

DIN-rail weighing module with CC-Link

AD-4430C

High speed sampling — 1000 times per second



- Powerful vibration-cancelling filter (High Performance Digital Filter)
- Sequential filling/dispensing measurement capability
- Internal setpoint control
 - Active free fall compensation
 - I/O points (6 inputs, 8 outputs) as standard
 - Remote I/O connectivity for PLC input and output
 - USB interface to import/export function settings
 - Averaging hold, peak hold and comparator functions
 - DIN rail mounting type to install into control box

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A&D Company Limited
<http://www.aandd.jp>

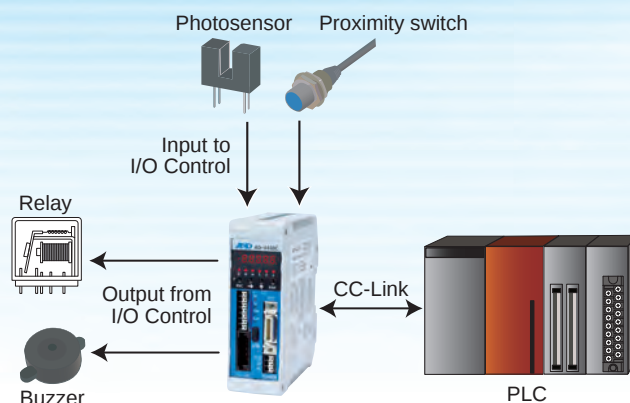
...Clearly a Better Value

Control I/O (6 Inputs, 8 Outputs) Can Be Used As Remote I/O

Standard control I/O functions are selectable. When I/O functions are allocated to user input/output, remote I/O from the PLC can be used.¹

Buzzers and other external devices connected to the AD-4430C can be turned off and on by the PLC via CC-Link. Additionally through input from the AD-4430C the on/off status of proximity switches and other sensors can be transmitted to the PLC via CC-Link.

1: Remote I/O can be used when PLC is set to 4 station occupied



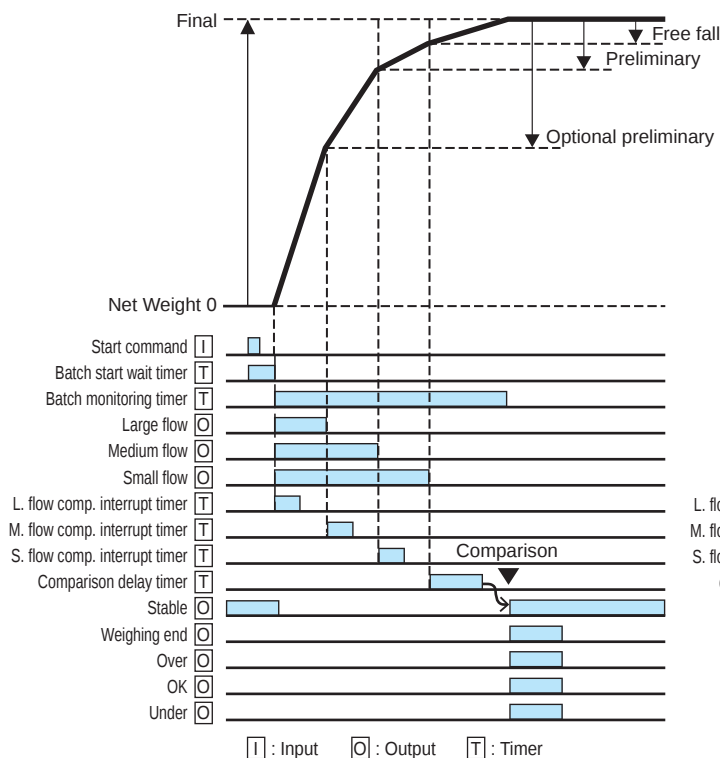
Sequential Weighing Normal batch / Loss-in-weight Functions

The AD-4430C is equipped with sequential filling and dispensing measurements for convenient automatic weighing.

