Isolation Amplifier
(electrically isolated input-output) ISO 6, ISO 4 and ISO 2

Instrumentation Amplifier
(low drift) IA 6, IA 4, IA 2

Low Noise Amplifier
LNA6, LNA4, LNA2

Square Wave Stimulator
DST8 (Digitally Controlled Output)

Electrocardiogram amplifier
ECGA 1

Isolation Unit
IU10A

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Tehnološki park 24, SI-1000 Ljubljana, Slovenia
Isolation Amplifier
(electrically isolated input-output) ISO 6, ISO 4 and ISO 2

- Isolated input
  - digitally modulated-demodulated barrier
  - barrier impedance: 1014 Ohm / 2 pF
  - leakage current at 240 Vrms: 0.18 Arms
  - 100 % test: 1500 V
  - no battery required
- Input
  - impedance: 1MOhm
  - input bias current: 50 pA
  - voltage range: +/- 12V
  - common-mode rejection: 100 dB
- DC/AC switch
- Gain: 1, 2, 5, 10, 20
- Low pass filter:
  - Bessel, 4’th order
  - 1, 3, 10, 30, 100 Hz (-3dB)
  - x 1 / x 100
  - 100, 300, 1000, 3000, 10000 Hz (-3dB)
  - other options may be required
- Voltage offset
  - On/Off switch
  - coarse +/- 10 V
  - fine +/- 0.5 V
- Output
  - voltage range: +/- 12 V
  - current output: +/- 35 mA
  - resistance: 100 Ohm
  - short-circuit protected
- Power requirements: 115 ~ 230 AC, 50 ~ 60 Hz, 50 W, fuse T 0.6A or T0.3A (ISO6 and ISO4), 25 W, fuse T 0.3A or T0.1A (ISO2).
- Physical size: high quality metal 19” rack mounting; 134 x 487 x 236 mm, weight cca. 2.5kg (ISO6 and ISO4), 89 x 487 x 236 mm, weight cca. 2.0kg (ISO2).

(Specifications subject to change without notice.)
**Instrumentation Amplifier**  
*(low drift) IA 6, IA 4, IA 2*

- **Input**
  - Impedance: 1MΩ
  - Voltage range: +/- 12V
  - Equivalent input noise voltage: 10.3 nV/sqrt(Hz) at 1kHz
  - Input offset voltage (typ.): 6 V
  - Temp. drift: 0.1 V/°C
- **DC/AC switch**
- **Gain:** 1, 2, 6, 10, 20
- **Low pass filter**
  - Bessel, 4'th order
  - 1, 3, 10, 30, 100 Hz (-3dB)
  - x 1 / x 100
  - 100, 300, 1000, 3000, 10000 Hz (-3dB)
  - other options may be required
- **Voltage offset**
  - On/Off switch
  - coarse +/- 10 V
  - fine +/- 0.5 V
- **Output**
  - voltage range: +/- 12 V
  - current output: +/- 35 mA
  - resistance: 100 Ohm
  - short-circuit protected
- **Power requirements:** 115 – 230 AC, 50 – 60 Hz, 50 W, fuse T 0.6A or T0.3A (IA6 and IA4), 25 W, fuse T 0.3A or T0.1A (IA2).
- Physical size: high quality metal 19” rack mounting; 134 x 487 x 236 mm, weight cca. 2.5kg (IA6 and IA4), 89 x 487 x 236 mm, weight cca. 2.0kg (IA2).

*(Specifications subject to change without notice.)*
Low Noise Amplifier
LNA6, LNA4, LNA2

- Input
  - Impedance: 1Mohm
  - Voltage range: +/- 12V
  - Equivalent input noise voltage: 3.8 nV/sqrt(Hz) at 1kHz
  - Input offset voltage (typ.): 25 V
  - Temp. drift: 0.6 V/°C
- DC/AC switch
- Gain: 1, 2, 6, 10, 20
- Low pass filter
  - Bessel, 4'th order
  - 1, 3, 10, 30, 100 Hz (-3dB)
  - x 1 / x 100
  - other options may be required
- Voltage offset
  - On/Off switch
  - coarse +/- 10 V
  - fine +/- 0.5 V
- Output
  - voltage range: +/- 12 V
  - current output: +/- 35 mA
  - resistance: 100 Ohm
  - short-circuit protected
- Power requirements: 115 - 230 AC, 50 - 60 Hz, 50 W, fuse T 0.6A or T0.3A (LNA6 and LNA4), 25 W, fuse T 0.3A or T0.1A (LNA2).
- Physical size: high quality metal 19" rack mounting; 134 x 487 x 236 mm, weight cca. 2.5kg (LNA6 and LNA4), 89 x 487 x 236 mm, weight cca. 2.0kg (LNA2).

