

PENKO Engineering B.V. When Weighing Counts

FLEX specs Extended



SPECIFICATIONS FLEX Range	
Wiring	Full Wheatstone bridge with passive connections (6-wire system)
Sense system	Passive sense system
Excitation voltage	10VDC
Minimum bridge resistance	87Ω @ 10V excitation
Maximum bridge resistance	1245Ω @ 10V excitation
Number of load cells	1 channel 1 - 4 load cells 350Ω @ 10V excitation
	1 - 11 load cells 1000Ω @ 10V excitation
Sensitivity	Certified: 0.8μV minimum voltage for verification scale @ 10V excitation
	Non-certified: 0.08μV @ 10V excitation
Selectable ranges	1, 1.5, 2, 2.5, 3mV/V
Input voltage unipolar @3mV/V	-2mV to 32mV
Input voltage bipolar @3mV/V	-32mV to 32mV
A/D conversion speed	1600 measurements per second
Internal resolution	24 bits
A/D converter type	Sigma-Delta, ratio metric, isolated from digital
Non linearity	< 0.005% of reading
Offset drift	< +/- 2 ppm/°C
Span drift	< +/- 2 ppm/°C
Display resolution	100,000 divisions max. (certified with 10,000 divisions)
Display step	x1, x2, x5, x10, x 20 x50, x100, x200
Decimal comma	Selectable between any digits of the display value
Digital filter	High performance digital filters 1-10Hz
Overall filter	0 to -48dB
Calibration methods	Dead load and span with up to 8 point linearization
	Millivolt calibration
	G - CAL (Gravity correction)



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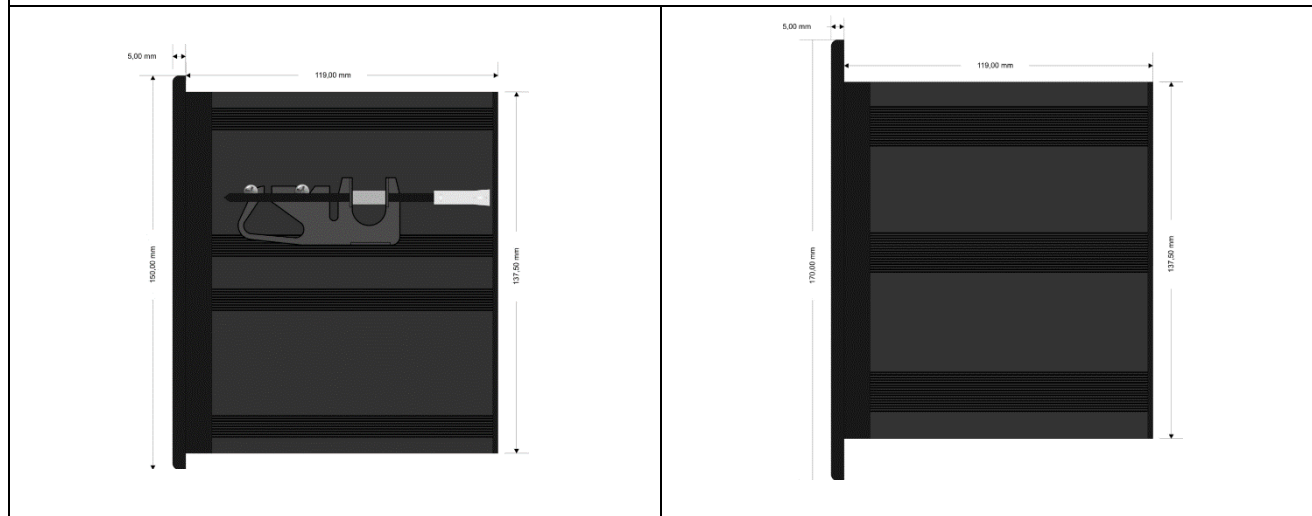
Measurement functions	Automatic zero tracking, motion detection, zero, tare, preset tare, net mode, peak hold, valley hold, bar graphs, multi range, multi interval
Memory allocation	Calibration data flash, dynamic data in SRAM with battery backup
Real-time clock	Standard with rechargeable Lithium battery backup
SCREEN	
Display type	High resolution TFT LCD 640 x 480 pixels, 256 colors, high brightness 500cd/m ² , high contrast 350:1
Display functions	Completely menu driven with graphical user interface
Display rate	Selectable 1, 2, 3, 5, 10 or 25 updates/s
Display filter	0, -6, -12, -18, -24, -30, -36, -42, -48dB
Display filter range	Selectable in any range of the display value
Display suppression	Selectable in any range of the display value
Status enunciators	Zero, Net, No motion, Bar graph, I/O status
Display digits	6 digits with leading zero suppression, selectable height; 9 or 18mm
Display operation	Operate, configure and calibrate via: <ul style="list-style-type: none"> - Front panel (touch screen) - RS232 - Ethernet - USB
Touch screen	Glass screen, 2mm of resistive type
Display size	5.7 inch (145mm)
Display material	Front foil PET 175 μ
ENVIRONMENTAL	
Operating temperature	-10°C to +40°C [14°F to 104°F]
Storage temperature	-20°C to +70°C [-4°F to 158°F]
Relative humidity	Max. 85% non-condensing
APPROVALS	
OIML R76	10,000d single or multi interval at $\geq 0,8\mu\text{V}$ scale interval
EU-type approval number	
MID certified	
OIML R51	Automatic catchweigher/checkweigher instrument
OIML R61	Automatic gravimetric filling instrument
OIML R106	Automatic rail weigh bridge
OIML R107	Discontinuous totalizer
EU-type approval number	TC7753 on 9200714