When a start signal is received from the device's F keys or the PLC, signals such as large flow, medium flow, Small flow and Weighing end are sent to the PLC by the I/O control and CC-Link varying according to the weight.

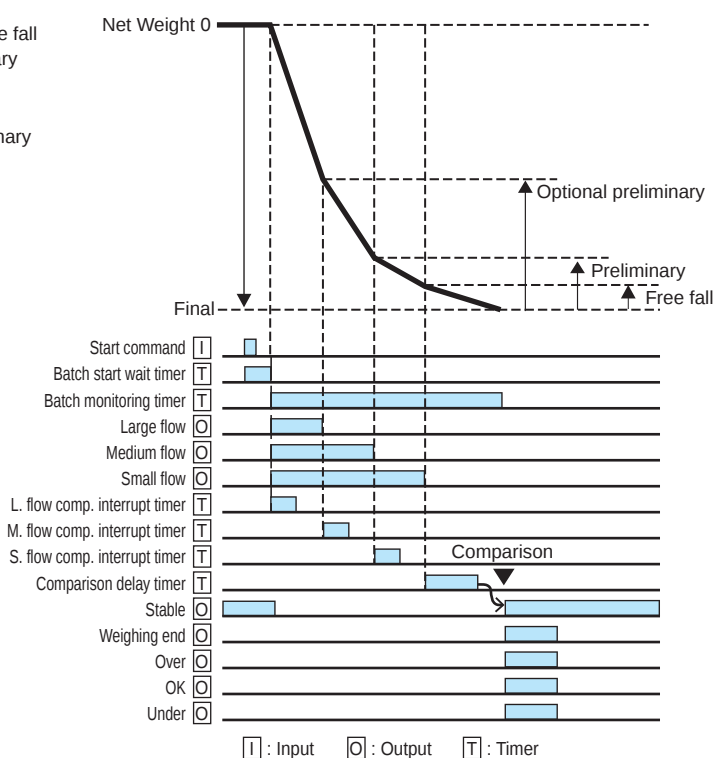
When high-speed filling or dispensing is necessary, AD-4430C can delegate multiple tasks such as controlling hoppers or packers by control I/O and getting measurement results and changing setpoint by CC-Link.

Normal Batching



Large flow off	Net	$\geq$	Final value - Optional preliminary
Medium flow off	Net	$\geq$	Final value - Preliminary
Small flow off	Net	$\geq$	Final value - Free fall
Over	Net	$>$	Final value + Over
Under	Net	$<$	Final value - Under
Full value	Gross	$\geq$	Full value
Near-zero	Gross	$\leq$	Near-zero

Loss-in-weight



Large flow off	- Net	$\geq$	Final value - Optional preliminary
Medium flow off	- Net	$\geq$	Final value - Preliminary
Small flow off	- Net	$\geq$	Final value - Free fall
Over	- Net	$>$	Final value + Over
Under	- Net	$<$	Final value - Under
Full value	Gross	$\geq$	Full value
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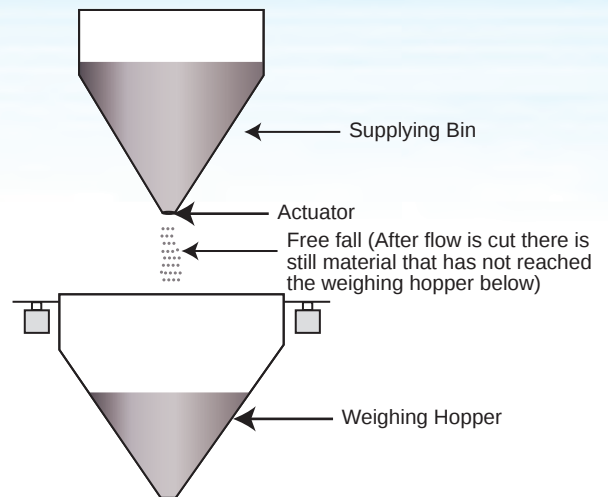
Setpoint

Basic comparative values for final, preliminary, and free fall can be set via CC-Link and this device.

