PENKO Engineering B.V.

Your Partner for Fully Engineered Factory Solutions

Alpha controller specifications

PENKO
an ETC Company

Table of Contents

1 Introduction

The Penko Alpha controller is a weighing instrument PLC which can support up to 2 weigher channels which runs its own CodeSys softPLC.

The instrument is fully configurable using a web browser or the 7” or 10” (both 1024x600 pixels) capacitive touch screen. For additional programming Codesys PLC and HMI code can be written.

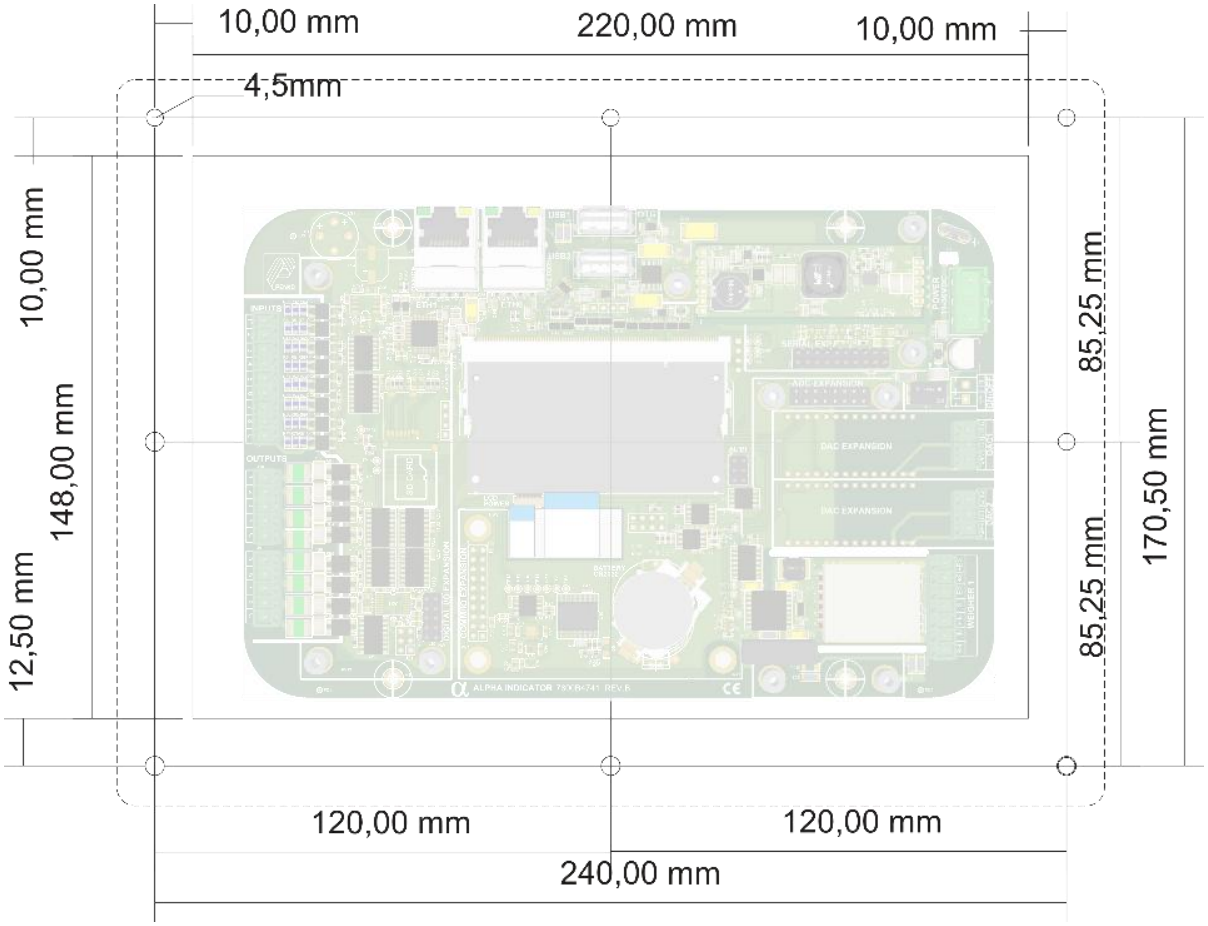
Penko Alpha can be equipped with up to 2 weigher channels and combines accurate and fast weighing results with configurable filling algorithms.

