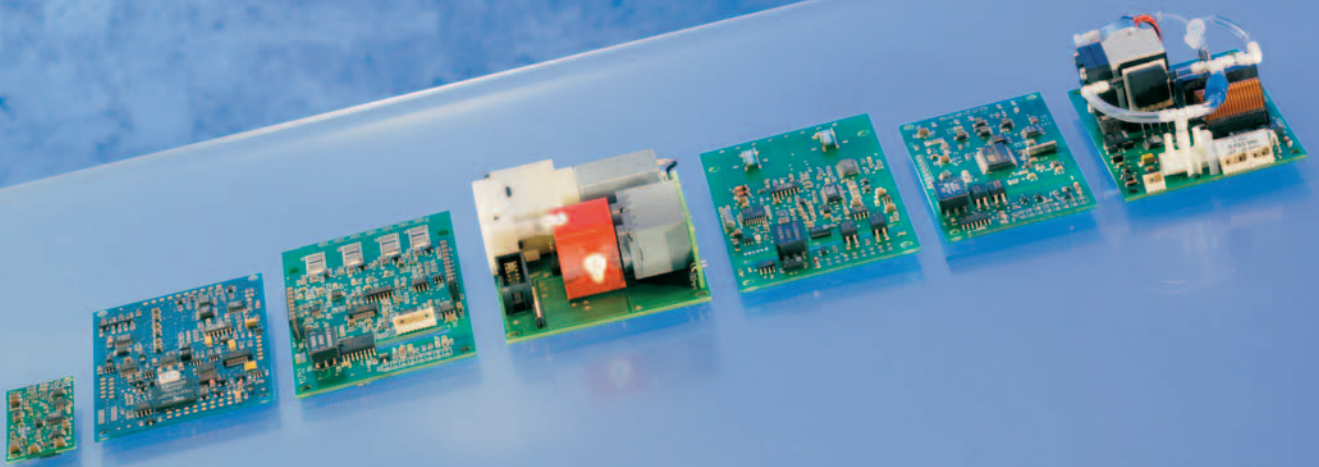


OEM Modules for Patient Monitoring



2011

**DESIGN &
ELEKTRONIK**
ENTWICKELER FORUM

Embedded goes Medical
München,
5.-6. Oktober 2011

MEDICA®
Hall 9,
Stand 9E56



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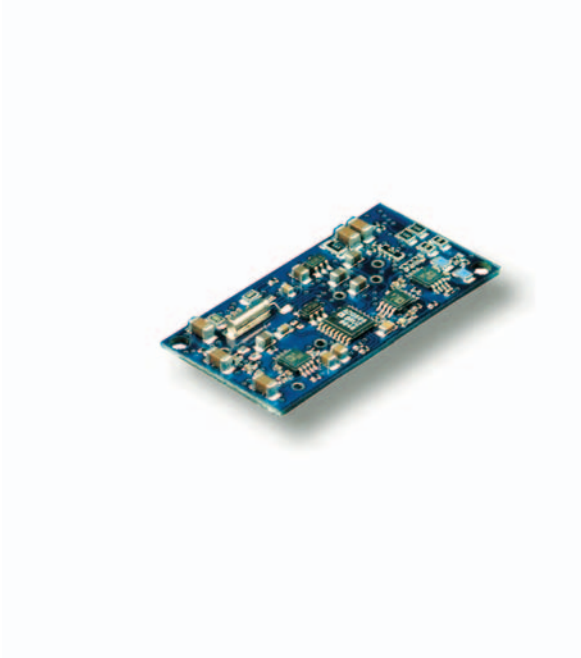
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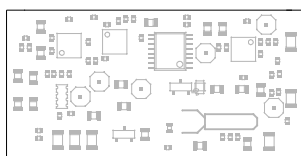
EG00352

