Weighing Indicator

AD-4401A

Modbus-RTU
Modbus-TCP
Available

Compact and versatile
for a diverse array of
measuring applications

A&D Company, Ltd.

Discover Precision

http://www.aandd.jp

AD-4401A

Complete with measuring sequence and transmission functions. Advanced system for hoppers, checkweighers and platform scales is now even more accurate!

Easily replaceable

- The size, color, method of operation and installing to a control panel of the AD-4401A remains the same as the AD-4401.
- Interface connectors retain compatibility so even when updating from AD-4401 to AD-4401A previously connected devices can continue to be used without changing any connectors.
- Functions have been added but the default settings remain identical to the AD-4401.

The AD-4401A incorporates a multitude of application functions and is suitable for a variety of weighing systems.

Normal batching / Loss-in-weight measuring

The AD-4401A ensures precise control through an array of timers. When necessary batch weighing settings such as dispense control and supplementary fill are available. (Sequential mode)

Modbus-RTU/Modbus-TCP

Options: AD4401A-04 RS-485(Modbus-RTU),
AD4401A-23 Ethernet (Modbus-TCP)

Multiple AD-4401A units can be connected to a PLC or HMI capable of Modbus communication.
Using Modbus communication makes it easy to set functions, operations and collect weighing data.
If you save the calibration or function data of the AD-4401A to a PLC or HMI storage area using Modbus-RTU/TCP, you can restore this data from the PLC or HMI when replacing an AD-4401A unit to save time.

Digital Span

Normal scale calibration generally requires actual weights. However, keying in the specified load cell voltage allows calibration to be performed when using actual weights is not possible.

Automatic weight accumulation

This function allows for the automatic accumulation of net weight when weighing is complete. Correct weights and shortages can be excluded. Accumulated weights and counts are stored in non-volatile memory.

Supplementary Flow

This function engages drizzle flow intermittently until the target weight is reached to compensate for insufficient weight. No more worrying about weight shortages again!

Handles an assortment of peripheral devices and applications

Software for batch weighing and comparator included

Batch weighing mode

Four types of weighing and batching modes combined with a high sampling rate (100 times/sec) make for excellent hopper and packer scales. The AD-4401A's many measurement sequences are supported by a digital filter with superior vibration cancelling, weighing and batching time monitoring, supplementary flow for correcting final value shortages and fast, high precision batch weighing control.

**Weighing Modes: Normal and sequential batch / loss-in-weight*

Comparator mode

Four different weighing modes are available when using the comparator function to sort checked products by weight. Weighing judgment signals for each of five checkweighing levels can be sent when setting values are reached.

External I/O

Control of peripheral devices and I/O signals necessary for data management come standard or can be added as an option.

Standard Equipment

Control I/O — Weighing control I/O signals for external devices
6 inputs, 8 outputs (open collector)

Standard serial output — Data output for A&D printers, external display devices (20mA current loop)

Setpoint Input — Digital switch for setpoint values. Can be connected to setpoint unit (AD4401-06)

Option

BCD Output AD4401A-01 — Measurement data is transmitted by BCD 6 digit code signal. (Open collector output)

RS-422 / 485 AD4401A-03 — Used for sending data to computers and for sending commands to the AD-4401A.
RS-422 connection max. 10 units
RS-485 connection max. 32 units
RS-485 Modbus-RTU connection max. 32 units

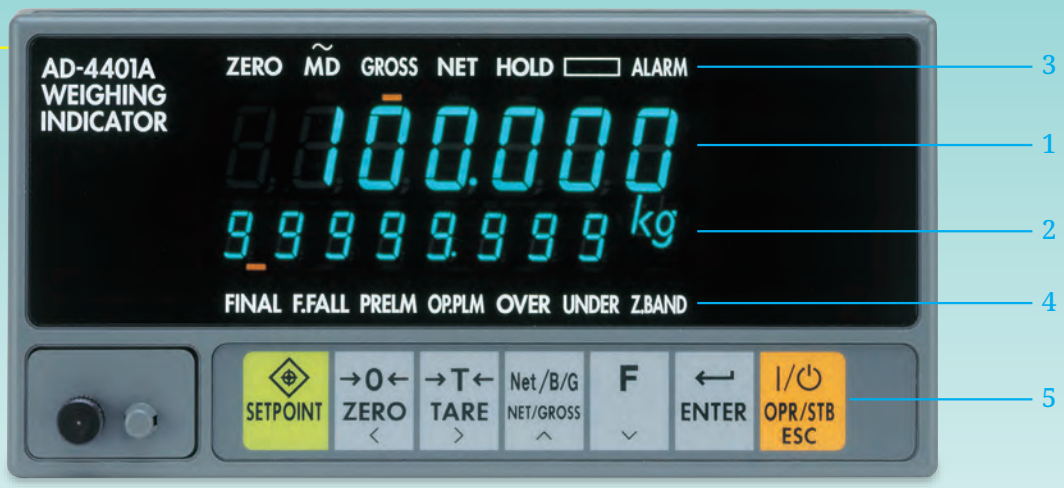
RS-232C AD4401A-04 — Used to connect an external display, printer, or computer. Remote function commands and setting changes are possible through using command mode.