For larger systems, other Penko products can be connected to an Alpha controller.

2 Mounting

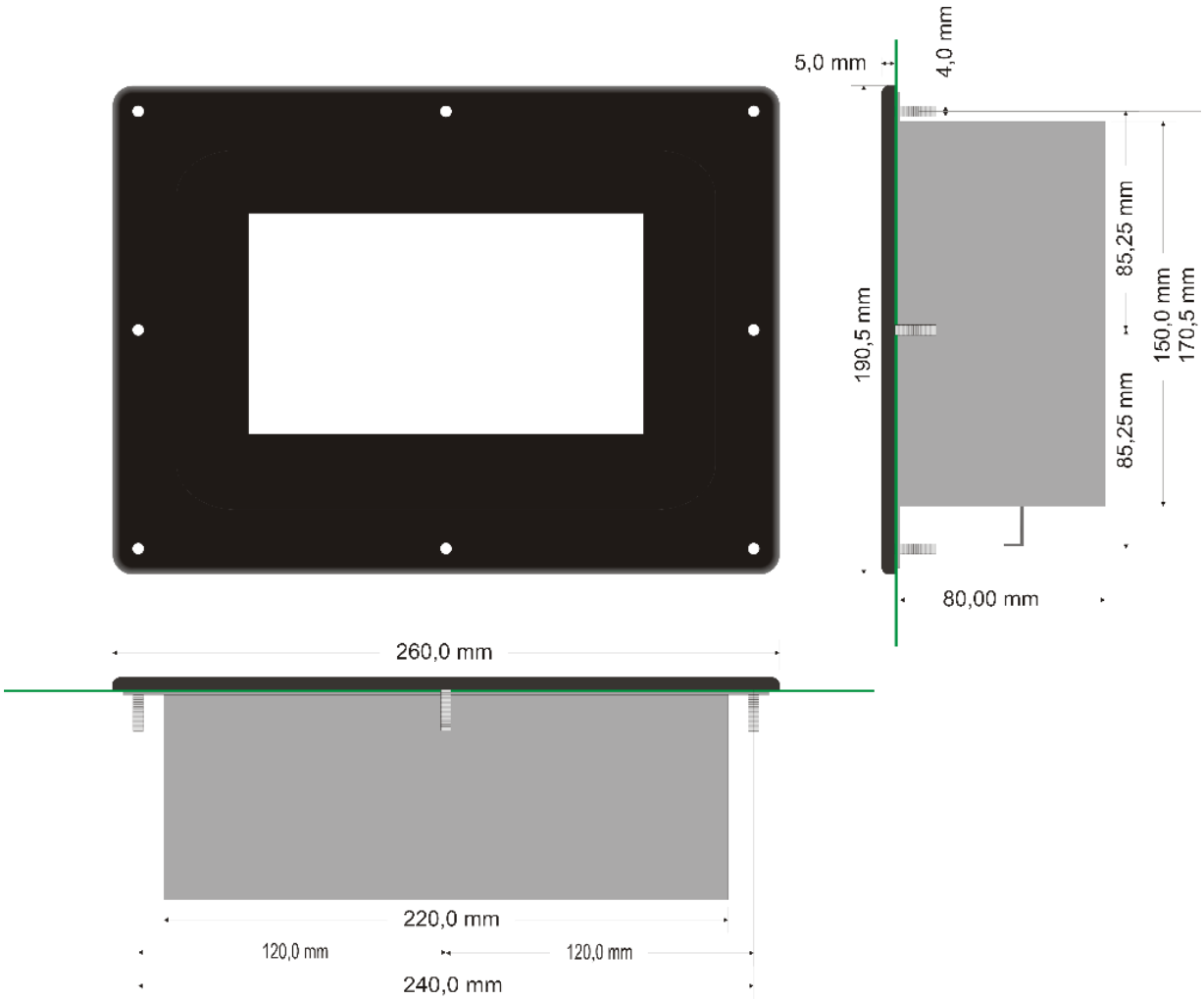
2.1 7-Inch

For panel mounting the panel cutout can be identical to the FLEX2100.