Pulsoximeter OEM Module



SpO₂

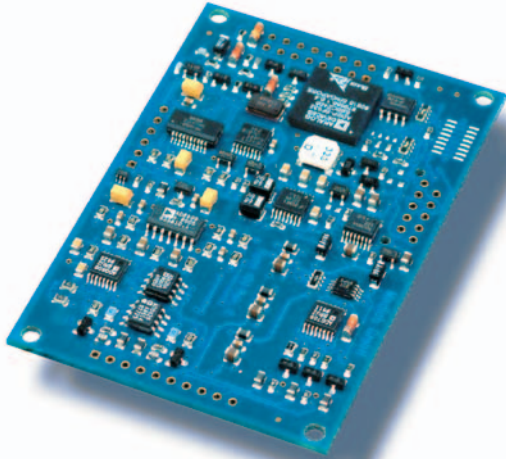
- Advanced 32-Bit processor technology with fourth generation algorithm, recommended for infants and adults
- Small size (40 x 20 mm), maximum height 6 mm
- Lock-in based signal recovery down to a pulsation of 0.05% (AC/ DC ratio)
- Ultra low noise design for highest performance on centralized patients
- Greatly improved suppression of ambient light
- Lowered influence of electromagnetic disturbances
- Easily integrable into handheld and desktop devices.
- Single power supply (3.3V DC), 50 mW
- Serial TTL level serial UART interface
- Transmission of SpO₂, pulse rate, plethysmographic waveform, “quality”—signal, status information and perfusion index
- High flexibility in interface protocols
- Measurement of pulse rate between 30 – 248 bpm
- Measurement of SpO₂ between 0 and 100%
- Data of desaturation study available for regulatory purposes
- Complete line of probes available
- Complies with ISO 9919:2009



Original Size

PEARL100*

Pulse Oximeter OEM Module



SpO₂

- Advanced signal processor technology with artefact suppression, recommended for neonates, infants and adults
- Small size (77 x 53 mm), maximum height 6 mm
- Lock-in based signal recovery down to a pulsation of 0.05% (AC/ DC ratio)
- Ultra low noise design for highest performance on centralized patients
- Greatly improved suppression of ambient light and electromagnetic disturbances
- Easily integrable into handheld and desktop devices
- Single power supply (2.5-5.5 V DC), 100 mW (@ 3.3V)
- RS232 and TTL level serial UART interface
- Transmission of SpO₂, pulse rate, plethysmographic waveform, “quality”-signal, status information and perfusion index
- High flexibility in interface protocols
- Measurement of pulse rate between 30 – 248 bpm
- Measurement of oxygen saturation between 0 and 100%
- Data of desaturation study available for regulatory purposes
- Complete line of probes available
- Complies with ISO 9919:2009



* [Pulse Enhancement Artefact Rejection Logic](#)
PEARL is a registered trademark of Medlab GmbH

EG01000

One Channel ECG Module



ECG

- Digital filtering including 50 or 60Hz notch filter
- Small size (77 x 53 mm), maximum height 10 mm
- Single power supply (5V DC), 100 mW
- RS232 and TTL level serial UART interface
- Can be used for highly accurate ECG triggering
- Integrated patient isolation according to IEC601-1
- Integrated defibrillation protection
- Integrated lead-off detection
- Transmission of pulse rate, and ECG waveform
- Status messages and commands send over serial interface
- Measurement of pulse rate between 30 – 248 bpm
- Three amplification stages
- Three curve transmission speeds
- ECG cables and evaluation kit available



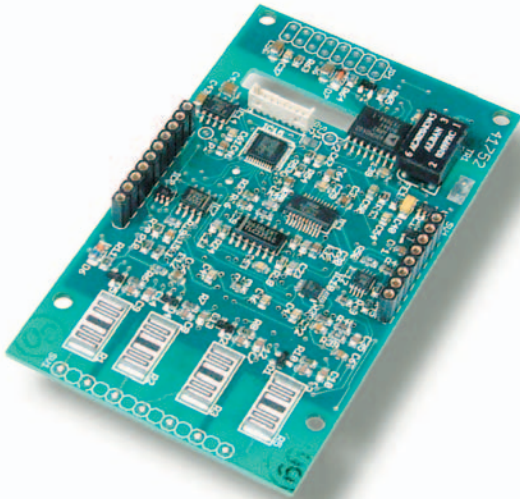
Applications:

Simple ECG Monitors

ECG Triggering for CT scanners, Gamma Cameras aso.

