

PENKO Engineering B.V.

Your Partner for Fully Engineered Factory Solutions



Omega system specifications



PENKO

an ETC Company

Omega System Specifications

Table of Contents

1	Introduction.....	3
2	Tools	3
2.1	CodeSys IDE	3
2.2	LCD touchscreen browser	4
3	Mounting.....	4
4	Technical specifications.....	6

Omega System Specifications

1 Introduction

The Penko Omega is a modular weighing instrument with PLC which can support up to 16 weigher channels per rack and which runs its own CodeSys softPLC.

The instrument is fully configurable using a web browser.

Each weighing module contains 2 weigher channels and combines accurate and fast weighing results with configurable filling algorithms.

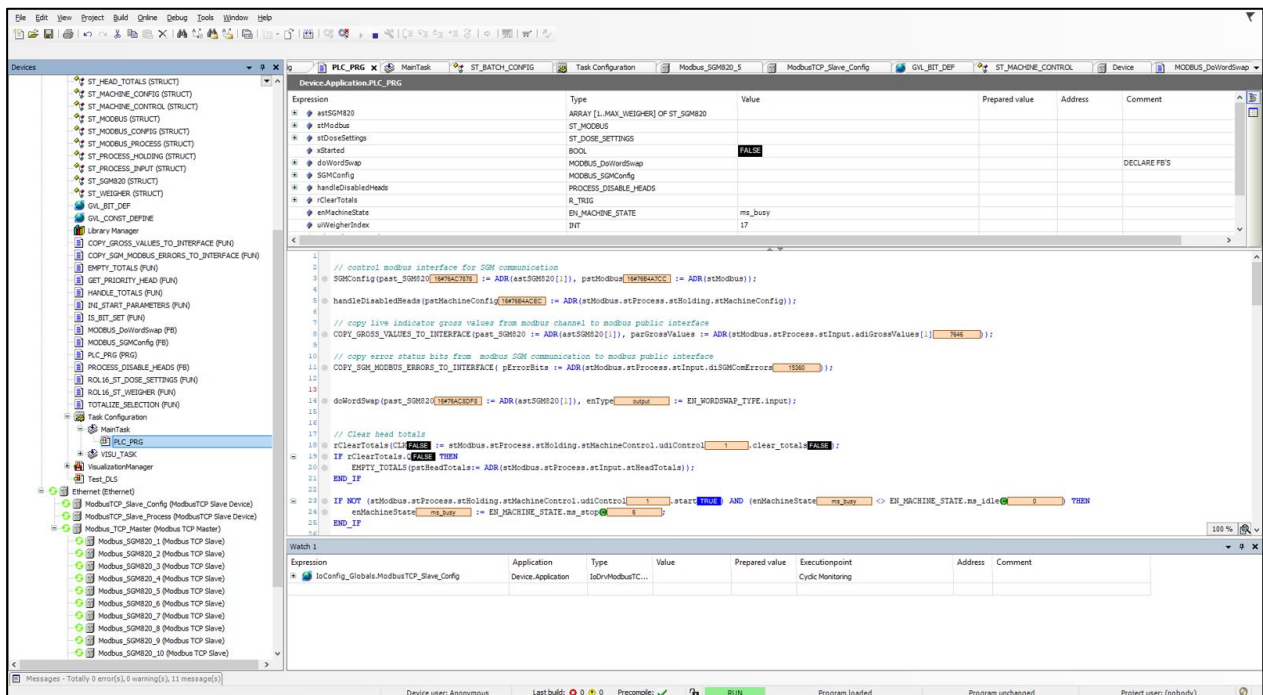
For larger systems, up to 16 racks can be connected to a single PLC creating a system with up to 128 weigher channels.

2 Tools

The following tools are available to monitor and control the system.

2.1 CodeSys IDE

The instrument is running the CodeSys softPLC. Using the CodeSys IDE, which is available as a free download, the PLC can be programmed, and the running PLC program can be monitored.