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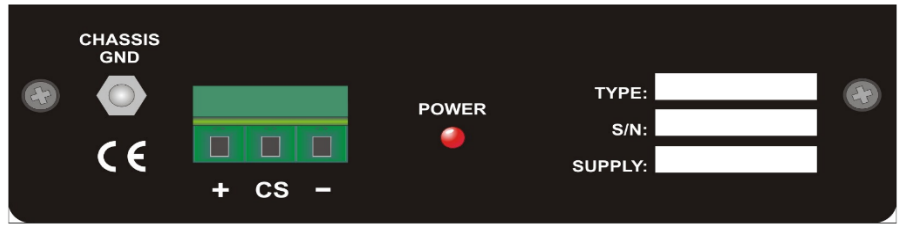
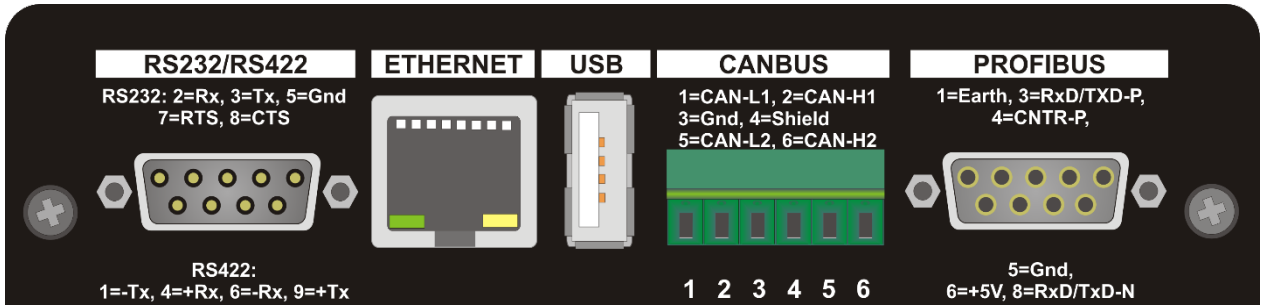
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ENCLOSURE	
Material	Housing: extruded aluminum, black powder coating Front: machined aluminum, black anodized
Dimensions front (w*h*d)	170 x 150 x 5mm
Dimensions housing (w*h*d)	137.5 x 137.5 x 119mm
- panel cut out (w*h)	138.5 x 138.5mm
Weight without option boards	1700g
- option board 4 AI, 4 AO	120g
- option board 8 DI, 16 DO	75g
- option board 16 DI, 8 DO	75g
Mounting clips	2 mounting clips
Rubber seal	O-ring of mosrubber
Protection class	IP45 (or IP65 when built into a cabinet)



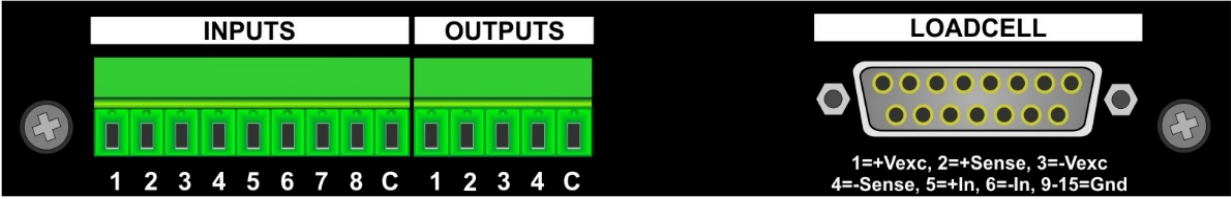
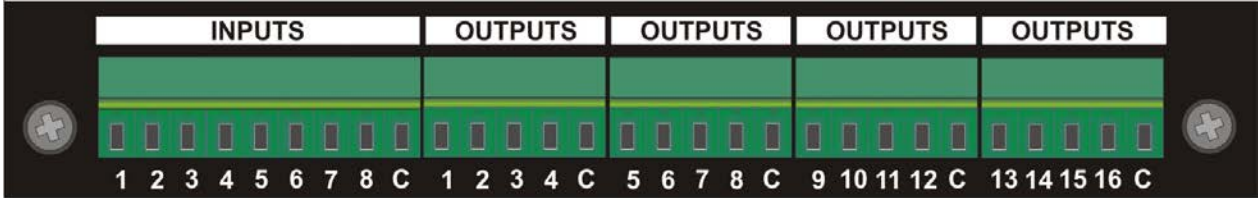
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ELECTRICAL OPTIONS	
	
AC power supply	100 - 240VAC 50/60Hz 20W max.
	
