Příloha č. 1 - Technická specifikace

UTB – DNS laboratorní přístroje a měřící technika 64/2018 – Fotopřijímače s příslušenstvím

IDENTIFIKAČNÍ ÚDAJE ZADAVATELE

Obchodní název:	**Univerzita Tomáše Bati ve Zlíně**
Sídlo:	nám. T. G. Masaryka 5555, 760 01 Zlín
IČO:	70883521
Rektor:	prof. Ing. Petr Sáha, CSc.

Předmět veřejné zakázky:
Předmětem veřejné zakázky je dodávka **2ks fotopřijímačů s příslušenstvím** pořizovaného pro potřeby Fakulty aplikované informatiky Univerzity Tomáše Bati ve Zlíně.

Specifikace předmětu veřejné zakázky:

Fotopřijímač I:

Spektrální rozsah	190 – 1000 nm
Typ detektoru	Si PIN fotodioda
Aktivní oblast detektoru	1,1x1,1 mm^2
Operační rozsah	200 fW – 2 mW
Nastavitelný zisk	$10^3 – 10^{11}$ V/W
Šířka pásma	až 500 kHz
Aplikace	spektroskopie opto-elektrické měření
Rozsah napětí na výstupu	± 10 V
Maximální proud na výstupu	± 30 mA
Napájecí napětí	± 15 V
Stabilní výstup napájecího zdroje	± 12 V, max. 50 mA, +5 V, max. 30 mA
Konektory (vstup)	FC konektor pro připojení optického vlákna
Počet kusů	**1 ks**

Fotopřijímač II:

Spektrální rozsah	190 – 1000 nm
Typ detektoru	Si PIN fotodioda
Aktivní oblast detektoru	1,1x1,1 mm^2
Operační rozsah	200 fW – 2 mW
Nastavitelný zisk	$10^3 – 10^{11}$ V/W
Šířka pásma	až 500 kHz
Aplikace	spektroskopie

	opto-elektrické měření
Rozsah napětí na výstupu	± 10 V
Maximální proud na výstupu	± 30 mA
Napájecí napětí	± 15 V
Stabilní výstup napájecího zdroje	± 12 V, max. 50 mA, +5 V, max. 30 mA
Konektory (vstup)	Kulatá příruba s min. průměrem 25 mm
Počet kusů	**1 ks**

Napájecí zdroj:

Kompatibilita	s fotopřijímačem
Vstupní napětí	100 – 240 VAC
Výstup	± 15 V, +400/-250 mA
verze	Evropská
Počet kusů	**2 ks**

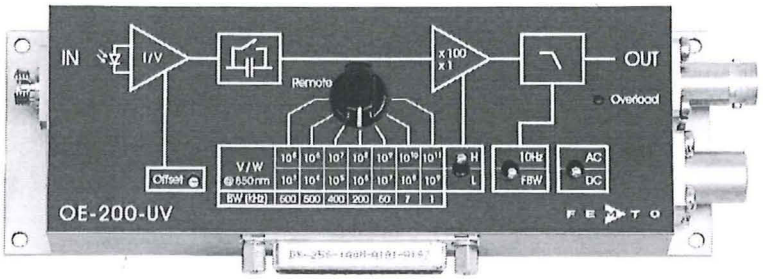
Kabel pro připojení k počítači USB to D-Sub - specifikace:

Kompatibilita	s fotopřijímačem
Aplikace	Ovládání fotopřijímače přes USB
Typ USB	2.0
Typ D-Sub	25 pinů, male
Délka kabelu	min. 1,5 m
Software na CD	Drivery pro počítač s Microsoft Windows, knihovny .dll, aplikační software s GUI
Počet kusů	**2 ks**

MIT Lasery, fotonika, a jemná mechanika

MIT [illegible], Nanova 56, 147 00 Praha 4

Variable Gain Photoreceiver – Fast Optical Power Meter



The picture shows model OE-200-UV-FC with fiber optic input.