Setpoint unit AD4401-06 — Digital switch unit for setting batch/loss-in-weight setpoints

Analog Output AD4401A-07 — Transmits weight data to analog input devices at 4 to 20mA

Ethernet AD4401A-23 — Modbus-TCP
connection max. 65534 units

Weighing Indicator



Large main display and sub display on the front panel are equipped with bright VFD displays to allow for quick confirmation of measurement status and data settings.
Operation and setting key switch designed for superior operability.

1) Main display ——— 7 digit 7-segment display for weight values
2) Sub display ——— 8 digit 7-segment display switches between weight values and accumulation numbers etc.
3) Status display (upper) — Shows weight related values and measurement status.
4) Status display (lower) — Displays setpoint and judgment outcome status.
5) Key switch ——— Key for setting functions, operations, and setpoints.

Added features

High Performance Digital Filter

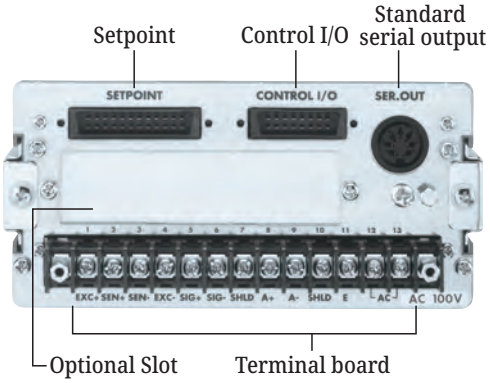
Featuring a High-Performance Digital Filter for Environments with Vibrations!

The HPDF provides high accuracy/high speed weighing in environments with vibrations. It greatly reduces the costs and maintenance required for anti-vibration equipment since it handles vibrations without requiring extensive mechanical vibration countermeasures. What's more, conducting weighing while applying vibrations, once an extremely difficult task, is now possible.
There is only one setting for the high performance digital filter. This allows the AD-4410 to find the optimal value to cancel out vibration with only minimal changes to the settings.

Rear Panel (I/O terminal functions can be selected)

External device control I/O are not fixed and can be changed upon request. Easy maintenance was a priority for the terminal board used for load cell and power source connection making the AD-4401A suitable for a wide range of systems.

Setpoint ——— Provides connection to digital switch or setpoint unit (AD4401-06) and external setpoint configuration.
Control I/O ——— Used for measurement control signals and can be changed to
Standard serial output — desired terminal function.
Optional Slot ——— Standard current loop signal output used for printers and displays. One of the following can be attached: AD4401A-01 (BCD Output), AD4401A-03 (RS-422/485), AD4401A-04 (RS-232C), AD4401A-23 (Ethernet)
Terminal board ——— Load cell, power source, AD4401A-07 (analog output) connection.



AD-4401A Weighing Indicator

Specifications

■Analog unit

Input sensitivity — Over 0.3μV/d (d=minimum division)
Zero adjustment range — 0mV to 20mV (0mV/V to 2mV/V)
Load cell excitation voltage — DC10V±5%, 230mA
Remote sensing function included
Up to 8 × 350Ω load cells can be connected
Temperature coefficients — Zero: ±(0.2μV+0.0008% of Dead Load)/°C Typ.
Span: ±0.0008%/°C Typ.
Nonlinearity — 0.01% of F.S.
Input noise — Less than 0.3μVp-p
Maximum measurement voltage — 32mV (3.2mV/V)
Input impedance — 10MΩ and above
A/D conversion method — Delta-sigma modulation
A/D resolution — Approx. 1,000,000
Display resolution — 999,999d
Sampling rate — 100 times per second

■Digital unit

Display elements: VFD (Display: cobalt blue Status display: orange)
Display Types 1. Main display
7 digit 7-segment display with 13mm characters
2. Sub display
8 digit 7-segment display with 7mm characters
3. Status
Orange rectangle marks (14)
Main display: Switches between NET and GROSS
Display Range 0-999999d
(Minimum scale d can be 1, 2, 5, 10, 20 or 50)
Units g, kg, t
Sub display: Gross, net, tare, final, accumulated weight, number of accumulations (One of the above can be selected)
Status Display: ZERO, MD, GROSS, NET, HOLD, ▭, ALARM, FINAL, F.FALL, PRELIM, OP.PLM, OVER, UNDER, NEAR-ZERO (In weighing mode)

