ПРИБОРЫ ДЛЯ ОПРЕДЕЛЕНИЯ ВЕСА

Alfa Laval Weighing Systems UltraPure with single point load cell

High accuracy digital load cells for precise process weighing

Application
The Alfa Laval digital single point load cells offer high accuracy and resolution for reliable and precise weighing. The load cells are produced in stainless steel and hermetically sealed to IP68. The main applications are graders, multihead weighers, checkweighers, filling machines, belt scales, platform scales, bench scales etc.

Main features:
- Robust load cells which can tolerate up to 300% overload or sideload
- High accuracy up to 0.015% of full scale and high resolution
- Load cells are produced in stainless steel and hermetically sealed to IP68
- Simple and easy mechanical installation without complicated and expensive mounting kits
- Load cells are pre-calibrated
- Load cell calibration is independent of the load cell cable length
- Simple plug-and-play electrical installation
- Integrated diagnostic feature for detailed diagnostic and surveillance of weighing system
- Load cell cable lengths up to 50 meters

Standard range
The Alfa Laval weighing system is a complete solution offered for process weighing installation where level measurement, mixing, filling, dosing or batching is required. The weighing solution is as standard delivered in two different accuracy ranges: 0.025% and 0.015% with a total measuring range from 0 to 150 kg.
Each weighing system consists of a digital single point load cell and a weighing module. The weighing modules are available with both analog 4-20 mA output, and fieldbus interface (PROFINET, Profibus DP or EtherNet IP).
For high hygienic demands, the Alfa Laval load cells are supplied electropolished and hermetically sealed to IP68 (laser welded).

Capacitive measurement principle (patented)
The Alfa Laval robust digital load cells are based on a patented capacitive measurement principle where a non-contacting capacitive sensor is mounted inside the load cell body. As the capacitive sensor is not in contact with the load cell body, the load cells are to a very high degree unaffected by overloads, sideloads, torsion and welding voltages. Therefore, a straightforward and hygienic mechanical installation of the load cells can be done without expensive and complicated mounting kits and overload protection devices.

The electrical installation of the digital load cells is pure plug-and-play as the signal from the non-contacting capacitive sensor is directly converted, compensated and calibrated by a patented ASIC. The digital signal is transmitted as RS485 data on a reliable RG-58 single wire coaxial cable which may be up to 50 meters long. The factory calibration of the digital load cells is independent of the load cell cable length.

Technical data

Stainless steel enclsure IP68
Stainless steel enclosure with panel mounted display IP64
Measuring range: . . . . . from 0 to 150 kg depending on system selection.
Accuracy: 0.025%, 0.015%
Compensated temperature range: . . . -10 to 50 °C
Overload and sideload : . . . . . 300% overload tolerance
Power supply: . . . . . 24 VDC ±10%, min. 2A

Certificates

CE marked
3.1B certificate
Calibration certificate (Option)

Mechanical data

Weight:
Load cell:
Type TE67WS . . . . . SPSX 2.5 kg
Weighing modules: . . . . . approx. 0.5kg
Materials:
Load cells: . . . . . AISI 316 and 17-4 PH
Operating temperature range:
Load cells: . . . . . -50 to 70 °C (100 °C with teflon cable)
Weighing modules: . . . . . -10 to 50 °C
Protection class:
Load cells: IP68
Weighing modules: IP20

Specifications

Parameter	Unit	0.025%	0.015%
Rated capacity (Emax) per load cell	kg	5, 10, 20, 50, 100, 150	
Safe overload limit	% of E^{max}	300 to 1000	
Safe sideload limit	% of E^{max}	500 to 2000	
Minimum dead load	% of E^{max}	0	
Accuracy	% of E^{max}	0.025	0.015
Repeatability	% of E^{max}	0.008	0.005
Hysteresis	% of E^{max}	0.010	0.005
Creep 30 min.	% of E^{max}	0.015	0.010
Temperature effect on zero	%/10 °C	0.030	0.020
Temperature effect on sensitivity	%/10 °C	0.030	0.020
Deflection at Emax	mm	max. 0.10	
Mesuring rate	Hz	up to 1000	
Internal resolution	Bit	24	

