAPP 5 Lead, AHA, Radiopaque Lead wire set with grabber, 5x 70cm
01567090	QMAPP 5 Lead, AHA, Radiopaque Lead wire set with snap, 5x 70cm
01077301	QMAPP 5 Lead (IEC) Radiolucent Lead wire set, ML, grabber, 5x120 cm
01077302	QMAPP 5 Lead (AHA) Radiolucent Lead wire set, ML, grabber, 5x120 cm
01077303	QMAPP 10 Lead (IEC) Radiolucent Lead wire set, ML, grabber, 10x120 cm
01077304	QMAPP 10 Lead (AHA) Radiolucent Lead wire set, ML, grabber, 10x120 cm

IBP

01567045	QMAPP IBP Connection Cable - Abbott, 320cm
01802034	QMAPP IBP Connection Cable – Medex Logical, 320cm
01802030	QMAPP IBP Connection Cable – Merit, 320cm
01567064	QMAPP IBP Connection Cable – Namic, Angiodynamics, 320cm
01802032	QMAPP IBP Connection Cable – Utah, ADI, 320cm
01567071	QMAPP IBP Connection Cable – Edwards, Baxter, 320cm
01567022	QMAPP IBP Connection Cable – BD, Argon, 320cm
01567034	QMAPP Dual "Y" - IBP Connection Cable
01504002	QMAPP IBP Connection Cable for Memscap'/'Sensonor – (4,4-8V)
01802004	QMAPP IBP Connection cable B.Braun (300 cm)

NIBP	
01853001	SunTech Reusable NiBP Cuff, Infant (Orange), 8 - 13cm
01853002	SunTech Reusable NiBP Cuff, Child (Green), 12 - 19cm
01853003	SunTech Reusable NiBP Cuff, Small Adult (Royal Blue), 17 - 25cm
01853004	SunTech Reusable NiBP Cuff, Adult (Grey), 23 - 33cm
01853005	SunTech Reusable NiBP Cuff, Adult Plus (Grey), 28 - 40cm
01853006	Suntech Reusable NiBP Cuff, Large Adult (Burgundy), 31 - 40 cm
01853007	SunTech Reusable NiBP Cuff, Large Adult Plus (Burgundy), 40 - 55cm
01853008	SunTech Reusable NiBP Cuff, Thigh (Brown), 38 - 50cm
01853009	Suntech Disposable NiBP Cuff, Neonate (Burgundy), 8 – 15cm, Box 20pcs
01853010	Suntech Disposable NiBP Cuff, Neonate (Navy Blue), 7 - 13cm, Box 20pcs
01853011	Suntech Disposable NiBP Cuff, Neonate (Green), 6 - 11cm, Box 20pcs
01853012	Suntech Disposable NiBP Cuff, Neonate (Turquoise), 4 - 8cm, Box 20pcs
01853013	Suntech Disposable NiBP Cuff, Neonate (Orange), 3 - 6cm, Box 20pcs
01567065	QMAPP NIBP Connection Hose 265 cm
01567082	QMAPP NiBP Connection Hose, 365cm
01567094	NiBP Adapter, Dual Lumen cuff – Single Hose
SpO₂	
01567083	QMAPP SpO2 Connection Cable, 300cm
01567053	Silicon Soft Cover SpO2 Sensor, Adult, Reusable
014240201	Medtronic, Nellcor Finger Clip SpO2 Sensor, Reusable
01586005	Medtronic, Nellcor Dura-Y SpO2 Sensor, Reusable
01586006	Medtronic, Nellcor Ear clip for Dura-Y Sensor, Reusable
TEMP	
01567027	Temperature Probe for QMAPP – Adult Skin disk, Reusable NON-EU
01567028	Temperature Probe for QMAPP - Pediatric Skin Disk (Reusable) NON-EU
01567029	Temperature Probe for QMAPP – Adult ESO/Rectal, Reusable NON-EU
01567030	Temperature Probe for QMAPP - Pediatric ESO-Rectal Probe (Reusable) NON-EU
01567063	QMAPP Dual “Y” - Temperature Connection Cable
01503002	Temperature connection cable to SM level1 400 Acoustascope
TRRE 101-013-2010	Reusable Eso/Rectal Temperature Probe, Paediatric, Jack
TRRE 101-013-2011	Reusable Eso/Rectal Temperature Probe, Adult, Jack
TRRE 101-013-2022	Reusable Skin disk Temperature Probe, Paediatric, Jack
TRRE 101-013-2023	Reusable Skin disk Temperature Probe, Adult, Jack
CO	
01567060	QMAPP Thermo dilution CO Y-Cable
EtCO₂	
01631003	EtCO2, Nasal Sampling Line, Bag 1 pcs.
01631005	Naflon Dryer Line, Reusable
01631006	In-Line Air filter
01631002	Side stream EtCO2 Module for QMAPP
01802050	QMAPP Extension cable for EtCO2 module, 165cm
FFR/AUX	
01567084	QMAPP FFR Connection Cable – Abbott (SJM) Pressure Wire Receiver, 320cm
01567085	QMAPP FFR Connection Cable – Abbott (SJM) Pressure Wire Receiver, 65cm
01567086	QMAPP FFR Connection cable – Volcano (Philips) SmartMap, 320cm
01567087	QMAPP FFR Connection Cable – Boston FFR Link “Pa” Cable, 320cm
01567088	QMAPP FFR Connection Cable – Boston FFR Link “Pd” Cable, 320cm
01567089	QMAPP FFR Connection Cable – Abbott (SJM) WiBox, 320cm
01802023	QMAPP AUX Cable to 6.3mm Mono Jack for Volcano i5, Black, 320cm

Connection Cables	
01076006	QMAPP System Cable - Blue (2500 cm)
01076009	QMAPP System Cable - White (265 cm)

QMT0-193-AC.007_EN



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