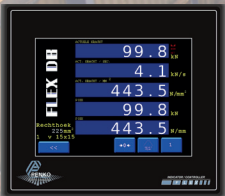


PENKO ENGINEERING B.V.

When Weighing Counts



Force Instruments



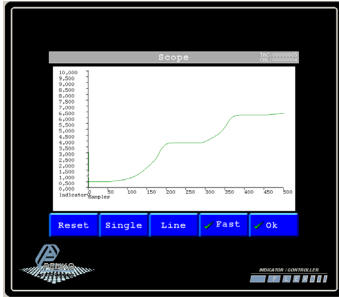
PENKO force instruments applications

Force measuring means measuring a certain load in Newton, independent of the gravity. It is most commonly done as part of the safety system or as part of the (product) quality control system, and used in research & development, during the manufacturing process or during the installation, testing and use of a product.

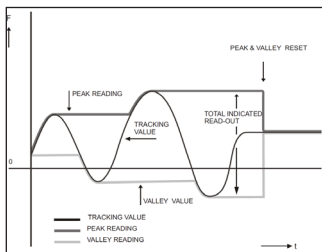
The two most common applications are:

- Checking material for stress/strain or fatigue characteristics.
- Checking the machine or product performance.

Advantages



PENKO force measuring devices are all bi-directional and can therefore be used for both tension as well as compression measurements. They measure at high speed (1600s/s) and have a high internal resolution (24bits), which makes it capable to do extremely accurate measurements. The data collected by the devices result in an accurate test pattern for non destructive tests (duration tests) and very accurate peak forces during destructive tests, for example determining the load at break. This high measuring speed also has the advantage that the devices react within milliseconds to protect your machine from overloads.



The PENKO1020 FMD has a trend indication readout value (TIR) function. This function shows the decrease or increase (slope) of the force per unit of time and can be used to monitor, for example, the force introduction for ropes, chains or concrete elements.



The broad variety in available communication protocols makes it easy to integrate the PENKO force instruments in a process control system. Protocols like Ethernet-IP, Modbus TCP/RTU, FINS, Profibus-DP slave and ASCII are available. The PENKO Web interface protocol gives the freedom to configure PENKO instruments on any PC or mobile device available on the same network. The configuration is done via a web browser, making software installation on a fixed PC unnecessary.



Together with the PENKO Data Reporter software, the measuring data can easily be transferred to Windows based programs like Access and Excel. This give you the opportunity to process the data arithmetical and/or integrate the data in standard forms or export to Excell readable ERP systems. PC based scope software is available for graphically monitoring the measuring signal.

PENKO 1020 FMD

www.penko.com/Products/Measuring-Instruments/Controllers



3 digital inputs, 4 digital outputs

Panel mount or desktop / wall mounted stainless steel instrument

Communication portals: USB & Ethernet

Communication protocols: Ethernet-IP, Modbus TCP/RTU, ASCII, Fins, PENKO Web interface

Alibi memory

Measuring speed: 1600s/s

1 force measuring range

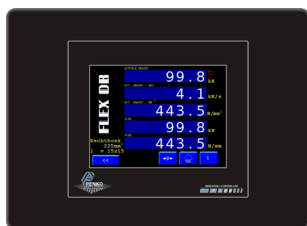
PENKO G-Cal™ auto-calibration system

Optional:

- analogue output
- serial communicatie, CAN interface, Profibus-DP

FLEX2100 Force

www.penko.com/Products/Measuring-Instruments/Controllers



8 digital inputs, 8 digital outputs

Panel mount or desktop / wall mounted stainless steel instrument

Communication portals: USB & Ethernet

Communication protocols: Ethernet-IP, Modbus TCP/RTU, ASCII, Fins, PENKO Web interface

Alibi memory

Measuring speed: 1600s/s

2 force measuring range

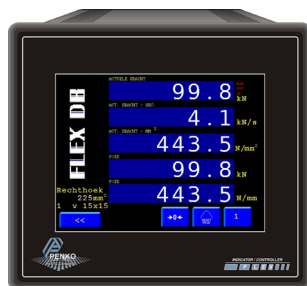
PENKO G-Cal™ auto-calibration system

Optional:

- analogue output
- Profibus-DP communication portal, protocol DP slave

FLEX Force

www.penko.com/Products/Measuring-Instruments/Controllers



16 digital inputs, 20 digital outputs

Panel mount instrument

Communication portals: USB & Ethernet

Communication protocols: Ethernet-IP, Modbus TCP/RTU, ASCII, Fins, PENKO Web interface

Alibi memory

Measuring speed: 1600s/s

2 force measuring range

PENKO G-Cal™ auto-calibration system

Optional:

- analogue output
- Profibus-DP communication portal, protocol DP slave

Type	1020 FMD	FLEX2100 Force	FLEX Force
Wiring	With sense	With sense	With sense
Type of sense	Passive	Passive	Active
Power supply	18-32 Vdc; 7,5 W max.	100-230 V 50/60Hz;10,8-31,2 V dc	100-230 V 50/60Hz;10,8-31,2 V dc
Load cell power supply	5 Vdc	5Vdc	10 Vdc
Sensitivity	0,1 μ V/p (non-certified)		
	0,4 μ V/p (certified)	0,8 μ V/p	0,8 μ V/p
Selectable ranges	1; 1,5; 2; 2,5; 3 mV/V	1;1,5; 2; 2,5; 3mV/V	1;1,5; 2; 2,5; 3mV/V
Input voltage bipolar @ 3mV/V	-16 mV to +16 mV	-16mV to 16mV	-32mV to 32mV
A/D Conversion speed	1600/s	1600/s	1600/s
Max. load cell impedance	1200 Ω	1200 Ω	1200 Ω
Min. Load cell impedance	43,75 Ω	43,75 Ω	43,75 Ω
Max. no. of load cells 350 Ω	8	8	8
1000 Ω	22	22	22
Max. number of d	10.000	10.000	10.000
Display resolution	100.000	100.000	100.000
Internal resolution	24 bits	24 bits	24 bits
Display steps	1,2,5,10,20,50,100,200	1,2,5,10,20,50,100,200	1,2,5,10,20,50,100,200
Display size	2,8"; 320 x 240 pixels	5,7"; 640 x 480 pixels	5,7"; 640 x 480 pixels
Digital inputs	3; 18-28Vdc, PNP or NPN	8;18-36 VDC, PNP or NPN	16; 18-36 VDC, PNP or NPN
Digital outputs	4; Max. 35V/0,5A, PNP or NPN	8; Max. 36V/0,5A, PNP or NPN	20; Max. 36V/0,5A, PNP or NPN
Analog output (optional)	0/4-20/24mA, 10.000d	0/4-20/24mA, 10.000d	0/4-20/24mA, 10.000d
Communication: RS232	Optional	Yes	Yes
RS422	Optional	Yes	Yes
Ethernet	Yes	Yes	Yes
USB	Yes	Yes	Yes
CAN interface	Optional	Yes	Yes
Profibus	Optional	Optional	Optional
Operating temperature	-10°C to +40°C	-10°C to +40°C	-10°C to +40°C
Storage temperature	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C
Relative Humidity	Max. 85% non-condensing	Max. 85% non-condensing	Max. 85% non-condensing
Protection class	IP45	IP45	IP45
Protection class build in cabinet	IP65	IP65	IP65
Weight	700g	1700g	1700g
Dimensions (w x h x d), in mm	150 x 78 x 90mm	220 x 150 x 48mm	137,5 x 137,5 x 119mm



Source: Kelderman Bouw

Certifications

PENKO sets high standards for its products and product performance which are tested, certified and approved by independent expert and government organizations to ensure they meet and exceed metrology industry guidelines. A library of testing certificates is available for reference on www.penko.com

PENKO is a member of the Association of Dutch Suppliers of Weighing Equipment (VLW) and represented in the European Weighing Association (CECIP).



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