Real time free fall compensation

Often when adding water to a silo the speed at which it is added decreases as amount remaining declines. In these cases where traditional automatic free fall compensation is used the weight always ends up too small. The same problem occurs for substances like honey where viscosity changes with temperature.

In order to minimize measurement error of substances whose fluidity changes with temperature or pressure, Real time free fall compensation calculates the flow rate during Small flow and constantly makes corrections to ensure appropriate free fall settings.



One Shot Small flow

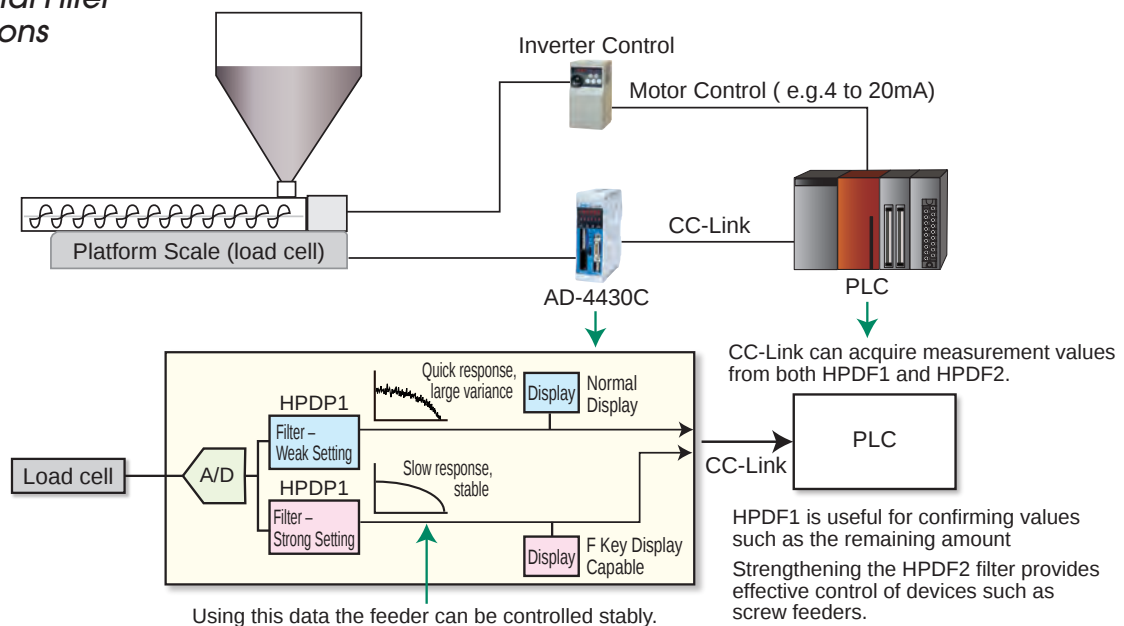
If the final (setting weight) has not been reached at time of weighing completion one shot Small flow can be used to correct the weight.

One Shot flow can be set in 10 millisecond increments.

Dual Digital Filter

The AD-4430C is equipped with dual vibration-cancelling HPDF (High Performance Digital Filters). Measurement values can be acquired separately by using filters with different setting values via CC-Link.

Dual Digital Filter Applications



AD-4430C

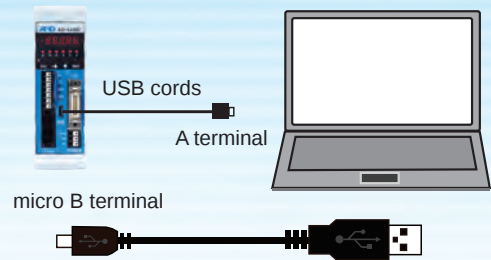
USB (Micro-B) Interface

AD-4430C function settings can be imported and exported to and from a PC through USB connection.