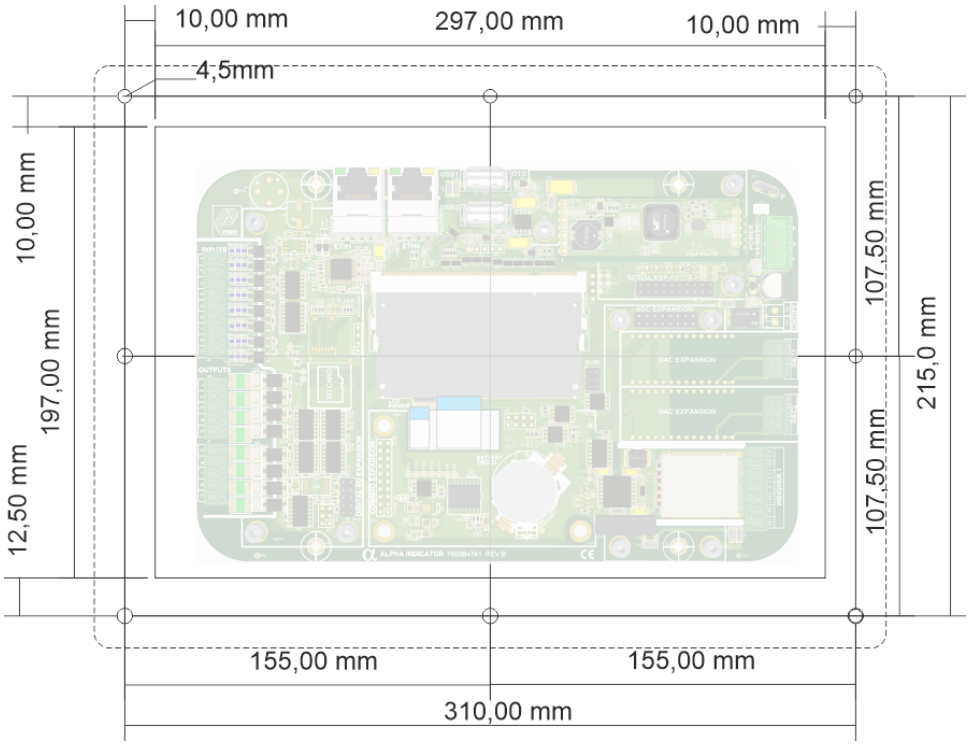


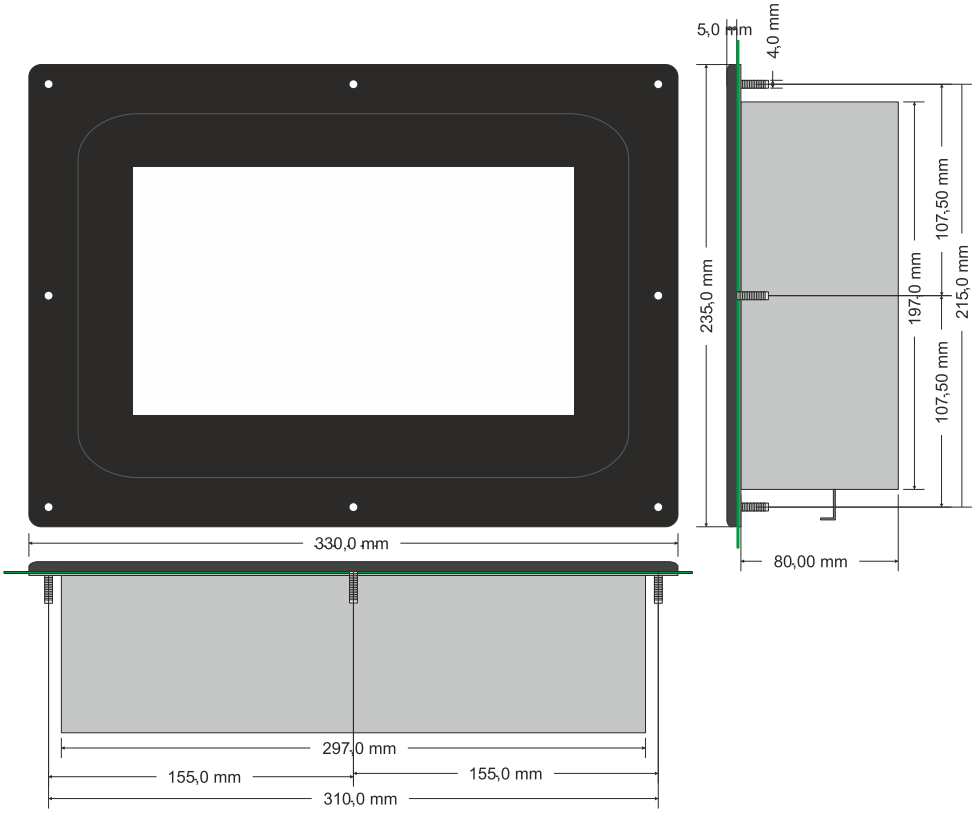
The main unit is attached on the outside or the panel while the mounting collar is attached behind the panel. The back cover is latched and can be locked with a single screw after connecting all wiring for ease of use during installation.