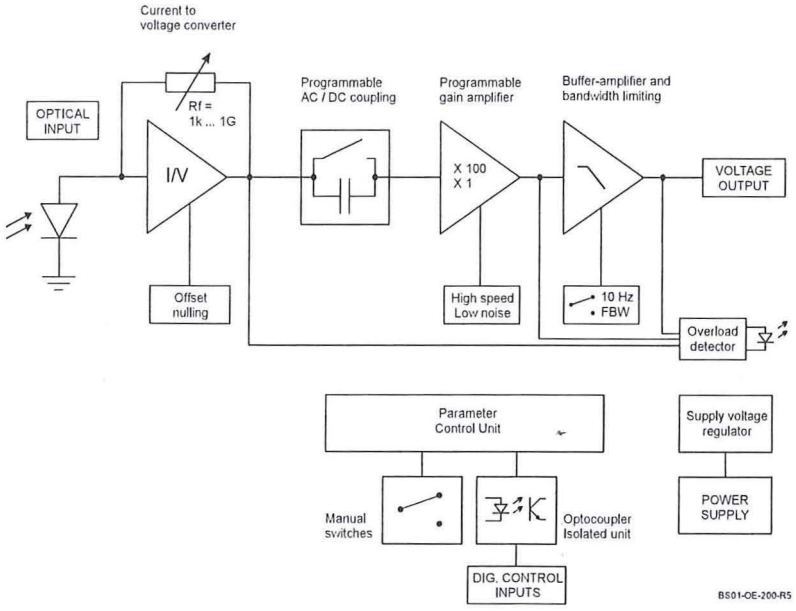
Features

- **Si-PIN detector, active area 1.1 x 1.1 mm²**
- **Spectral range 190 - 1000 nm**
- **Very low noise, NEP down to 17 fW/√Hz**
- **Bandwidth up to 500 kHz**
- **Conversion gain adjustable from 1 x 10^3 up to 1 x 10^{11} V/W**
- **Optical free-space input 1.035"-40 threaded, alternatively 25 mm diameter unthreaded**
- **Fiber optic input available as screw-on adapter (1.035"-40) and as permanently mounted FC-input (for calibrated precision measurements)**
- **Factory calibrated at 850 nm (fiber optic FC version only)**
- **Full manual and remote control capability**

Applications

- **All-purpose very low-noise photoreceiver (O/E converter)**
- **Time resolved optical pulse and power measurements**
- **Optical front-end for oscilloscopes, spectrum analyzers, A/D converters and lock-in amplifiers**
- **Fast fiber optic power meter**

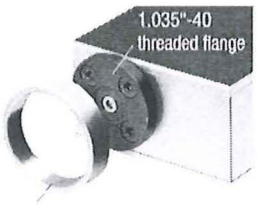
Block Diagram



Variable Gain Photoreceiver – Fast Optical Power Meter

Available Versions

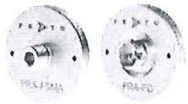
OE-200-UV-FST



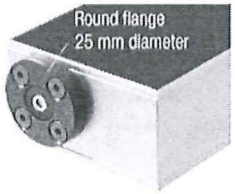
Internal threaded coupler ring with 30 mm outer diameter (included)

1.035"-40 threaded flange for free space applications compatible with many optical standard accessories and for use with various types of fiber connector adapters.

Optional: Fiber adapters PRA-FC and PRA-FSMA

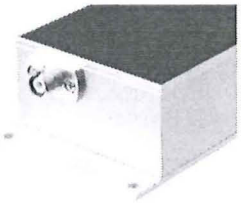


OE-200-UV-FS



25 mm dia. unthreaded flange for free space applications compatible with many optical standard accessories.

OE-200-UV-FC



fix/permanent FC fiber connector
for highest coupling efficiency and best conversion gain accuracy (±5 %)

Since illumination conditions with the permanently mounted fiber optic connector are well defined, the FC model is delivered with a factory calibrated conversion gain at 850 nm.

The electro optical conversion gain factors of the FST and FS free space models are set to fit nominally at 850 nm.

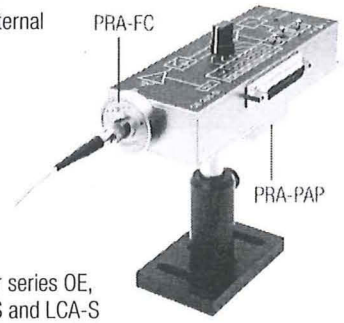
Variable Gain Photoreceiver – Fast Optical Power Meter

Related OE-200 Models	See separate datasheets for following models on www.femto.de:	
@ 850 nm	OE-200-SI-FST	Si-PIN, Ø 1.2 mm, 320 - 1060 nm free space input, 1.035"-40 threaded flange
	OE-200-SI-FS	Si-PIN, Ø 1.2 mm, 320 - 1060 nm free space input, 25 mm dia. unthreaded flange
	OE-200-SI-FC	Si-PIN, Ø 1.2 mm, 320 - 1060 nm FC fiber connector (fix/permanent)
@ 1310 nm	OE-200-IN1-FST	InGaAs-PIN, Ø 300 µm, 900 - 1700 nm free space input, 1.035"-40 threaded flange
	OE-200-IN1-FS	InGaAs-PIN, Ø 300 µm, 900 - 1700 nm free space input, 25 mm dia. unthreaded flange
	OE-200-IN1-FC	InGaAs-PIN, integrated ball lens, 900 - 1700 nm FC fiber connector (fix/permanent)
@ 1550 nm	OE-200-IN2-FST	InGaAs-PIN, Ø 300 µm, 900 - 1700 nm free space input, 1.035"-40 threaded flange
	OE-200-IN2-FS	InGaAs-PIN, Ø 300 µm, 900 - 1700 nm free space input, 25 mm dia. unthreaded flange
	OE-200-IN2-FC	InGaAs-PIN, integrated ball lens, 900 - 1700 nm FC fiber connector (fix/permanent)
	OE-200-S	customized versions available on request