When multiple AD-4430C devices are used, essential function elements can be imported to a PC from the first device and exported to other devices quickly and efficiently.²

Additionally, in the event of device failure, AD-4430C function settings can be retrieved from a PC back-up (provided data has been properly backed-up) and transferred to a replacement AD-4430C without delay.³

Use of micro B to A USB cords for connecting to PC computers is required. Import/export software is available for download in the support section of the company homepage.



2: When copying function settings from one AD-4430C to multiple devices, be sure not to overwrite C-F17/18/19 data values as they are essential and different for each device.

3: When completely replacing AD-4430C devices, be sure to copy all function settings.

Load Cell Connection Diagnosis

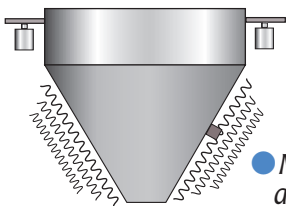
The AD-4430C is able to check for disconnected or faulty wires through connection with a load cell cable. Convenient to use at time of installation or for start-up inspections and periodic checks.

Caution: Sometimes faulty wiring diagnoses cannot be performed with load cells that can be used both for tension and compression weighing by shifting SIG+ and SIG-.

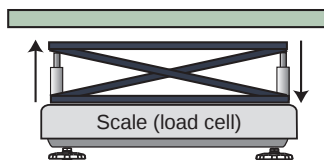
Vibration-cancelling High Performance Digital Filter (HPDF) Applications

HPDF

● Measurement while using vibrating feeders



● Measurement while raising and lowering materials

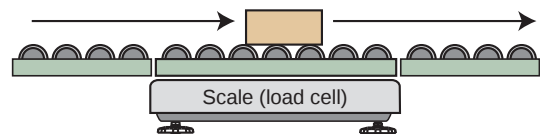


HPDF with peak hold

● Simple checkweigher

A checkweigher (which measures an object while it continues to move) can be created.

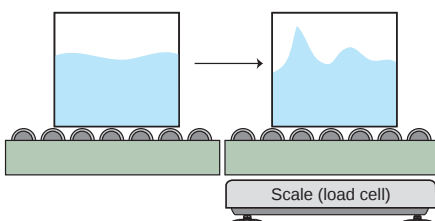
When weight exceeds near zero, peak hold begins and is terminated by a timer.



HPDF with averaging hold

● Weighing unsteady objects

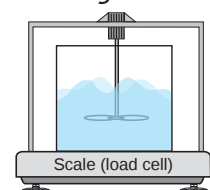
When weighing cans and other objects with liquid contents that tend to shift when stopped, measurement cannot be done quickly as it takes a long time for liquids to settle. However if HPDF with averaging hold is used objects can be quickly weighed. Additionally if a comparator output is used it is possible to determine whether the output is acceptable or not.



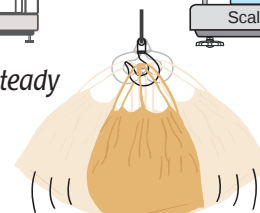
● Weighing animals moving about vigorously