Unit size is 260 x 190,5 x 86mm (hxwxd) excluding panel thickness.
Note: Allow for room for cable output below the unit.



2.2 10-Inch


10,00 mm
297,00 mm
10,00 mm
4,5mm
10,00 mm
197,00 mm
12,50 mm
107,50 mm
215,0 mm
107,50 mm
155,00 mm
155,00 mm
310,00 mm


5,0 mm
4,0 mm
235,0 mm
107,50 mm
197,0 mm
215,0 mm
107,50 mm
330,0 mm
80,00 mm
297,0 mm
155,0 mm
155,0 mm
310,0 mm

3 Technical specifications

Mainboard	
Power supply	11-36VDC; 1A max at 24VDC
Average Power consumption	10,5W
Display	7 or 10 Inch IPS screen with capacitive multitouch sensing 1024x600 pixels Impact resistant 2mm glass Optional: screen protector available for food safety
2 x Ethernet	10/100 Mbit/s
2 x USB-A	USB host functionality for USB-stick, mouse, keyboard, barcode scanner USB device function for service or computer control
Micro SD Card slot	For additional storage or backup purposes
Operating system	Real time Linux (with RT-Preemption-Patch)
PLC functionality	CodeSys runtime
CPU	Quad core Cortex A7 @ 1.2 GHz Cortex M4 @ 266Mhz
Main memory (RAM)	2 GB
Internal memory (Flash)	8 GB
Retain memory hardware	128 Kbytes
Retain memory CodeSys	8 Kbytes
CodeSys data storage (FRAM)	~ 800 MB
CodeSys memory (RAM)	~ 500 MB
Programming environment	CodeSys V3.5.19
Visualization	CodeSys Web Visu V3.5.19
Communication (CodeSys supported libraries may require additional licenses)	Ethernet, Modbus (TCP, UDP), Modbus® RTU, OPCUA, IO-Link Profinet master/device, Ethernet IP master, RS-232-interface, RS-485/422-interface, EtherCAT Master, CanOpen, Penko protocol
Buzzer	For alarm tones or audio feedback.
Temperature sensor	For monitoring system temperature
Load cell input	
Wiring	6 Wire with sense
Type of sense	Passive
Excitation Voltage	5VDC
Sensitivity	0.1µV/d non-certified, 0.4µV/d certified (certification pending)
Selectable ranges	1; 1.5; 2; 2.5; 3mV/V
Input voltage Unipolar @3mV/V	-1mV to +16mV
Input voltage Bipolar @3mV/V	-16 mV to +16 mV
A/D Conversion speed	1600/s
Max. load cell impedance	1200Ω