Available Accessories

PRA-FSMA
PRA-FC

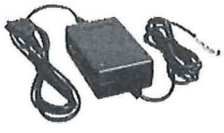
fiber-adapter with external 1.035"-40 thread



PRA-PAP

post adapter plate,
easy to mount on
FEMTO photoreceiver series OE,
FWPR, PWPR, HCA-S and LCA-S

PS-15



power supply,
input: 100 - 240 VAC,
output: ±15 VDC

LUCI-10

compact digital I/O interface for USB remote control,
supports opto-isolation of amplifier signal path from PC
USB port, 16 digital outputs, 3 opto-isolated digital inputs,
bus-powered operation

Variable Gain Photoreceiver – Fast Optical Power Meter

Specifications	Test conditions	V_S = ±15 V, T_A = 25 °C, output load impedance 1 MΩ
Gain	Conversion gain	1 x 10^3 ... 1 x 10^{11} V/W (@ 850 nm, output load ≥ 100 kΩ)
	Gain accuracy	±1 % electrical, between settings
	Conversion gain accuracy	OE-200-UV-FST/FS (@ P_{OPT} ≤ 2 mW, 850 nm) free space ±15 % nominal
		OE-200-SI-FST (@ P_{OPT} ≤ 2 mW, 1550 nm) with fiber adapter (PRA series) ±15 % nominal
		OE-200-UV-FC (@ P_{OPT} ≤ 1 mW, 850 nm) fixed fiber input connector ±5 % guaranteed by factory calibration*
	* Factory verified with MM 50/125, FC/APC, NA 0.22 (when using FC/PC fiber connector, coupling efficiency may differ slightly.) Coupling efficiency depends on fiber type.	
	Gain drift	see table below
Frequency Response	Lower cut-off frequency	DC / 1 Hz, switchable
	Upper cut-off frequency (–3dB)	up to 500 kHz (see table below), switchable to 10 Hz
Detector	Detector type	Si-PIN photodiode
	Active area	1.1 x 1.1 mm^2
	Spectral range	190 - 1000 nm
	Sensitivity	0.29 A/W (@ 850 nm) 0.36 A/W (@ 700 nm)
Input	Input offset current (dark current)	2 pA typ.
	Input offset drift	see table below
	Input offset compensation range	±600 pA, adjustable by offset potentiometer or ±400 pA, adjustable by external control voltage
	Optical CW saturation power	see table below
	Noise equivalent power (NEP)	see table below

Variable Gain Photoreceiver – Fast Optical Power Meter

Specifications (continued)

Performance Depending on Gain Setting

Gain setting (low noise) (V/W)**	10^3	10^4	10^5	10^6	10^7	10^8	10^9
Upper cut-off frequency (–3 dB)	500 kHz	500 kHz	400 kHz	200 kHz	50 kHz	7 kHz	1.1 kHz
Rise/fall time (10 % - 90 %)	700 ns	700 ns	900 ns	1.8 µs	7 µs	50 µs	300 µs
NEP (/√Hz)**	60 pW	7.3 pW	1.5 pW	450 fW	150 fW	48 fW	17 fW
Measured at	10 kHz	10 kHz	10 kHz	1 kHz	1 kHz	100 Hz	100 Hz
Integr. input noise (RMS)***	63 nW	9 nW	2.8 nW	1 nW	320 pW	46 pW	6.2 pW
Input offset drift (/°C)**	100 nW	10 nW	1 nW	85 pW	8.5 pW	1.3 pW	1 pW
Gain drift (/°C)	0.008%	0.008%	0.008%	0.01%	0.01%	0.01%	0.02%
Optical CW saturation power**	2 mW	1 mW	0.1 mW	10 µW	1 µW	0.1 µW	10 nW

Gain setting (high speed) (V/W)**	10^5	10^6	10^7	10^8	10^9	10^{10}	10^{11}
Upper cut-off frequency (–3 dB)	500 kHz	500 kHz	400 kHz	200 kHz	50 kHz	7 kHz	1.1 kHz
Rise/fall time (10 % - 90 %)	700 ns	700 ns	900 ns	1.8 µs	7 µs	50 µs	300 µs
NEP (/√Hz)**	48 pW	6.6 pW	1.5 pW	450 fW	150 fW	48 fW	17 fW
Measured at	10 kHz	10 kHz	10 kHz	1 kHz	1 kHz	100 Hz	100 Hz
Integr. input noise (RMS)***	41 nW	6.8 nW	2.5 nW	920 pW	300 pW	43 pW	6.1 pW
Input offset drift (/°C)**	100 nW	10 nW	1 nW	85 pW	8.5 pW	1.3 pW	1 pW
Gain drift (/°C)	0.008%	0.008%	0.008%	0.01%	0.01%	0.01%	0.02%
Optical CW saturation power**	0.1 mW	10 µW	1 µW	0.1 µW	10 nW	1 nW	0.1 nW

** referred to 850 nm

*** The integrated input noise is measured with a shaded input in the full bandwidth ("FBW") setting (referred to 850 nm).
The input referred peak-peak noise can be calculated from the RMS noise as follows:

$$P_{\text{Input noise peak-to-peak}} = P_{\text{Input noise RMS}} \times 6$$

The output noise is given by:

$$U_{\text{Output noise RMS}} = P_{\text{Input noise RMS}} \times \text{gain}$$

$$U_{\text{Output noise peak-to-peak}} = U_{\text{Output noise RMS}} \times 6 = P_{\text{Input noise RMS}} \times \text{gain} \times 6$$

The integrated noise will be reduced considerably by setting the low pass filter to "10 Hz" instead of "FBW". This is especially useful for continuous wave (CW) measurements.