DC power supply	18 - 32VDC (24VDC type) 20W max.
STANDARD COMMUNICATION PORTS	
	
RS232 /RS422	Plain text/ASCII printer, Zebra ZPL protocol, PENKO ASCII, PENKO NPV slave and master, PENKO TP slave and master, Modbus RTU and ASCII, Hostlink Viewteq and PLC
Ethernet	PENKO TP protocol, plain text/ASCII printer, Zebra ZPL protocol, Modbus TCP, EtherNet/IP, Omron Fins, PENKO Buslink, PENKO Web interface
USB	Reporter, PENKO ASCII, TP slave Host functionality for USB storage (FAT16) or HID class keyboard or mouse
CANBUS	PENKO Buslink

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OPTIONAL COMMUNICATION PORTS	
PROFIBUS	DP Slave
COMMUNICATION SOFTWARE	
Pi Mach II	PENKO configuration, update and backup/restore software (free)
PDI Client	PENKO configuration software (free)
Profibus	GSD file
EtherNet/IP	EDS file
STANDARD DI & DO	
	
8 digital inputs	Optical isolated, 1 common, 18-28VDC, PNP or NPN Input 1 to 4 normal or counter input <= 8kHz
4 digital outputs (level contact)	Isolated PhotoMOS outputs, 1 common, max. 35VDC or VAC, 0.5A nominal, 1A Surge (thermal fuse 0.5A), PNP or NPN
OPTION BOARDS FOR 2 AVAILABLE SLOTS	
Option 1: FLEX 8DI16DO	
	
8 digital inputs	Optical isolated, 1 common, 18-28VDC, PNP or NPN Input 1 to 4 normal or counter input <= 8kHz
16 digital outputs (level contact)	Isolated PhotoMOS outputs, 4 commons, max. 35VDC or VAC, 0.5A nominal, 1A Surge (thermal fuse 0.5A), PNP or NPN

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Option 2: FLEX 16DI8DO	
<p>The diagram shows a terminal block with two rows of green terminals. The top row is labeled 'INPUTS' and contains 16 terminals numbered 1 through 8, followed by a 'C' terminal. The bottom row is also labeled 'INPUTS' and contains 16 terminals numbered 9 through 16, followed by a 'C' terminal. To the right of the bottom row, there are two columns of terminals labeled 'OUTPUTS'. The first column has 4 terminals numbered 1 through 4, followed by a 'C' terminal. The second column has 4 terminals numbered 5 through 8, followed by a 'C' terminal. There are two circular symbols with a plus sign on the left and right sides of the terminal block.</p>	
16 digital inputs	Optical isolated, 2 common, 18-28VDC, PNP or NPN Input 1 to 4 normal or counter input <= 8kHz
8 digital outputs (level contact)	Isolated PhotoMOS outputs, 2 commons, max. 35VDC or VAC, 0.5A nominal, 1A Surge (thermal fuse 0.5A), PNP or NPN
Option 3: Analog I/O	
<p>The diagram shows a terminal block with two rows of green terminals. The top row is labeled 'ANALOG INPUTS' and contains 8 terminals numbered +I1- Sh, +I2- Sh, +V1- Sh, +V2- Sh, followed by a 'REF' terminal and an 'R Gnd' terminal. The bottom row is labeled 'ANALOG OUTPUTS' and contains 4 terminals numbered +I1-, +I2-, +I3-, +I4-. There are two circular symbols with a plus sign on the left and right sides of the terminal block.</p>	
4 analog inputs	2 x isolated voltage input, 16bit, 0 - 10VDC 2 x isolated current input, 16bit, 0/4 - 20/24mA
4 analog outputs	Isolated current outputs, 16bit, 0/4 - 20/24mA
Option 4: PT100/DI/DO/USB	
2 PT100 inputs	PT100 inputs
8 digital inputs	Optical isolated, 1 common, 18-28VDC, PNP or NPN
8 digital outputs (level contact)	Isolated PhotoMOS outputs, 2 commons, max. 35VDC or VAC, 0.5A nominal, 1A Surge (thermal fuse 0.5A), PNP or NPN
USB	Reporter, PENKO ASCII, TP slave. Host functionality for USB storage (FAT16) or HID class keyboard or mouse