EG01010

Three Channel ECG Module



ECG

- Advanced 32 Bit signal processor technology with digital filtering
- Small size (88 x 53 mm), maximum height 10 mm.
- Monitors Einthoven I, II or III with three lead cable
- Measurement of respiration rate over the electrodes (Option)
- Single power supply (5V DC), 200 mW
- RS232 and TTL level serial UART interface
- Integrated patient isolation according to IEC601-1
- Integrated defibrillation protection
- Integrated lead-off detection
- Complies with the newest version of IEC601-2-27
- Transmission of pulse rate and ECG waveform
- Measurement of pulse rate between 30 – 248 bpm
- Three amplification stages
- Three curve transmission speeds
- ECG Cables and adapters available



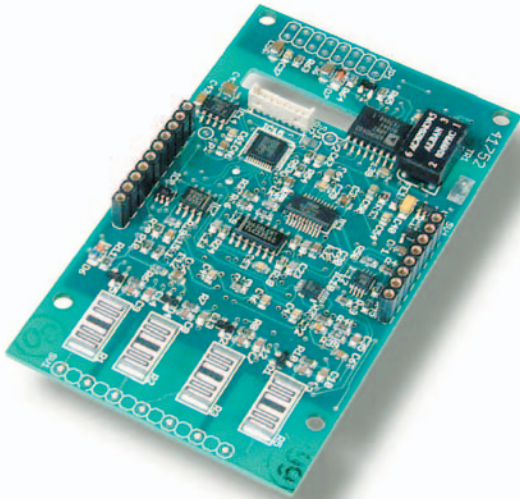
Applications:

ECG Monitoring

ECG Triggering for CT scanners, Gamma Cameras aso.

EG05000

Five Channel ECG Module



ECG

- Advanced 32 Bit signal processor technology with digital filtering
- Small size (88 x 53 mm), maximum height 10 mm.
- Monitors I,II,III, aVR, aVL,aVF and C with five lead cable
- Monitors I, II, III, aVR, aVL, aVF with four lead cable
- Monitors I, II, III with three lead cable
- Measurement of respiration rate over the electrodes (Option)
- Single power supply (5V DC), 250mW
- RS232 and TTL level serial UART interface
- Highly accurate isolated ECG Trigger output pin
- Patient isolation according to IEC601-1 (4kV, Type CF)
- Integrated defibrillation protection
- Integrated pacemaker detection and lead-off detection
- Complies with the newest version of IEC601-2-27
- Transmission of pulse rate, ECG and respiration waveform
- Measurement of pulse rate between 30 – 250 bpm
- Four amplification stages
- Three curve transmission speeds
- ECG Cables and adapters available



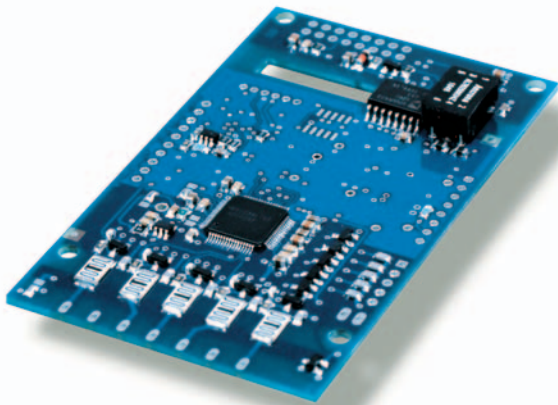
Applications:

High-End ECG Monitoring

ECG Triggering for CT scanners, Gamma Cameras aso.