Output

Output voltage range	±10 V (@ ≥100 kΩ output load)
Max. output current	±30 mA (short-circuit proof)
Output impedance	50 Ω (terminate with ≥100 kΩ)

Indicator LED

Function	overload

Digital Control

Control input voltage range	LOW bit: –0.8 ... +1.2 V, HIGH bit: +2.3 ... +12 V
Control input current	0 mA @ 0 V, 1.5 mA @ +5 V, 4.5 mA @ +12 V
Overload output	nonactive: <0.4 V, @ 0 ... –1 mA active: typ. 5 ... 5.1 V @ 0 ... 2 mA

Ext. Offset Control

Control voltage range	±10 V
Offset control input impedance	20 kΩ
Conversion factor	40 pA/V

Power Supply

Supply voltage	±15 V (±14.75 ... ±16.5 V)
Supply current	+110/–80 mA (depends on operating conditions, recommended power supply capability min. ±200 mA)
Stabilized power supply output	±12 V, max. 50 mA, +5 V, max. 30 mA

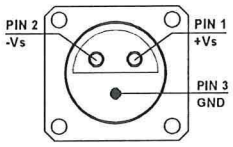
Case

Weight	360 g (0.79 lb)
Material	AlMg4.5Mn, nickel-plated

Temperature Range

Storage temperature	–40 ... +80 °C
Operating temperature	0 ... +60 °C

Variable Gain Photoreceiver – Fast Optical Power Meter

Absolute Maximum Ratings	Optical input power (CW)	20 mW	
	Digital control input voltage	–5 V/+16 V relative to digital ground DGND (pin 9)	
	Analog control input voltage	±15 V relative to analog ground AGND (pin 3)	
	Power supply voltage	±20 V	
Connectors	Input	OE-200-UV-FST	1.035"-40 threaded flange for free space applications
		OE-200-UV-FS	25 mm unthreaded flange for free space applications
		OE-200-UV-FC	FC fiber optic connector
	Output	BNC jack (female)	
	Power supply	Lemo® series 1S, 3-pin fixed socket (mating plug type: FFA.1S.303.CLAC52) Pin 1: +15 V Pin 2: –15 V Pin 3: GND	
			
	Control port	Sub-D 25-pin, female, qual. class 2 Pin 1: +12 V (stabilized power supply output) Pin 2: –12 V (stabilized power supply output) Pin 3: AGND (analog ground for pins 1 - 8) Pin 4: +5 V (stabilized power supply output) Pin 5: overload output: HIGH = overload (referred to pin 3) Pin 6: signal output (connected to BNC) Pin 7: NC Pin 8: input offset control voltage Pin 9: DGND (ground for digital control pins 10 - 14) Pin 10: digital control input: gain, LSB Pin 11: digital control input: gain Pin 12: digital control input: gain, MSB Pin 13: digital control input: AC/DC Pin 14: digital control input: high speed / low noise Pin 15 - 25: NC	
Scope of Delivery	OE-200-UV, internally threaded coupler ring (FST version only), Lemo® 3-pin connector, datasheet, transport package		

Variable Gain Photoreceiver – Fast Optical Power Meter

Remote Control Operation

General

Remote control input bits are opto-isolated and connected by a logical OR function to the local switch settings. For remote control set the corresponding local switches to "Remote", "AC" and "H" and select the desired setting via a bit code at the corresponding digital inputs.
Mixed operation, e.g. local AC/DC setting and remote controlled gain setting, is also possible.
The switch setting "FBW / 10 Hz" of the low pass signal filter is not remote controllable.

Gain setting

Low noise Gain (V/W) Pin 14=HIGH	High speed Gain (V/W) Pin 14=LOW	Pin 12 MSB	Pin 11	Pin 10 LSB
10^3	10^5	LOW	LOW	LOW
10^4	10^6	LOW	LOW	HIGH
10^5	10^7	LOW	HIGH	LOW
10^6	10^8	LOW	HIGH	HIGH
10^7	10^9	HIGH	LOW	LOW
10^8	10^{10}	HIGH	LOW	HIGH
10^9	10^{11}	HIGH	HIGH	LOW