Options

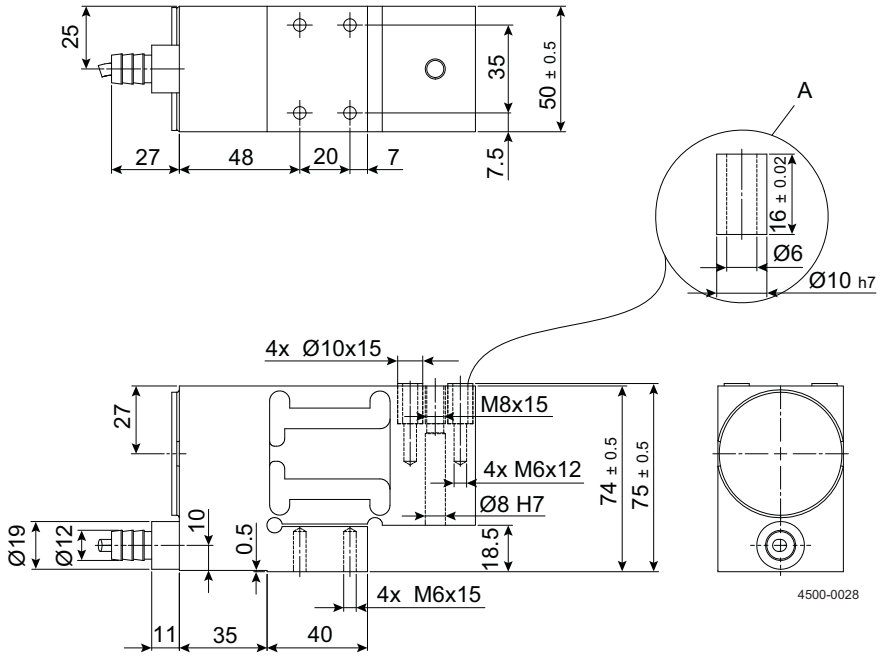
Output:
4-20mA
PROFINET
EtherNet IP
Profibus DP
RS485

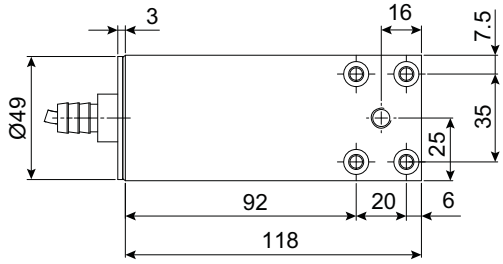
Local weighing display:
Alfa Laval weighing display

Load cell cable:
6m standard coaxial RG58 with BNC connector (option: 10, 20 or 50m)

Dimensional drawings

Single point load cell, type SPSX

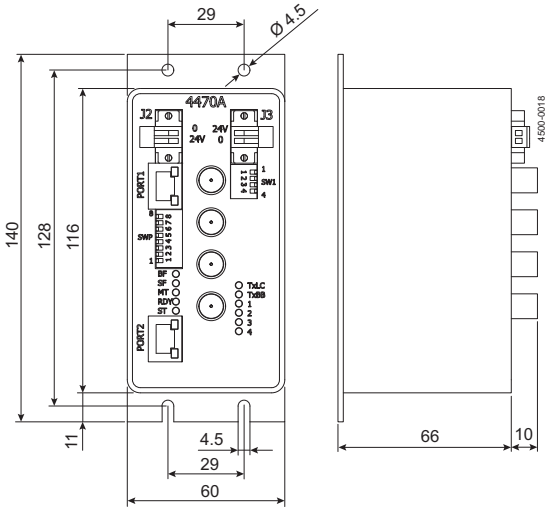




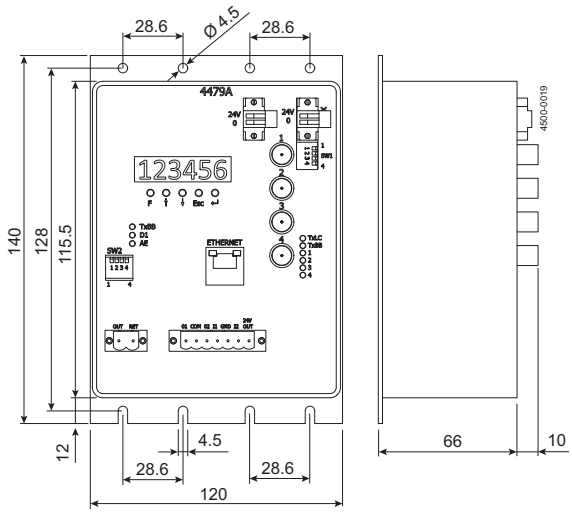
Layout and electrical connection schematic of weighing modules:

Profinet weighing module for 4 load cells

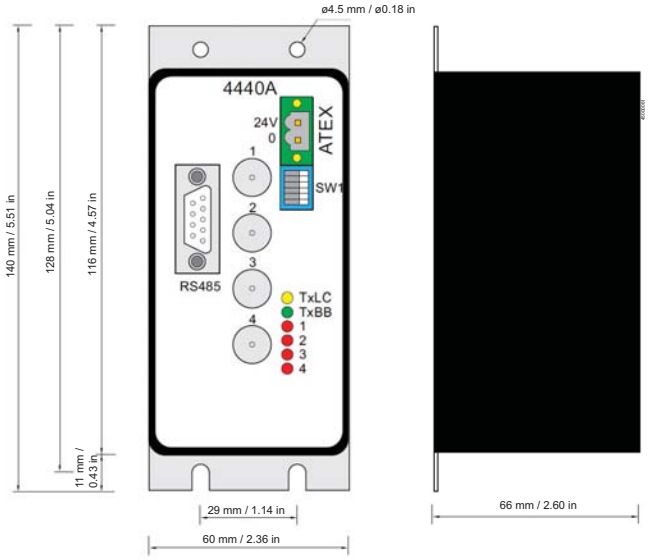
(external dimensions is the same for Profibus DP and Ethernet IP