EG12000

Twelve Channel ECG Module



ECG

- Advanced signal processor technology with digital filtering
- Small size (88 x 53 mm), maximum height 10 mm
- Mechanically compatible to the three and five channel modules
- Monitors I,II,III, aVR, aVL,aVF and C1-C6 with ten lead cable
- Monitors I,II,III, aVR, aVL,aVF and C with five lead cable
- Monitors I, II, III, aVR, aVL, aVF with four lead cable
- Monitors I, II, III with three lead cable
- Integrated pacemaker detection and lead-off detection for each electrode
- Measurement of respiration rate over the electrodes (Option)
- Single power supply (5 V DC), 250 mW
- RS232 and TTL level serial asynchronous interface
- Highly accurate isolated ECG Trigger output
- Integrated patient isolation according to IEC601-1, class CF
- Integrated defibrillation protection for limb leads
- Complies with the newest version of IEC601-2-27
- Transmission of pulse rate, ECG and respiration waveform
- Four amplification stages, four curve transmission speeds
- ECG Cables and adapters available



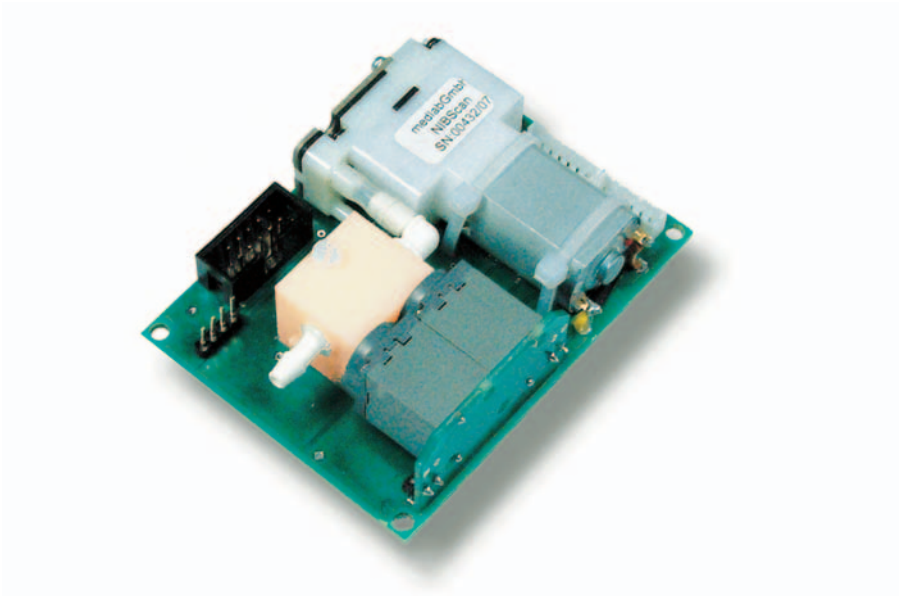
Applications:

High-End 12 channel ECG Monitoring

ECG Triggering for CT scanners, Gamma Cameras aso.