■External input/output

Control I/O — 6 selectable output nodes
(no-voltage contact point or open collector input)
8 selectable input nodes (open collector output)
maximum load voltage: DC30V
maximum load current: 50mA
Standard serial output — 20mA current loop
(for use with A&D peripheral devices)
Setpoint — For Digital Switch and
AD4401-06 (setpoint unit) connection

■General specifications

Power supply voltage — AC100 to 240V (50/60Hz)
Power consumption — Approx. 30VA
Operating temperature — −10°C to 40°C
Operating humidity — 85% R.H. or less (No condensation)
External dimensions — 144(W) × 72(H) × 197(D) mm
Panel cut dimensions — 138 × 68 mm

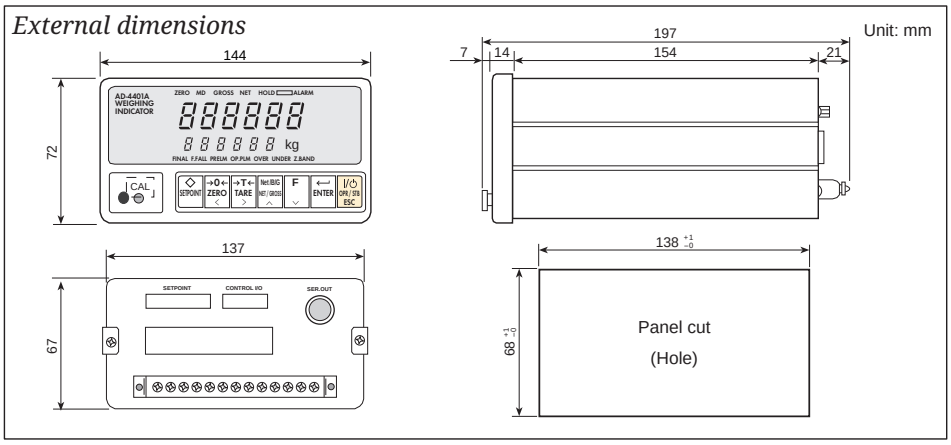
■Standard accessories

Simplified manual, control I/O connector,
standard serial output connector, capacity plate, unit label,
panel mount packing, terminal block cover, rubber pads

■Options

✻AD4401A-01 — Parallel BCD output (open collector)
✻AD4401A-03 — RS-422 / 485 RS-485 Modbus-RTU
✻AD4401A-04 — RS-232C D-sub 25pin
AD4401-06 — Setpoint unit
(Panel cut $181^{+1.0}_{-0}$(W) × $53^{+0.5}_{-0}$(H) mm)
✻AD4401A-07 — Analog Output
AD4401-10 — Stainless steel side panel
✻AD4401A-23 — Ethernet connecter RJ45 Modbus-TCP
note) Only one option from AD4401A-01, 03, 04, 23 can be equipped
✻Dedicated options for AD-4401A (noncompatible with AD-4401)

External dimensions



Installation AD4401A-23

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

A&D Company, Ltd.

Discover Precision

A&D Company, Ltd.
3-23-14 Higashi-Ikebukuro, Toshima-Ku, Tokyo, 170-0013, Japan Tel: +81 3-5391-6132 Fax: +81 3-5391-1566 http://www.aandd.jp

A&D Engineering, Inc.
1756 Automation Parkway, San Jose, CA 95131, U.S.A. Tel: +1 408-263-5333 Fax: +1 408-263-0119

A&D Australasia Pty Ltd.
32 Dew Street, Thebarton, South Australia 5031, Australia Tel: +61 8-8301-8100 Fax: +61 8-8352-7409

A&D Instruments Ltd.
Unit 24/26 Blacklands Way, Abingdon Business Park, Abingdon, Oxfordshire, OX14 1DY, United Kingdom Tel: +44 1235-550420 Fax: +44 1235-550485
<German Sales Office>
Hamburger Straße 30, D-22926, Ahrensburg, Germany Tel: +49 4102-459230 Fax: +49 4102-459231

A&D Korea Ltd.
8F Manhattan Bldg., 33, Gukjegeumyung-ro 6-gil, Yeongdeungpo-gu, Seoul, 07331, Korea Tel: +82 2-780-4101 Fax: +82 2-782-4280

A&D Rus Co., Ltd.
Vereyskaya Str. 17, 121357, Moscow, Russia Tel: +7 495-937-33-44 Fax: +7 495-937-55-66

A&D Instruments India (P) Ltd.
509 Udyog Vihar Phase V Gurgaon-122 016, Haryana, India Tel: +91 (124) 471-5555 Fax: +91 (124) 471-5599

✻AD4401A-ADCC-02-ZW2-18c01GP