(Specifications subject to change without notice.)
Square Wave Stimulator
DST8 (Digitally Controlled Output)

- **Triggering**
  - Repeated T.B.P. (time between pulses): 1...10 linearly adjustable, multiplied by: 0.001, 0.01, 0.1, 1, 10 s (optional as required)
  - Single (manual trigger)
  - Gated (TTL compatible)
  - TTL down slope
  - TTL up slope
  - External, with adjustable trigger level: -10 to +10 linear adjustable in 3 decades (0.1, 1, 10 V)
- **Delay**
  - On/Off switch
  - 1...10 linear adjustable, multiplied by: 0.1, 1, 10, 100, 1000 ms (optional as required)
  - Control Error indication
- **Width**
  - Auto/Var. switch
  - 1...10 linearly adjustable, multiplied by: 0.001, 0.01, 0.1, 1, 10 s (optional as required)
  - Control Error indication
- **Amplitude**
  - Analogue/Digital switch
  - Analogue: 0-10 linearly adjustable, multiplied by: 0.001, 0.01, 0.1, 1 V.
  - Digital: 0.00-9.99, multiplied by: 0.001, 0.01, 0.1, 1 V.
  - TTL compatible
- **DC Baseline**
  - On/Off
  - -5 V...+5 V linear adjustable
- **Twin Pulses switch**
- **Polarity**: normal/reverse
- **Pulse Shape**: normal/reverse
- **Pulses/DC switch**
- **Normal/Bipolar switch**
- **Stand By switch**
- **Optical Monitor**
- **Sync. Output**
- **Trigger Output**
- **Stimulus Output**
  - Max. voltage range: Pulses +/- 10 V, DC Baseline +/- 5V
  - Max. current output: +/- 35 mA (optional as required)
  - Resistance: 50 Ohm
  - Short-circuit protected
- **Isolation Unit connector (see specifications of Isolation Unit: Model IU10A)**
- **Power requirements**: 110...130 V AC or 200...240 V AC, 50 - 60 Hz, 50 W, fuse T 0.6A slow or T 0.3A slow
- **Physical size**: high quality metal 19" rack mounting; 89 x 487 x 236 mm, weight cca. 3.0kg

(Specifications subject to change without notice.)
Electrocardiogram amplifier
ECGA 1

PROBE:
- Input resistance: 2.5 GOhm / 2.5 pA
- Input bias current: +/-15 nA
- Stand-by: on/off

ISOLATION:
- Voltage rated continuous:
  - AC (50 Hz) - min. 3500 Vrms
  - DC - min. 4950 Vrms
- Isolation mode rejection:
  - AC (50 Hz) - 115 dB
  - DC - 160 dB
- Barrier impedance: 1014 Ohm / 2 pF
- Leakage current (240 Vrms, 50 Hz): 0.18 Arms

ECG AMPLIFIER:
- Gain: 600 ... 7500, continuously variable
- Input max. measurement range: 0.7 ... 8 mV
- Filter: band-pass, Butterworth type of the 2nd order
  - Frequency response (-3 dB): 0.3-100 Hz
- Notch filter: 50 Hz, Q = 6 (on/off)
- Output voltage (max): 10 V
- Output resistance: 1 kOhm

TRIGGER CHANNEL:
- TTL compatible pulse (width 40 ms) triggered by the maximal positive slope of the wave.

POWER REQUIREMENTS:
- 115 - 230 AC, 50 - 60 Hz, 25 W, fuse T 0.3A or T0.1A.

PHYSICAL SIZE:
- 45 x 220 x 250 mm, weight cca. 1.5kg

(Specifications subject to change without notice.)
Isolation Unit
IU10A

- Isolation
  - Digitally modulated-demodulated barrier
  - Barrier impedance: 1014 Ohm / 2 pF
  - Leakage current at 60 Hz, 240 Vrms: 0.18 Arms
  - Isolation mode rejection: 140 dB
  - Continuous voltage: 1000 Vrms
- Gain
  - Nominal gain: 1
  - Nonlinearity: 0.02 % max.
- Input
  - Voltage range: +/- 12 V
  - Resistance: 200 kOhm
- Output
  - Voltage range: +/- 12V
  - Current drive: +/- 15 mA (optional as required)
  - Ripple voltage: 20 mVp-p
- Frequency response
  - Signal bandwidth: 50 kHz
  - Slew rate: 2 V/ s
- Power requirements: no battery required
- Physical size: 45 x 25 x 80 mm, with 1.5m connecting cable, weight cca. 0.2 kg.

(Specifications subject to change without notice.)