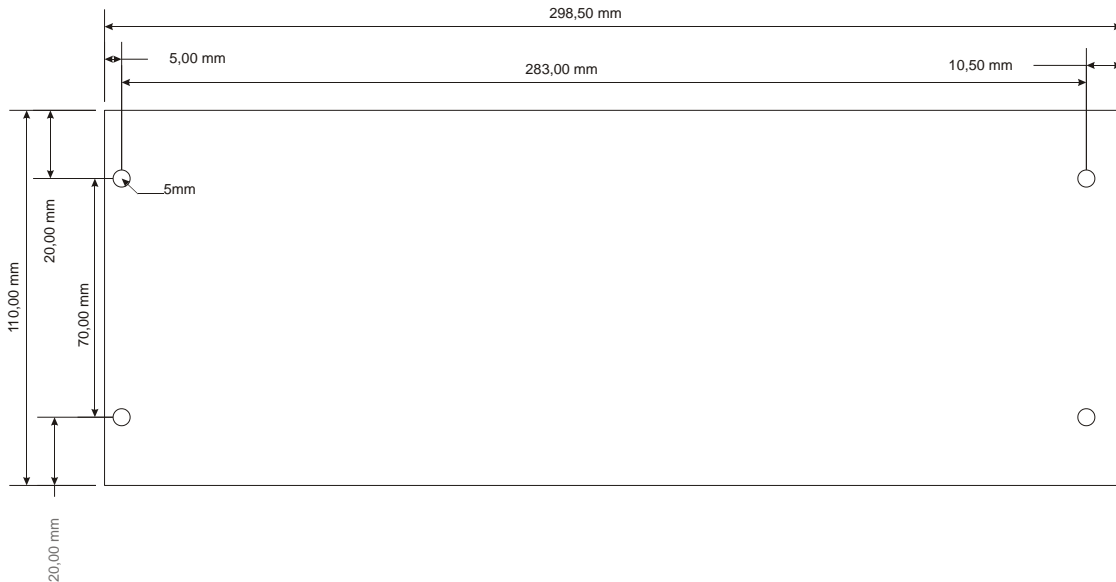


Omega System Specifications

2.2 LCD touchscreen browser

The Omega system can be connected to any screen with a modern web browser using the WebVisu V3.5.17 feature of the CodeSys PLC.

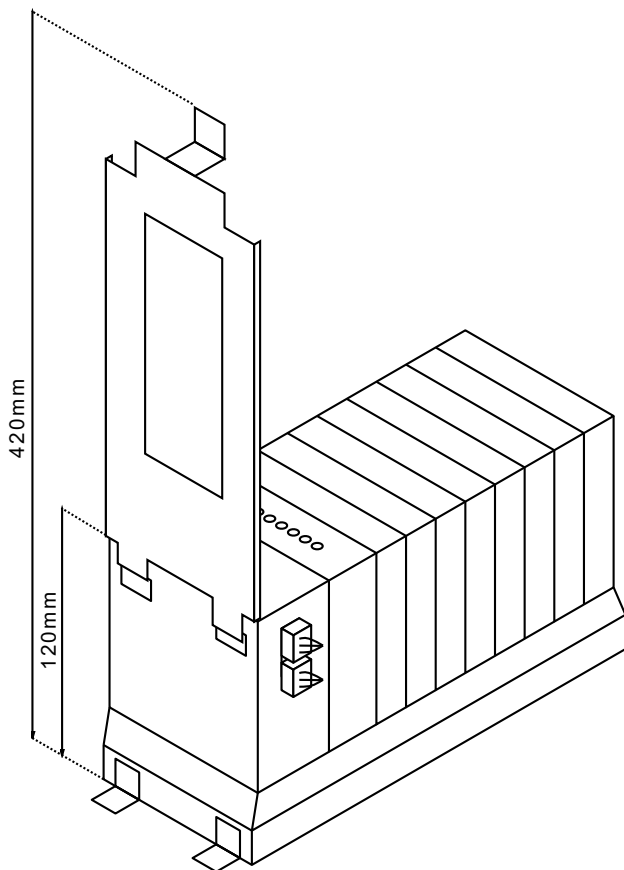
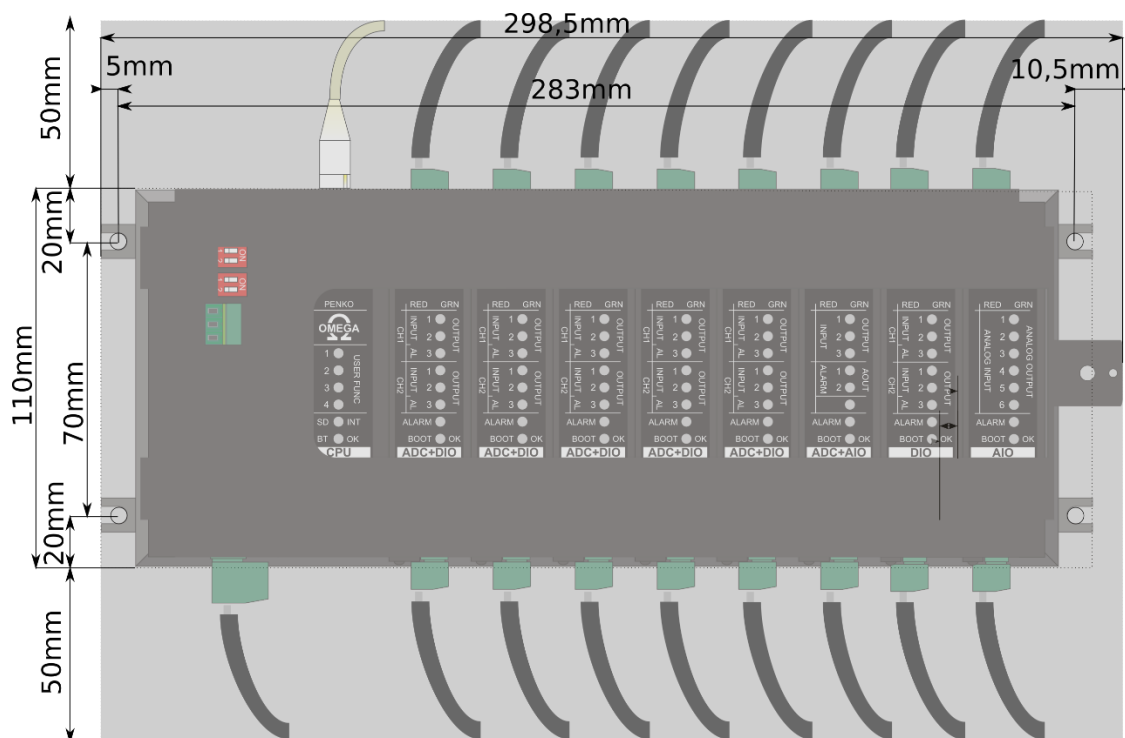
3 Mounting



Unit size is 298,5x110x120mm (hxwxd).