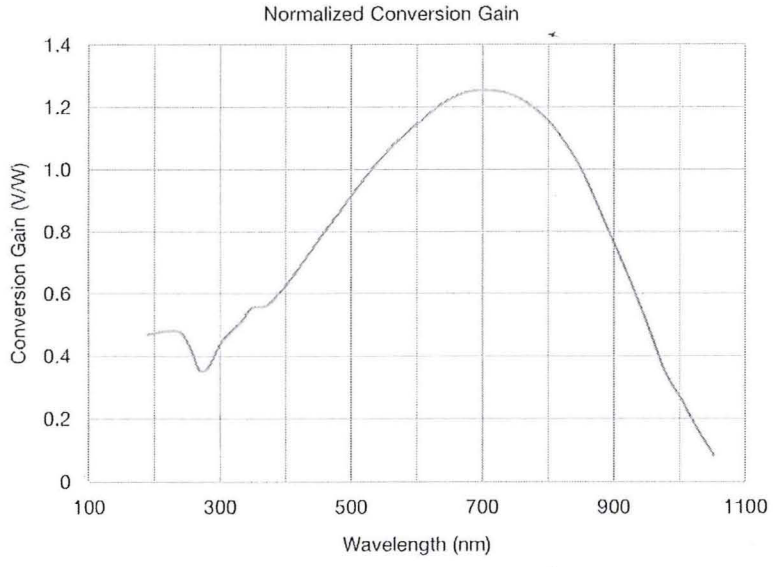
Gain settling time

<150 ms

AC/DC setting

Coupling	Pin 13
AC	LOW
DC	HIGH

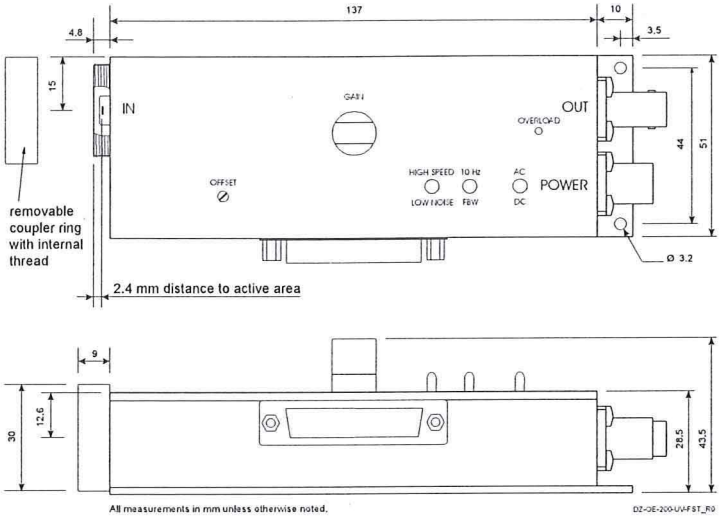
Conversion Gain



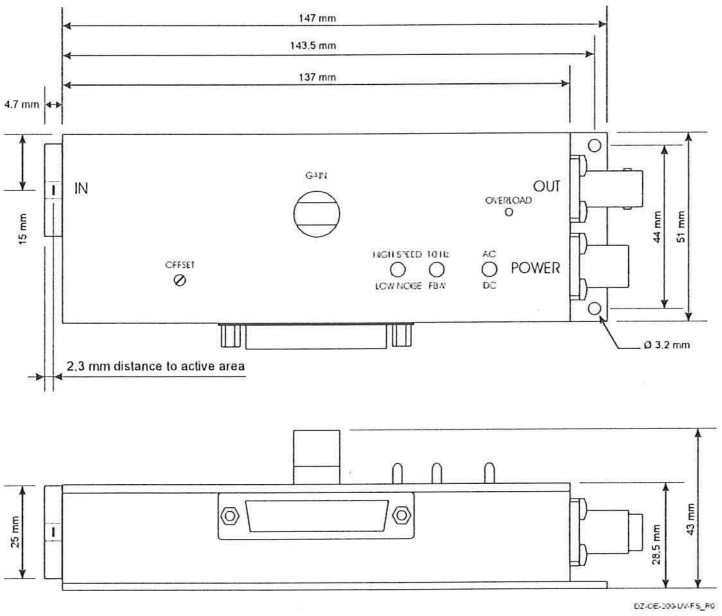
Variable Gain Photoreceiver – Fast Optical Power Meter

Dimensions

OE-200-UV-FST (1.035"-40 threaded free space input):