NIBScan

Non-Invasive Blood Pressure Module



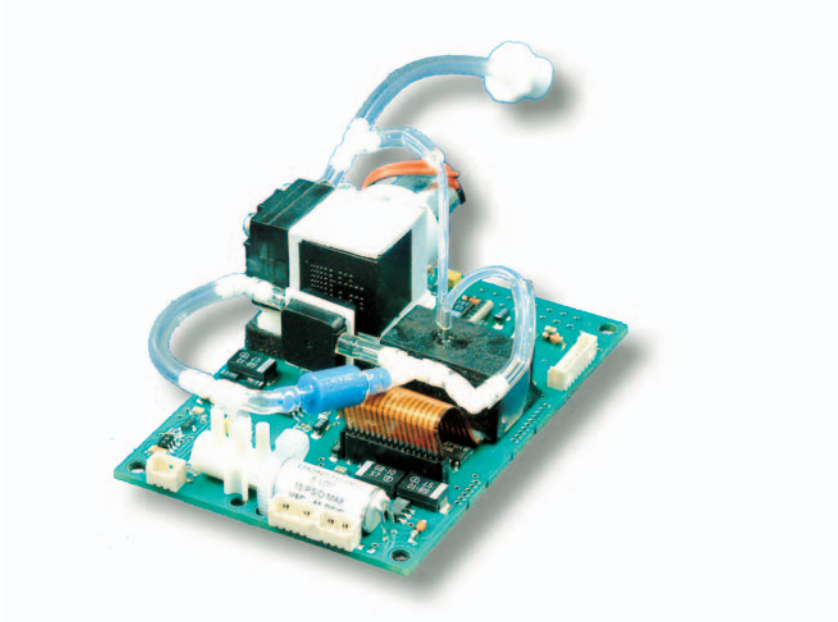
NIBP

- Advanced 32 Bit signal processor with artefact suppressing algorithm
- Very small size: 80 x 60 mm, maximum thickness 26mm, weight 85g
- Innovative pneumatic manifold design
- High reliability due to low pneumatic part count
- Power supply: 5-15 Volt, one supply voltage only
- Low power consumption: max. 2500mW measuring, 150mW standby
- Purely oscillometric method, short measurement time
- Preselected or automatic pump-up pressure
- Redundant pressure sensor and pressure relieve valve
- Neonatal and adult mode
- Pulse rate: 30- 240 bpm - SYS, DIA, MAP blood pressure: 5 - 280mmHg
- Serial UART interface
- Transmission of pulse rate, systolic-, mean- and diastolic pressure
- Status messages and commands sent over the serial interface
- Integrated automatic cyclic measurements, Stat mode available
- Complies with the newest version of IEC601-2-30
- Complies with EN1060-1, EN1060-3, EN1060-4 and ISO81060-1 & 2
- Clinically validated for adults, children and neonates
- Clinical test data available for regulatory/ registration purposes
- Bladderless, reusable cuffs available in six sizes
- Latex free cuffs with bladder available in six sizes
- Neonatal disposable cuffs available