Allow for room for cables above and below. USB and ethernet connectors could use up to 50mm or more if easy access is needed.

Omega System Specifications



Allow for room for the front brace which hinges up to 300mm in front of the unit.

Omega System Specifications

4 Technical specifications

POWER SUPPLY AND INTERFACE MODULE	
Power supply	18-36VDC; 3,2A max at 24VDC
Average Power consumption	Full system: 25W Bus+Power supply: 3W
Power output	Same as power input, optional for connecting multiple racks
2 x Omega net	Optional for connecting multiple racks (no Ethernet functionality)
CANBUS	Not operational
Serial	Isolated remote bus RS232/ RS422. Functionality can be added using CodeSys programming and additional licenses
CONTROLLER MODULE	
Power supply	2A max at 5VDC
Average Power consumption	6W
Display	6 LED indicators dual color Red and Green. 4 can be user defined
2 x Ethernet	10/100 Mbit/s
2 x USB-A	USB host functionality (USB-stick)
Mini-USB	For service purposes
Operating system	Real time Linux (with RT-Preemption-Patch)
PLC functionality	CodeSys runtime
CPU	Cortex A7; 1 GHz
Programming environment	CodeSys V3.5.17
Visualization	CodeSys Web Visu V3.5.17
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
Main memory (RAM)	1 GB
Internal memory (Flash)	4 GB
Retain memory hardware	128 Kbytes
Retain memory CodeSys	8 Kbytes
CodeSys data storage (FRAM)	~ 800 MB
CodeSys memory (RAM)	~ 500 MB
GENERIC	
Operating temperature	-10°C to +40°C
Storage temperature	-20°C to +70°C
Relative Humidity	Max. 85% non-condensing
Protection class	IP20
Dimensions	298,5x110x120mm (hwxwd)

Omega System Specifications

Weight	2.9kg or less depending on configuration
Material	Powder coated steel housing

Dual Channel Weighing Digital IO Card - ADC+DIO (2 load cells, 4 digital inputs, 6 digital outputs)	
Power supply	18-36VDC 0,25A max at 24V
Average Power consumption	2W
Display	8 LED indicators dual color Red and Green
Wiring	With sense
Type of sense	Passive
Excitation Voltage	5VDC
Sensitivity	0.1 μ V/d non certified, 0.4 μ V/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	1200 Ω
Min. Load cell impedance	43.75 Ω
Max. no. of load cells at 350 Ω ¹	8
Max. no. of load cells at 1000 Ω 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
4 x digital input	18-28VDC, PNP or NPN or count \leq 1kHz 50% duty cycle
6 x digital output	PNP or NPN; Max. 35V / 0.5A

Dual Channel Weighing Analog IO Card - ADC+AIO (2 load cells, 3 digital inputs, 3 digital outputs, 2 analog outputs)	
Power supply	18-36VDC 0,25A max at 24V
Average Power consumption	2W
Display	8 LED indicators dual color Red and Green
Wiring	With sense
Type of sense	Passive
Excitation Voltage	5VDC
Sensitivity	0.1 μ V/d non certified, 0.4 μ V/d certified (certification pending)
Selectable ranges	1; 1.5; 2; 2.5; 3mV/V
Input voltage Unipolar @3mV/V	-1mV to +16mV

Omega System Specifications

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
4 x digital input	18-28VDC, PNP or NPN or count ≤ 1kHz 50% duty cycle
6 x digital output	PNP or NPN; Max. 35V / 0.5A
2 x analog output	0/4-20/24mA, 10.000d

¹ the impedance and maximum number of loadcells is for both channels combined.

Digital IO Card - DIO (8 digital inputs, 12 digital outputs)	
Power supply	18-36VDC 0,25A max at 24V
Average Power consumption	2W
Display	8 LED indicators dual color Red and Green
8 x digital input	18-28VDC, PNP or NPN or count ≤ 1kHz 50% duty cycle
12 x digital output	PNP or NPN; Max. 35V / 0.5A

Analog IO Card - AIO (4 analog inputs, 4 analog outputs)	
Power supply	18-36VDC. 0,25A max at 24V
Average Power consumption	2W
Display	8 LED indicators dual color Red and Green
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.
4 x analog output	16 bits: 0/4-20/24mA, Voltage possible by placing external resistor i.e. 430 Ω @0-24mA range. 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 guarantees 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