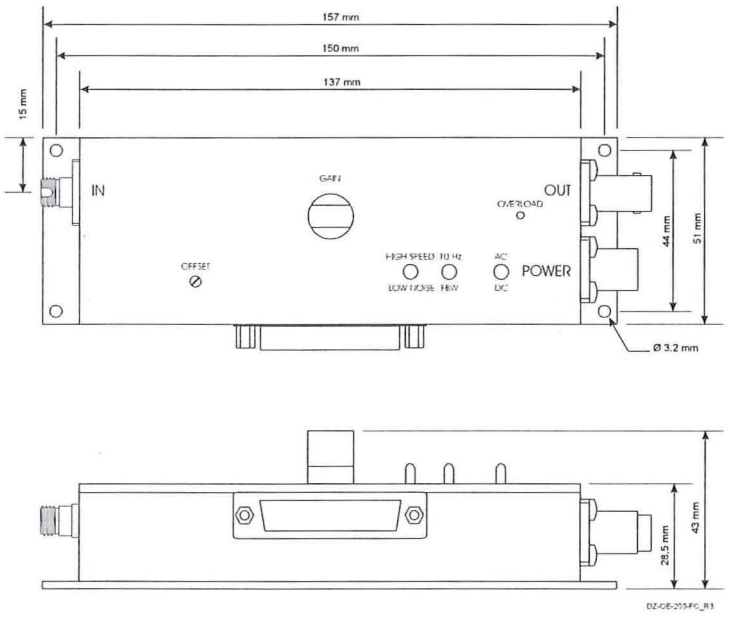
OE-200-UV-FS (25 mm dia. unthreaded free space input):



Variable Gain Photoreceiver – Fast Optical Power Meter

Dimensions (continued)

OE-200-UV-FC (FC fiber optic input):



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Datasheet . PS-15-25-L (Type: PSU25B-14E)

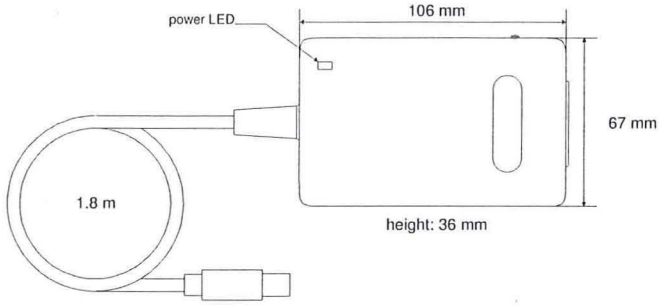
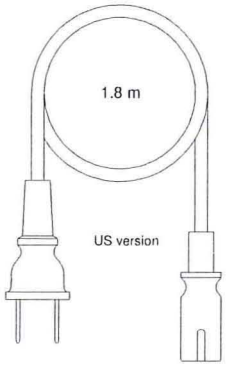
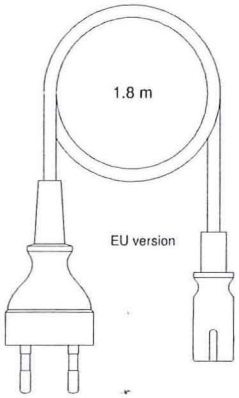
Power Supply for FEMTO Amplifier Modules

Features	• **Regulated stabilization ±15 VDC** • **Low ripple and noise** • **Wide input range switched power supply**
Safety Instructions	This power supply is exclusively designed for use with FEMTO amplifier modules. Before use, take care to follow general electrical safety rules and notice the information shown in this datasheet and at the type label on the power supply. Do not use visibly damaged power supplies. Do not use this power supply in security relevant applications or in chemically aggressive environment. Do not expose this power supply to unusual mechanical stress or vibrations. During use do not expose the unit to direct sunlight and do not cover it. Respect the general rules for fire prevention. No liability can be assumed for any consequential damage, provided this is not governed otherwise by applicable product liability laws and regulations. Use in original condition only, do not open, do not repair the unit. When operation is no longer possible or considered to be unsafe, the power supply must be taken out of service and be secured against unintended operation.
Environmental Protection	FEMTO offers all end users in the EU the possibility to return "end of life" units without incurring disposal charges. If you wish to return a unit for waste recovery, please contact FEMTO for further information. Do not dispose of the unit in a litter bin or at a public waste disposal site.
Safety and EMI Requirements	The manufacturer declares that this product meets the requirements and the intents of the following standards, normative documents and directives. The unit bears the CE mark. A complete declaration of CE-conformity is available upon request. EN 60950-1: 2006 + A11+ A1+ A12 + A2, EN 55032: 2012+AC: 2013 Class B, EN 55024: 2010 EN 61000-3-2: 2014, EN 61000-3-3: 2013, IEC 61000-4-2: 2008, IEC 61000-4-3: 2010, IEC 61000-4-4: 2012, IEC 61000-4-5: 2014 IEC 61000-4-6: 2013, IEC 61000-4-8: 2009, IEC 61000-4-11: 2004 EMC Directive 2014/30/EU, Low Voltage Directive 2014/35/EC; RoHS 2011/65 with amendment (EU)2015/863

Specifications		
	Test conditions	T_A = 25 °C
Input	Input voltage	100 VAC ... 240 VAC, ±10 %, 47 Hz … 63 Hz
	Power consumption, no load	2.3 W typ.
	Power consumption, max. load	20 W max.
	Inrush current	max. 15 A @ 115 VAC, max. 30 A @ 230 VAC
Output	Output voltage	±15 VDC, ±5 % +5 VDC (not connected to the output connector)
	Output current	+500 mA / –300 mA max.
	Ripple and noise	15 mV_{RMS} typ. (@ +500 mA / –300 mA load)
Protections	Insulation voltage, prim./sec.	4242 VDC
	Insulation resistance, prim./sec.	≥ 50 MΩ min. (@ 500 VDC)
	Overload protection	short-circuit-proof
	No load protection	idle-running-proof
Case	Material	plastic housing, screwed
	Device socket, main	small power socket, IEC-60320-C8
	Color	black
	Dimensions	106 mm x 67 mm x 36 mm (L x W x H)
	Weight	ca. 385g (including AC power cord)