EG01200

Sidestream Capnography Module



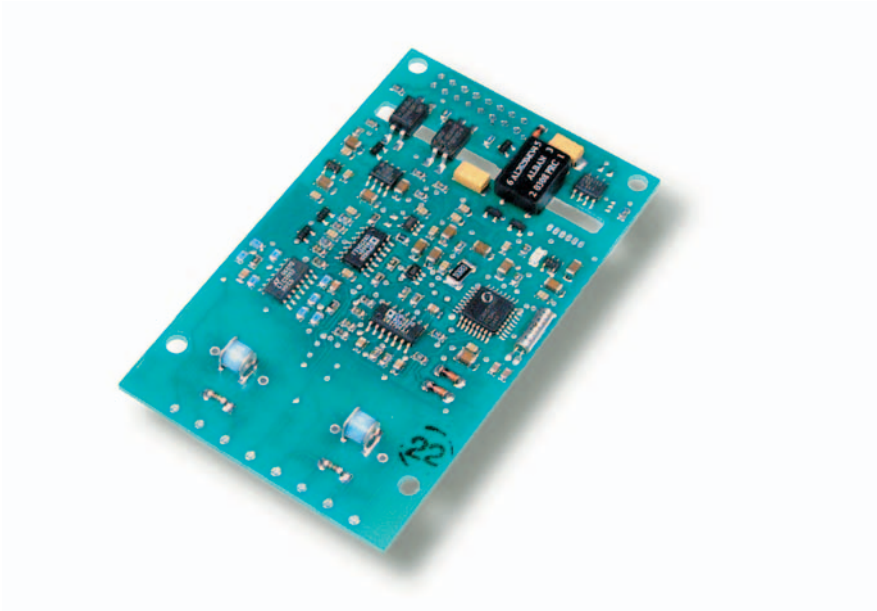
etCO₂

- Advanced technology, all compensations integrated
- Small size (77 x 53mm), maximum height 45mm
- Single power supply (5V DC), low power (300-500mW)
- Measures etCO₂, inCO₂, respiration rate
- Capnogram can be transmitted in three different sample rates
- Measurement of respiration rate between 0 – 99 min⁻¹
- Measurement of etCO₂ in either mmHg or %Vol (0-13%), STPD
- Monitors bench temperature, ambient pressure and flow rate
- Regulated flow rates of 60, 100 and 150 ml/min
- User adjustable compensation for N₂O and O₂
- Highest quality, long life-time pneumatics integrated (>10000h)
- Integrated valve for auto-zeroing
- Two-point calibration
- Additional input for FiO₂ sensor (galvanic oxygen cell)
- High resolution capnogram also on higher respiration rates
- Complies with the newest version of EN ISO 21647
- Status messages and commands send over serial interface
- RS232 and TTL level serial UART interface
- Mechanically compatible with other Medlab modules
- Filters and adapters available



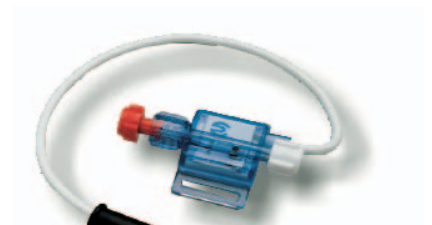
EG02000

Invasive Blood Pressure Module



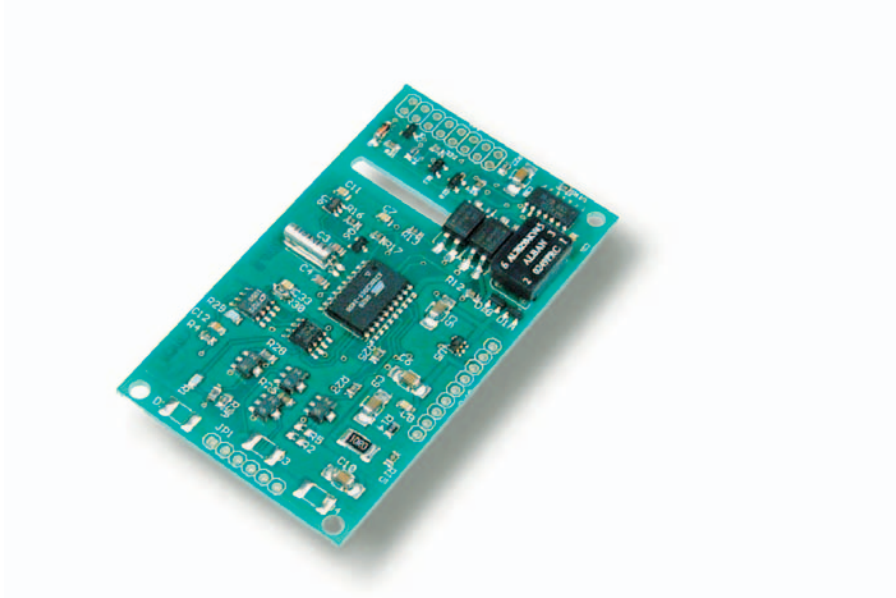
IBP

- Two independent channels
- Works with standard pressure transducers of $5\mu\text{V}/\text{V}/\text{mmHg}$
- Simulation mode built-in for easy integration into user system
- Waveform transmission speed selectable (50, 100 and 150 Hz)
- Displays static pressures and waveforms
- Integrated pulse rate detection: 30 bpm - 250 bpm
- Automatic detection of systolic -, mean - and diastolic blood pressure
- Measuring range -10 mmHg to +300 mmHg (+/-1% accuracy)
- Zero point can be shifted by +/- 50 mmHg
- Zeroing commands built-in - independently for both channels
- Transmission of pulse rate, systolic -, mean - and diastolic pressure
- Status messages and commands send over the serial interface
- Lifetime calibration
- Complies with IEC601-2-34
- Defibrillation protection and Patient isolation built-in (4kV, Type CF)
- RS232 and TTL level serial UART interface
- Very small size: 88 x 53 mm, maximum thickness 10mm
- Power supply: 5 Volt, one supply voltage only
- Power consumption: 500 mW max, depending on transducer impedance



