

eLockIn203 Specifications

| GENERAL PARAMETER | | | |
|--------------------------------|--|--|---------------------|
| Functions | Lockin Amplifier | | |
| | Spectrum Acquisition | | |
| | Oscilloscope | | |
| Remote Control | Ethernet | | |
| Special Features | Dual Harmonic Dual Input Synchron Mode up to 250 kHz | | |
| Display | Color TFT - 16.51 cm (6.5") | | |
| LOCKIN AMPLIFIER SPECIFICATION | | | |
| General | Number of Phases | 4 simultaneously acquired phases | |
| | Dynamic Reserve | max. 135 dB | |
| | Input Noise | < 5 nV _{rms} /Hz ^{0.5} @ 100kHz | |
| | Time Constants | 0.1 ms ... 1 ks | |
| | Full Scale Sensitivity | 10 nV ... 10 V in 1-2-5 sequence | |
| | Phase Resolution | 0.0001° | |
| Signal Input | Type | single-ended (A) dual input (A&B) differential (A-B) | |
| | Connector | BNC | |
| | Coupling | DC or AC (f _{-3dB} = 2 Hz) | |
| | Damage Threshold | +/- 12 V (in ON state) +/- 2 V (in OFF state) | |
| | Full Scale Input Ranges | High dynamic: ± 3.6 V _{rms} Normal: ± 360 mV _{rms} Low noise: ± 35 mV _{rms} | |
| | Time Constants | 0.1 ms to 1 ks in 1-2-5 steps | |
| | Synchron filter | 1 to 200 periods in 1-2-5 steps | |
| | Filter Characteristic | Butterworth | |
| | Gain Deviations | < 1 % between Dynamic Ranges | |
| | Gain accuracy @ 22 °C | ± (0.0004 % of range + 0.5 % measurement) | |
| | Impedance | ~ 1 MΩ 10 pF | |
| | Input Noise U _{out} = 0 V, τ = 1 ms 50 Ω @ 100 kHz | high dynamic: < 300 nV _{rms} /Hz ^{0.5} normal dynamic: < 30 nV _{rms} /Hz ^{0.5} low noise: 5 nV _{rms} /Hz ^{0.5} | |
| | Reference Output | Internal Oscillator | 10 mHz .. > 250 kHz |
| | | Frequency Resolution | 3 mHz |
| Frequency Accuracy | | +/- 50 ppm from 0 °C to 70 °C | |
| Reference Output Voltage | | < 0.1 mV _{rms} ... 7 V _{rms} | |
| Output Noise | | @ U _{out} = 1 mV _{rms} , τ = 1 ms, 100 kHz < 230 nV _{rms} /Hz ^{0.5} | |
| Reference Input | Frequency | 0.1 Hz .. 250 kHz | |
| | Amplitude | TTL or sine signal > 100 mV _{rms} | |
| | PLL Locking Time | < (100 ms+ 10 Cycle) | |
| | Phase Error | < 4 deg @ f = 1 kHz | |
| | Impedance | TTL: 1 MΩ small sine signals: 1 MΩ large sine signals: 1 kΩ | |

| SPECTRUM ACQUISITION SPECIFICATION | | |
|------------------------------------|------------------------------|--|
| General | Displayed channels | 4 |
| | Frequency range | 0.1 Hz to 250 kHz |
| | Modes | Logarithmic, linear |
| | Acquisition | Single spectra Integrated spectra Continuous spectra |
| Channels | 1 st Lockin | RA, PhiA, XA, YA |
| | Auxiliary IN | AD1 to AD8 |
| | Internal data | f, Uac, In |
| | Auxiliary OUT | DA5 to DA8 |
| Special Features | 2 nd Lockin | RB, PhiB, XB, YB for "A&B" input Rn, Phin, Xn, Yn for "A" & "A-B" input |
| | Mathematical | Noise |
| Special Features | Measurement | Single point positions & Q-factors |
| | Storage | Reference channel |
| OSCILLOSCOPE | | |
| General | Data Channels | 4 |
| | Sampling rate | 39.062 kHz |
| | Time scaling | 20 μs to 5 s per division |
| Channels | 1 st Lockin | RA, PhiA, XA, YA |
| | Auxiliary IN | AD1 to AD8 |
| | Internal data | f, Uac, In |
| | Auxiliary OUT | DA5 to DA8 |
| Special Features | 2 nd Lockin | RB, PhiB, XB, YB for "A&B" input Rn, Phin, Xn, Yn for "A" & "A-B" input |
| | Mathematical | Noise |
| Special Features | | Ring buffer |
| OUTPUTS & AUXILIARY CHANNELS | | |
| Input | Number of Available Channels | 8 |
| | Input Range | ± 10 V |
| | Sampling Rate | 39.062 kHz |
| | Resolution | 24 Bit |
| Output | Number of Available Channels | 8 |
| | Output Range | ± 10 V |
| | Sampling Rate | 156 kHz |
| | Resolution | 24 Bit |
| DATA STORAGE | | |
| Internal Hard drive | | 32 MByte |
| External drive | | USB-Stick |
| Editing function | | Clear data, Copy data to USB |
| Storage type | | ASCII data, numbered |
| GENERAL | | |
| Power supply | | 110/230 V |
| Power cord frequency | | 50/60 Hz |
| Dimensions | | 0.16 (H) x 0.84 (W) x 0.34 (D) m (handle in backward position) |
| Weight | | 6 kg |
| Warranty | | 2 years |
| Includes | | Manual & Certificate USB stick, SMB-BNC cables Low noise BNC cable power cord |
| Optional | | I/U-converters |



250 kHz Digital Lockin Amplifier / Sine Generator

Features

- **Real 4-channel** lockin amplifier
- **Dual** harmonic & **dual** input
- **5 nV/Hz^{0.5}** input noise @ 100 kHz
- 14-bit 40 Mega samples per second
- graphical display vs. time and frequency
- 14-bit sine wave generation from 0.1 mV_{rms} to 7 V_{rms}
- **Synchronous filtering** over full frequency range
- 0.01 Hz to **250 kHz**, 135 dB dynamic reserve
- data width: 64/96-bit, results: float
- remote control via TCP/IP, internal web-server
- free DLL, windows driver and remote program

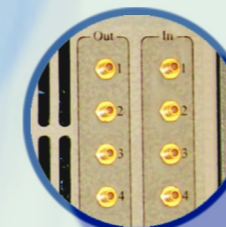
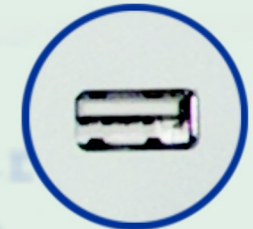
TCP/IP remote control



Internal PLL & Trigger Out



USB data storage



24-bit 156 kHz
Auxiliary Inputs &
Auxiliary Outputs



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Note: Specifications are subject to change without notice due to design improvement