Datasheet PS-15-25-L (Type: PSU25B-14E)

Power Supply for FEMTO Amplifier Modules

Ambient Conditions	Storage temperature	–40 °C ... +85 °C
	Operating ambient temperature	0 °C ... +40 °C
	Air humidity	5 % ... 95 % (non-condensing)
Connector/Cable	AC input cord	VDE, 2 x 0.75 mm², black
	EU-Version	Euro-plug, type C, CEE 7/16 to connector Euro 8, IEC-60320-C7
	US-version	US-plug, type A, NEMA 1-15 to connector Euro 8, IEC-60320-C7
	DC output cord	22AWG, black
	DC output connector	Lemo® series 1S, 3-pol (plug type: FFA.1S.303.CLAC52)
	Connector pin assignment	
Dimensions		
		
		
Scope of Delivery	Power supply, AC power cord, datasheet, transport package	

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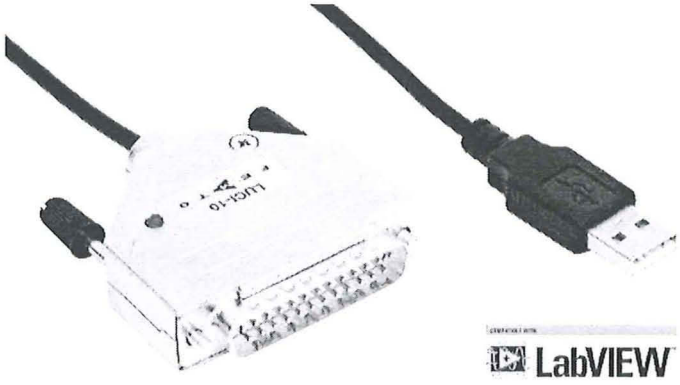
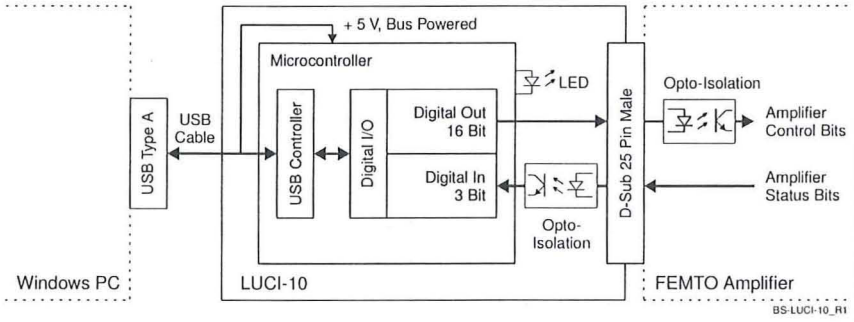
www.femto.de

USB to D-Sub Control Interface for FEMTO Amplifiers



Features	• **Compact digital I/O interface for USB remote control of FEMTO amplifiers** • **Supports opto-isolation of amplifier signal path from PC USB port** • **16 digital outputs, 3 opto-isolated digital inputs** • **Bus-powered operation** • **System driver, application software and VI's for use with LabVIEW™ included**
Applications	• **Remote control of FEMTO® amplifiers and photoreceivers directly from a PC**
Block Diagram	

Hardware Specifications

General Characteristics	Bus interface	USB 2.0 (full-speed)
	Digital I/O channels	16 output lines 3 opto-isolated input lines
	Supply	PC USB port, +5 V, typ. 100 mA, bus-powered (no auxiliary power supply required)
	Connectors	USB type A D-Sub, 25 pin, male
	Cable	AWG 28, length 1.8 m
Output	Number of channels	16 output lines, supporting opto-isolation inside FEMTO amplifiers and photoreceivers
	Output voltage range	LOW bit: 0 … +0.5 V (@ 0 … 2 mA output current) HIGH bit: +4 … +5.5 V (@ 0 … 2 mA output current)
	Max. current	6 mA per channel
	Writing rate	max. 600 operations per second