Min. Load cell impedance	43.75Ω
Max. no. of load cells at 350Ω[1]	8
Max. no. of load cells at 1000Ω[1]	22
Max. number of d	10.000
Display resolution	100.000
Internal resolution	24 bits
Display steps	1,2,5,10,20,50,100,200
8 x digital input	18-28VDC, PNP or NPN or count ≤ 1kHz 50% duty cycle. Input 1 and 2 can do pulse counting, up to 5kHz
8 x digital output	PNP or NPN; Max. 35V / 0.5A
GENERIC	
Operating temperature	-10°C to +40°C
Storage temperature	-20°C to +70°C
Relative Humidity	Max. 85% non-condensing
Protection class	IP20, IP65 when built into a cabinet
Dimensions	260x190,5x86mm (hxwxd) excluding panel thickness
Weight	2.9kg or less depending on configuration
Material	5mm Powder coated aluminum front, 1mm galvanized steel mounting collar and rear cover

Analog output	
0, 1 or 2 to be specified when ordering	Resolution 16 bits: 4..20mA, 0..20mA, 0..24mA, 4..24mA. 0..10V or 0..5V, can be set by adding a resistor. range selected by software. Resolution:10.000 parts.

COMM MODULE	
CANBUS	Isolated CAN interface. Functionality can be added using CodeSys programming and additional licenses
RS232	Isolated RS232 interface. Functionality can be added using CodeSys programming and additional licenses
RS422	Isolated RS422 interface. Functionality can be added using CodeSys programming and additional licenses

Weighing expansion	
Average Power consumption	0,6W
Wiring	With sense
Type of sense	Passive
Excitation Voltage	5VDC

Sensitivity	0.1µV/d non certified, 0.4 µV/d certified (certification pending)
Selectable ranges	1; 1.5; 2; 2.5; 3mV/V
Input voltage Unipolar @3mV/V	-1mV to +16mV
Input voltage Bipolar @3mV/V	-16 mV to +16 mV
A/D Conversion speed	1600/s
Max. load cell impedance	1200Ω
Min. Load cell impedance	43.75Ω
Max. no. of load cells at 350Ω[1]	8
Max. no. of load cells at 1000Ω[1]	22
Max. number of d	10.000
Display resolution	100.000
Internal resolution	24 bits
Display steps	1,2,5,10,20,50,100,200

Alpha Digital IO expansion- DIO (8 digital inputs, 8 digital outputs)	
Average Power consumption	0,5W
8 x digital input	18-28VDC, PNP or NPN or count ≤ 1kHz 50% duty cycle
8 x digital output	PNP or NPN; Max. 35V / 0.5A

Alpha Analog Input expansion - AIO (4 analog inputs)	
Average Power consumption	0,5W
4 x analog input	16 bits: 4..20mA, 0..20mA, 0..24mA, 4..24mA or 0..10V, 0..5V, -5..5V, -10..10V. Voltage or Current selectable by jumper, range by software. Resolution:10.000 parts.

About PENKO

At PENKO Engineering we specialize in weighing. Weighing is inherently chemically correct, independent of consistency, type or temperature of the raw material. This means that weighing any kind of material guaranties consistency and thus, it is essential to sustainable revenue generation in any industry. As a well-established and proven solution provider, we strive for the ultimate satisfaction of custom design and/or standard applications, increasing your efficiencies and saving you time, saving you money.

Whether we are weighing raw materials, components in batching, ingredients for mixing or dosing processes, - or weighing of static containers and silos, or - in-motion weighing of railway wagons or trucks, by whatever means required during a process, we are essentially forming vital linkages between processes and businesses, anywhere at any time. We design, develop and manufacture state of the art technologically advanced systems in accordance with your strategy and vision. From the initial design brief, we take a fresh approach and a holistic view of every project, managing, supporting and/or implementing your system every step of the way. Curious to know how we do it? www.penko.com

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 even – exceed metrology industry guidelines. A library of testing certificates is available for reference on:
www.penko.com/nl/publications_certificates.html

PENKO Professional Services
PENKO is committed to ensuring every system is installed, tested, programmed, commissioned and operational to client specifications. Our engineers, at our weighing center in Ede, Netherlands, as well as our distributors around the world, strive to solve most weighing-system issues within the same day. On a monthly basis PENKO offers free training classes to anyone interested in exploring modern, high-speed weighing instruments and solutions. Training sessions on request: www.penko.com/training

PENKO Distributor
A complete overview you will find on: www.penko.com/Find-A-Dealer