● Weighing while mixing

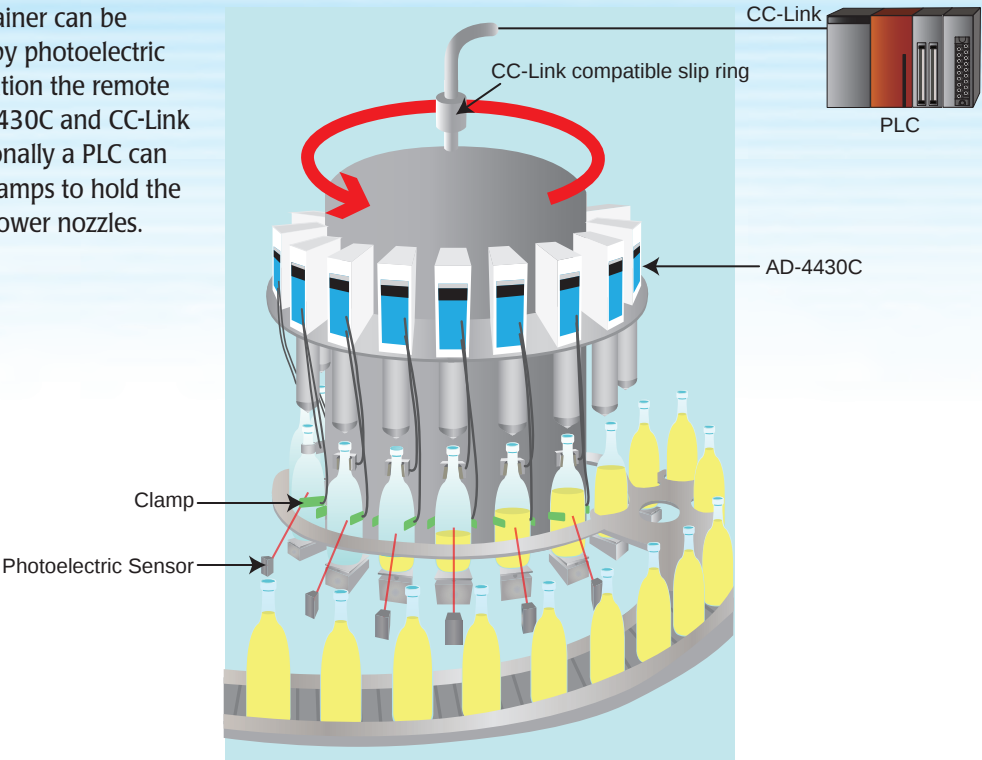


● Weighing unsteady objects



Remote I/O Application

The presence of a container can be transmitted to the PLC by photoelectric sensor using a combination the remote I/O feature of the AD-4430C and CC-Link communication. Additionally a PLC can engage or disengage clamps to hold the container or raise and lower nozzles.



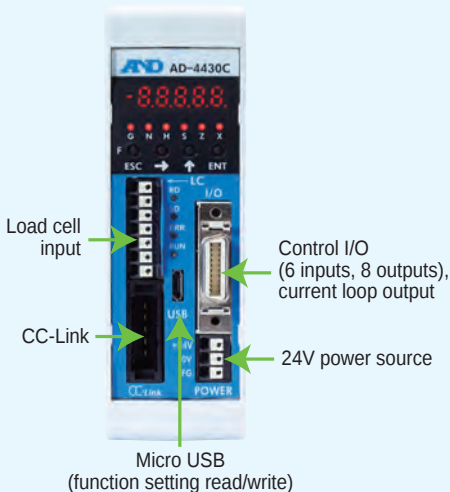
Averaging Hold

Mass data for a fixed interval is averaged and held.
Convenient when weighing vigorously moving animals or when it is difficult to obtain stable weight data with HPDF being used. Averaging hold is also useful to see averaged values when the target objects have varying weight.
In addition to averaging hold, normal hold and peak hold can be selected.
Options such as input from the outside, F keys on the front, and time when the near zero is exceeded can be used to start hold.