4-20 mA output weighing module for 4 load cells

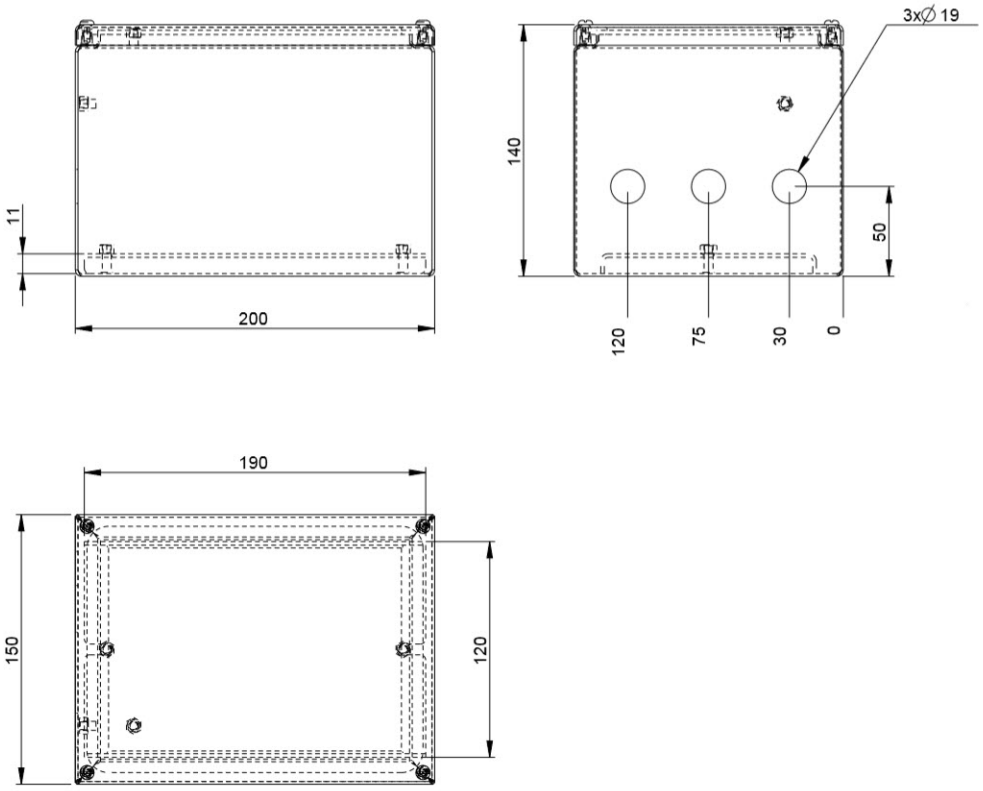


RS485 interface module (when ordered with display)

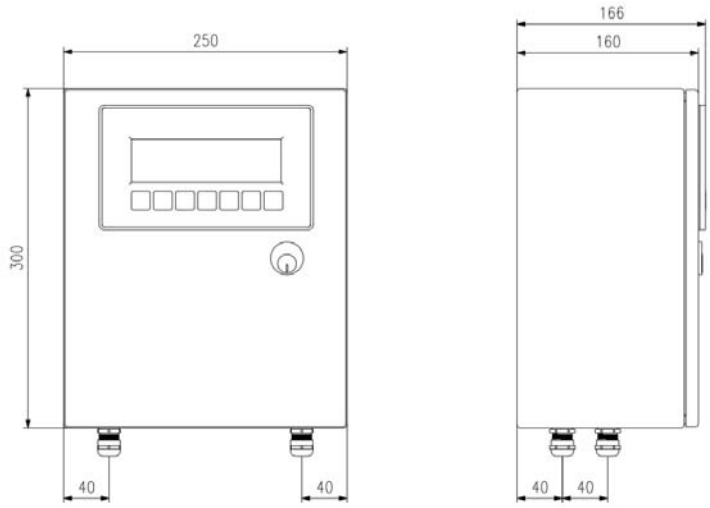


Stainless steel enclosure

Enclosure when ordered without display.



Enclosure with display



Selection guide

When configuring a weighing system, you need the following information:

- Total weight of vessel incl. product in kg
- Required output and/or local display
- Required accuracy for the application (0.025% or 0.015%)

With this information, yoy are able to find the configuration you need in the price list or in the online configuration tool:

Step 1:
Calculate the total weight of the tank inclusive the product in kg and round up to the nearest standard load cell system.

Step 2:
Decide on accuracy required by the application

- 0.025% accuracy systems are suitable for dosing applications
- 0.015% accuracy systems are suitable for very precise dosing and batching applications

Step 3:
Decide on the output signal type and/or a local weighing display:

- 4-20mA
- PROFINET
- EtherNet IP
- Profibus DP
- RS485

Step 4:
Decide if you want the display and/or weighing modules supplied mounted in a stainless steel enclosure

You have the following options:

- Without stainless steel enclosure
- Weighing module mounted in stainless steel enclosure (without display)
- Display mounted in stainless steel enclosure

Step 5:
Decide on the length of the load cell cables (the length of the cable is can be shortened without the need for recalibration)

- 6m (standard)
- 10m
- 20m
- 50m

Step 6:
Decide on if you need Calibration certificate