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Input	Number of channels	3 opto-isolated input lines
	Input voltage range	LOW bit: –20 … +1.5 V HIGH bit: +3 … +20 V
	Switching current	1 mA typ. @ 5 V
	Reading rate	max. 300 operations per second
Power Supply	USB port, bus powered	+4.5 … +5.5 V DC
	Active current	max. 200 mA / typ. 100 mA
	Suspend current	<0.5 mA (standby mode of Windows®)
Case	D-Sub case	metal hood (EMI/RFI shielding), with jack screws
	Weight	130 g (0.3 lb.)
	Material	zinc die-cast, nickel plated
Temperature Range	Storage temperature	–40 … +100 °C
	Operating temperature	0 … +50 °C
Absolute Maximum Ratings	Max. voltage at input	±30 V
	Max. short-circuit output current	±20 mA per channel, 200 mA total
	Max. isolation voltage	±60 V (input ground to output ground)
Connectors	Device port	D-Sub, 25 pin, male Pin 1: NC Pin 2: NC Pin 3: GND (IN) Pin 4: NC Pin 5: Digital IN Pin 6: Digital IN Pin 7: Digital IN Pin 8: NC Pin 9: GND (OUT) Pin 10: Digital OUT Low Byte, LSB Pin 11: Digital OUT Low Byte Pin 12: Digital OUT Low Byte Pin 13: Digital OUT Low Byte Pin 14: Digital OUT Low Byte Pin 15: Digital OUT Low Byte Pin 16: Digital OUT Low Byte Pin 17: Digital OUT Low Byte, MSB Pin 18: Digital OUT High Byte, LSB Pin 19: Digital OUT High Byte Pin 20: Digital OUT High Byte Pin 21: Digital OUT High Byte Pin 22: Digital OUT High Byte Pin 23: Digital OUT High Byte Pin 24: Digital OUT High Byte Pin 25: Digital OUT High Byte, MSB
	PC port	USB type A

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Software Specifications

Software (included on CD)

Device driver	dynamic link library (DLL) for integration in Microsoft Windows® 32 bit & 64 bit operating system for use with C/C++, LabWindows™ /CVI™ or LabVIEW™
Application software	GUI (graphical user interface) programs for simple remote control of FEMTO amplifiers and photoreceivers provided as executable programs and LabVIEW projects
LabVIEW programs	sample programs to control and test the LUCI-10 hardware (including front panel and block diagram)
LabVIEW library	special VI toolkit for integration in LabVIEW 32 bit & 64 bit development environment

Note: A National Instruments LabVIEW™ license is not included in this software package. For use of the GUI application programs the LabVIEW Run-Time Engine is required. If not detected on the host PC during the installation process the LabVIEW Run-Time Engine will be installed automatically from the CD.

System Requirements

Operating system	Microsoft Windows XP with Service Pack 3, or higher
Processor	Intel Pentium III or AMD Athlon, or better
System memory	1 GB of RAM, or more
Hard disk space	about 5 GB
Interface port	USB 1.1 or USB 2.0
Supported FEMTO modules	any standard FEMTO amplifier or photoreceiver with 25 pin D-Sub socket, except model HLVA-100

Optional Requirements

For development of own application programs an additional development environment like LabVIEW Version 2012 (or higher) or C/C++ is required.

Legal Notice

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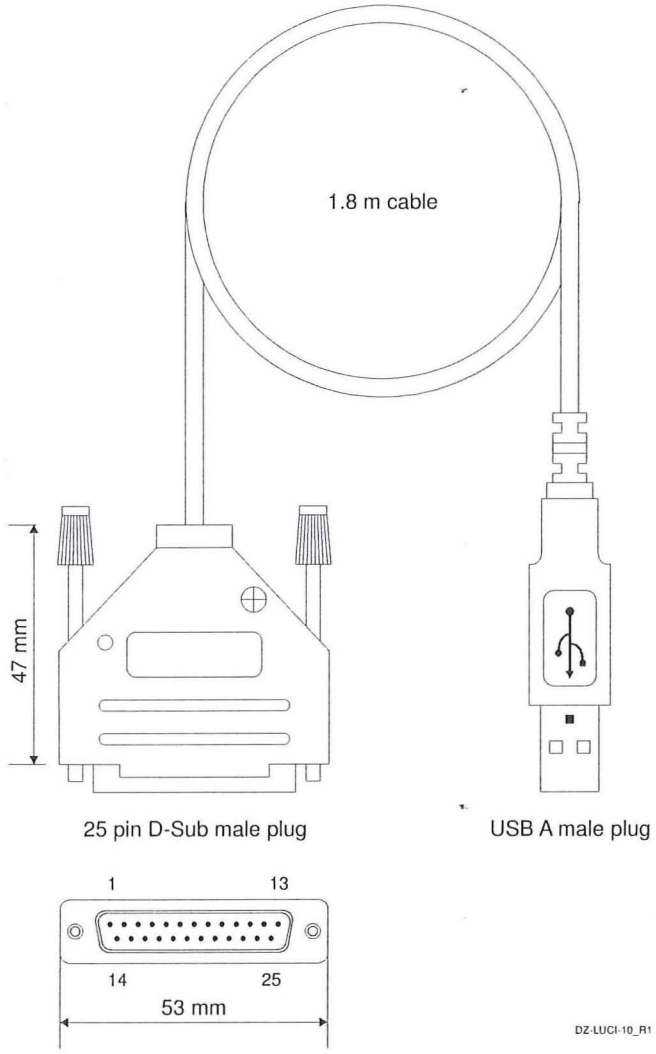
Dimensions



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