Other standard features

Gravitational acceleration compensation, non-linear correction using high-order equations, comparator, hold functions (normal, peak, averaging), near zero detection function, zero tracking function, power-on zero function

Interface



Accessories

AX-PCX-10S20
MDR20 Terminal Block



AX-MDR-20-R
MDR20 Right Angle Connector



AX-KO4889-1M-W
MDR20 Cable
Double-sided connector 1m



AX-KO4889-1M-S
MDR20 Cable
Connector to wire 1m



AD-4430C

CC-Link Compatible Ultra Compact Weighing Module

■ *Analog unit*

Input sensitivity	Over 0.15μV/d (d=minimum division)
Zero adjustment range	-35mV to +35mV (-7mV/V to +7mV/V)
Load cell excitation	DC5V±5%, 60mA Remote sensing function included Up to 4 × 350Ω load cells can be connected
Temperature coefficients	Zero ±0.02μV/°C (Typ.) ±0.1μV/°C (Max.) Span ±3ppm/°C (Typ.) ±15ppm/°C (Max.)
Nonlinearity	0.005% of F.S.
Input noise	Less than 0.3μVp-p
Maximum measurement range	-35mV to +35mV (-7mV/V to +7mV/V)
Input impedance	10MΩ and above
A/D conversion method	Delta-sigma modulation
Internal resolution	Approx. 16,000,000
Display resolution	Max. 99,999d (within 20,000d recommended)
Sampling rate	1000 times per second
Calibration	Actual load calibration or digital span calibration not using actual load.

■ *Digital unit*

Display elements	Measurement display:
	5-digit red LED 7-segment display
	Character height 5.3mm
	Polarity display: 1 red LED
	Status display: 6 red LED
Measurement display	Adjustable net/gross weight display
	Display range: -99,999 to 99,999
	(Minimum division (d) options
	1, 2, 5, 10, 20, 50)
Status display	GROSS, NET, HOLD, STABLE, ZERO,
	and custom user-defined function

■ External input/output

- CC-Link (1 Master with total of 42 devices possible)
- Control I/O 6 input points, 8 output points
Selectable functionality for input and output ports
(User input/output included)
User input/output can control PLC, valves and more via AD-4430C
- Current loop output 20mA current loop signal (passive)
- USB USB2.0 compatible Micro USB connector
Not subject to CE compliance standards during USB interface use

■ Features

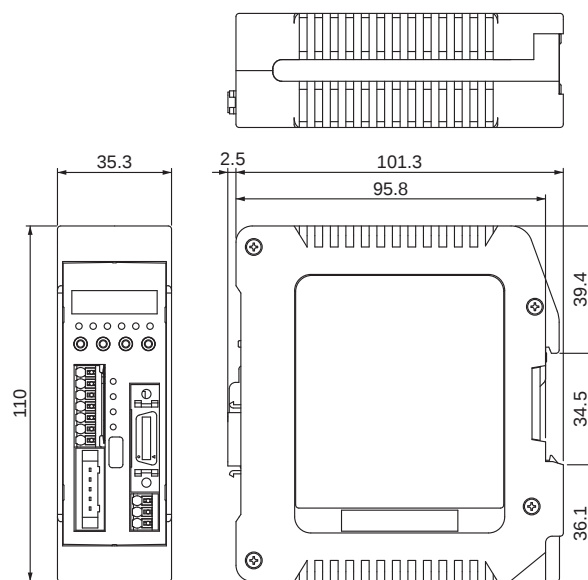
- Dual Digital Filter
- Sequential Weighing (Filling / dispensing measurements)
- Input/output control can allocated to any user input/output
- Setpoint
- Active free fall compensation
- Gravitation acceleration compensation
- Comparator functionality
- Hold functions
- Load cell connection diagnosis
- Near zero detection
- Zero tracking
- Power-on zero
- Flow rate (per second) display / output

■ General specifications

Power supply voltage	DC24V
Power consumption	6W (Max.)
Operating temperature and humidity range	-10°C to 50°C/ Below 85%RH (Condensation must be avoided)
External dimensions	35(W) × 110(H) × 101(D) mm
Attachment method	DIN rail mount
Weight	Approx. 180g

■ *Standard accessories*

- Basic instruction manual
CC-Link connector
(5 pole power clamp wiremount socket)



Appearance and/or specifications subject to change for improvement without notice.



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