EG00700

Two Channel Temperature Module



°C

- Two independent channels plus reference channel
- Small size (77 x 44 mm), maximum height 10 mm
- Single power supply (5 V DC), 60mW
- RS232 and TTL level serial UART interface
- Integrated patient isolation according to IEC601-1 (4kV, Type CF)
- Integrated sensor-off detection
- Transmission of temperature values, resolution 0.1°C
- Measuring range 20.1°C up to 45.0°C
- Compatible with all YSI 400 Probes
- Accuracy: +/- 0.1°C + Probe Tolerance



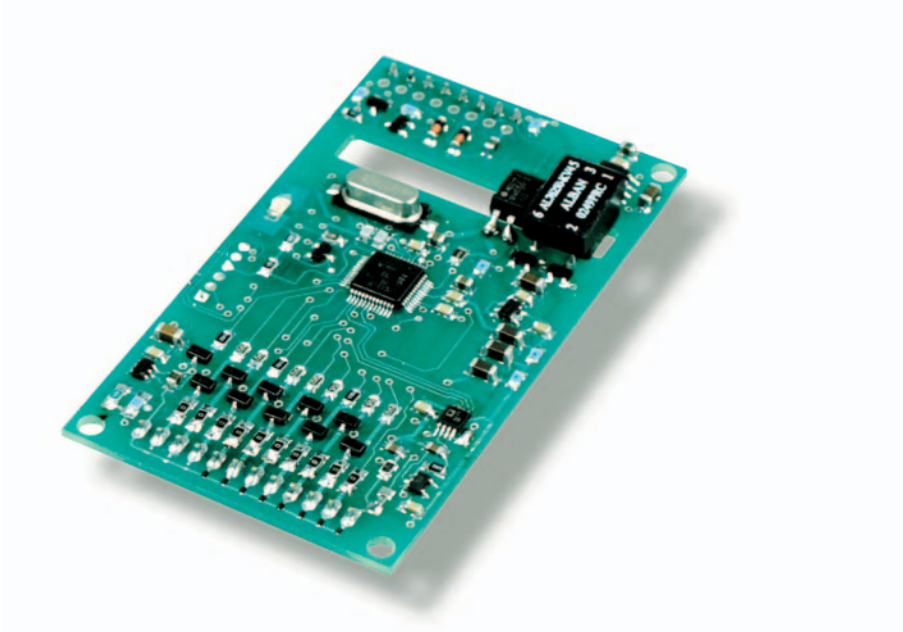
Applications:

Patient Monitors

Temperature measurement for incubators aso.

EG00750

Nine Channel Precision Temperature Module



°C

- Nine independent channels, plus reference channel
- Small size (77 x 44 mm), maximum height 10 mm
- Single power supply (5 V DC), 100mW
- RS232 and TTL level serial asynchronous interface
- Integrated patient isolation according to IEC601-1, class CF
- Packet oriented transmission with checksum
- Transmits up to 10 measurements per second
- Resolution 0.01°C
- Measuring range 15.00°C up to 59.00°C
- Compatible with all YSI 400 Probes
- Defibrillation protection
- Accuracy: +/- 0.01°C to +/- 0.02°C + Probe Tolerance
- Made in Germany



Applications:

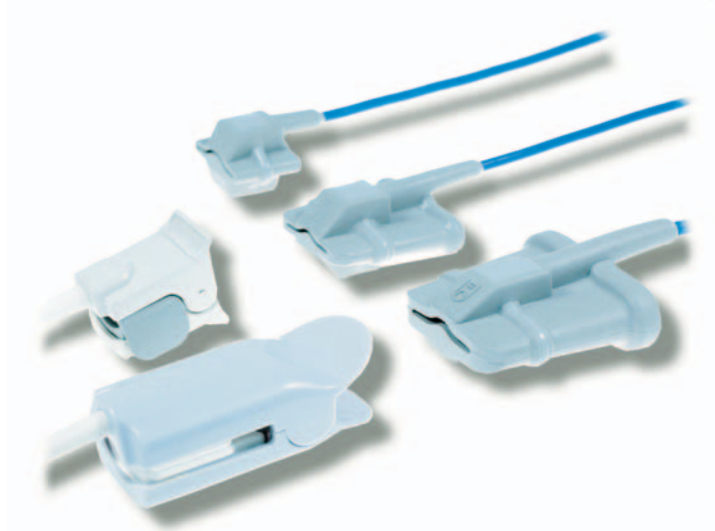
Patient Monitors

Temperature measurement for incubators

Industrial precision temperature measurement

Accessories

SpO₂ probes for EG00352 and PEARL100



Medlab PEARL SpO₂ probes can be used with all currently sold Medlab pulse oximeters. They are the result of more than 15 years of experience in developing SpO₂ sensors. By using only the highest quality cabling, a Kevlar re-enforcement and a specially designed cable strain relief, we are able to offer all reusable probes with a two year warranty.

The standard cable length of the sensors is 95cm, extension cables are optionally available.

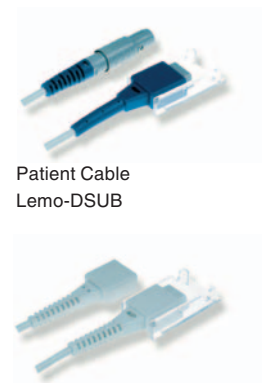
Ordering Info

Reusable Probe Selection:

Type	Patient Weight	Order Number
Fingerclip P110	>20kg	00425
Fingerclip PS100	>20kg	00427
Oxiflex large R100	>20kg	00450
Oxiflex med. RM100	>20kg	00460
Oxiflex small RS100	>10kg	00470
Wrap Probe WR100	>1kg	00429
Y Probe Y100	>1kg	00426
Earclip probe ES100	>30kg	00428
Tongue probe V100	>20kg	00430

Disposable Probe Selection:

Type	Patient Weight	Order Number
Disposable Adult	>30kg	00420
Disposable Child	10kg-50kg	00421
Disposable Infant	<20kg	00422
Disposable Neonate	<3kg	00423



Extension Cable
DSUB-DSUB

NIBScan Blood Pressure Cuffs



The NIBScan blood pressure cuffs combine comfort with durability. They are designed with great care and made of robust materials, without using latex or PVC.

The textile cuff is coated with a skin friendly material and easy to clean. The bladder is made of strong but flexible polyurethane for high durability.

NIBScan blood pressure cuffs are available for monitors using single or double connection hoses. They are delivered in six sizes: three adult types, one type to be used on the thigh and two cuffs for children and infants. The cuffs are employed with threaded connectors as a standard, other connectors are available, please see the table on the right side.

Applications

- Home Care
- Patient Monitoring
- Ambulatory Blood Pressure Recorders



Ordering Info

Cuffs with one connection hose:

Size	Limb Circumference	Order Nr
Infant	9-15cm	90110
Child	14-21cm	90210
Small adult	20-28cm	90310
Normal adult	27-35cm	90410
Large adult	34-44cm	90510
Thigh	42-52cm	90610

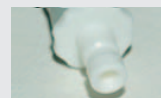
Cuffs with two connection hoses:

Size	Limb Circumference	Order Nr
Infant	9-15cm	90120
Child	14-21cm	90220
Small adult	20-28cm	90320
Normal adult	27-35cm	90420
Large adult	34-44cm	90520
Thigh	42-52cm	90620

For the different connection systems, please add the following codes after the order number:



Threaded connector - standard delivery



Bayonet connector - Suffix SHP



Locking connector - Suffix SMQ



Luer-Lock connector - Suffix SDS



Double threaded connector - Suffix CK



Double Luer-Lock connector - Suffix DS



Double locking connector - male-female Suffix DX



Double locking connector - female-female Suffix MQ

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