

AD-4401

High Performance Weighing/Batching Indicator

Performance Plus!

High Speed - High Accuracy - Fail Safe Operation



Fuzzy Logic



AND
A&D WEIGHING
...Clearly a Better Value

AD-4401

Fuzzy Logic

High Performance Weighing/Batching Indicator

For batching, loss-in-weight, check weight or simple static weighing.

Features

- 100 times/sec. High Speed Sampling.
- High display resolution to 16,000 counts.
- Up to 1 million counts of A/D resolution.
- Monitor & control weighing and batching with external or internal resolution.
- Fuzzy and Automatic Free Fall Compensation (AFFC) for consistently accurate batching results.
- Enter control setpoints through front keys or remotely through external thumbwheels.
- Automatic weight and/or count accumulation.
- Sub display provides feedback on all setpoints & simplifies calibration.
- Supplementary flow function assures accurate performance on each batch.
- A host of communications capabilities:
RS-232C, RS-422/485, BCD, analog output and standard 20mA Current Loop.
- Connect up to 10 AD-4401's with A&D's RS-422/485.
- Compact DIN size housing speeds installation & reduces space.
- Digital Span Calibration enhances technical support and difficult installations.
- Splash proof front panel and keys (IP-65).
- High sensitivity $0.3\mu\text{V/d}$ for more accurate measurements.
- Automatic batching and customer programming capability.
- Bright, clear fluorescent displays.
- Hold and peak hold functions.
- User programmed timer settings and alarms improve operational safety & performance.
- Weigh-In and Loss-in-Weight batching.

System Self-Diagnostics

The most important factor in the installation of any weighing or controlling system is to assure that all cables, I/O connections and options are set up and working correctly. This can be very time consuming and difficult, adding to the expense of the installation. The AD-4401 solves this problem by providing System Self-Diagnostics that can check:

- All installed options
- All I/O connections (without the need for test equipment)
- Setpoint connections
- Control keys
- A/D converter input value



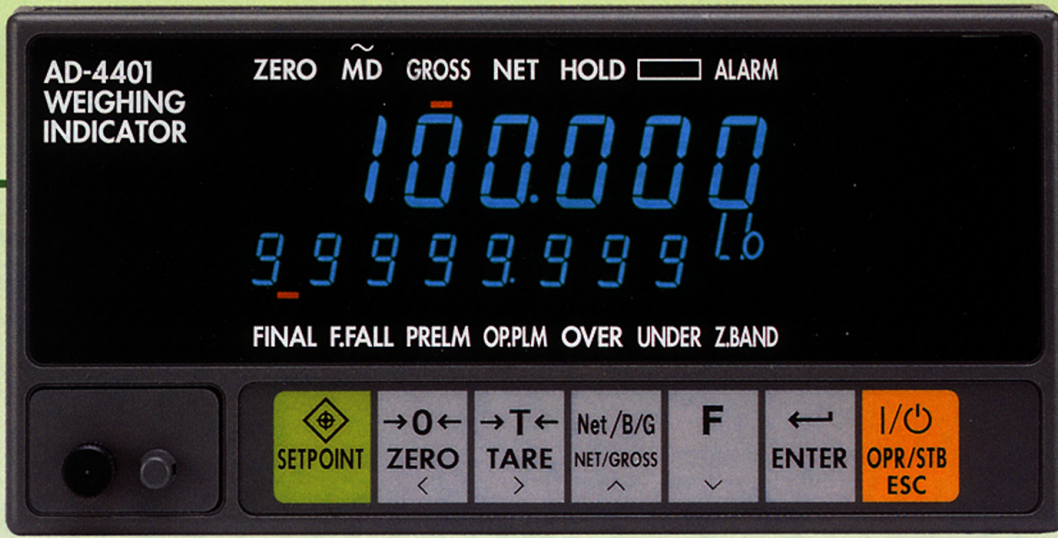
Superior Free-Fall Control

The type of material being batched, ambient temperature, flow rate, consistency of the material, and many other factors impact the accuracy of any batching process. The AD-4401 provides two types of free fall compensation which may be selected according to batching conditions. Fuzzy Free Fall Compensation is particularly effective in batching inconsistent material, such as sand with stones; honey, whose flow rate changes according to ambient temperature; and flour, which is susceptible to sticking to the sides of the discharge gate.

High performance A/D converter

New Sigma Delta A/D converter IC provides high speed, high resolution and high sensitivity in a very small package, that saves space, reduces parts and lowers cost.

thing



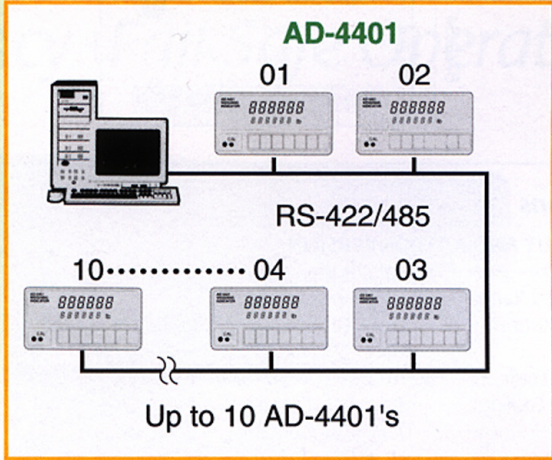
Customer programmable Control I/O Pins and "F" function key

Each batching installation has different control I/O requirements. The AD-4401 adapts to these requirements by allowing the programming of each of its Control I/O pins. The user may assign up to 6 input functions from a selection of 14, including: Zero, Tare, Batch Start, Emergency Stop, Discharge Start, Clear Tare, Accumulation, Hold and others. Up to 8 output functions from a selection of 16 may also be selected, including: Zero Band, Under & Over Limits, Full-Medium-Dribble Flow, Discharge Gate Open, Batch Finish and others.

Additionally, the programmable "F" function key on the front key pad of the AD-4401 may be programmed for special operation, including: Manual Print, Hold, Batch Start, Emergency Stop, Clear to Zero, Clear Tare or Clear Total. (The U.S. version may be programmed for lb/kg conversion).

Eight Modes of Weighing/Batching Programs are available for:

- Weigh-in Batching
- Loss-in-Weight Batching
- Check Weighing



Sub Displays



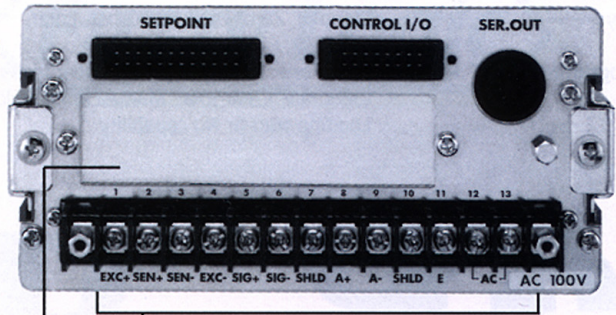
Tare, Final weight, Accumulated weight, Count of measurements, plus Calibration settings.

Rear Panel View

Standard Serial Output:
20mA current loop output to A&D's peripheral device

Setpoint:
Changes settings of each comparison value using a thumbwheel or AD4401-05 Setpoint unit

User Defined Control I/O Pins:
Select 6 of 14 control input commands
Select 8 of 16 control output commands

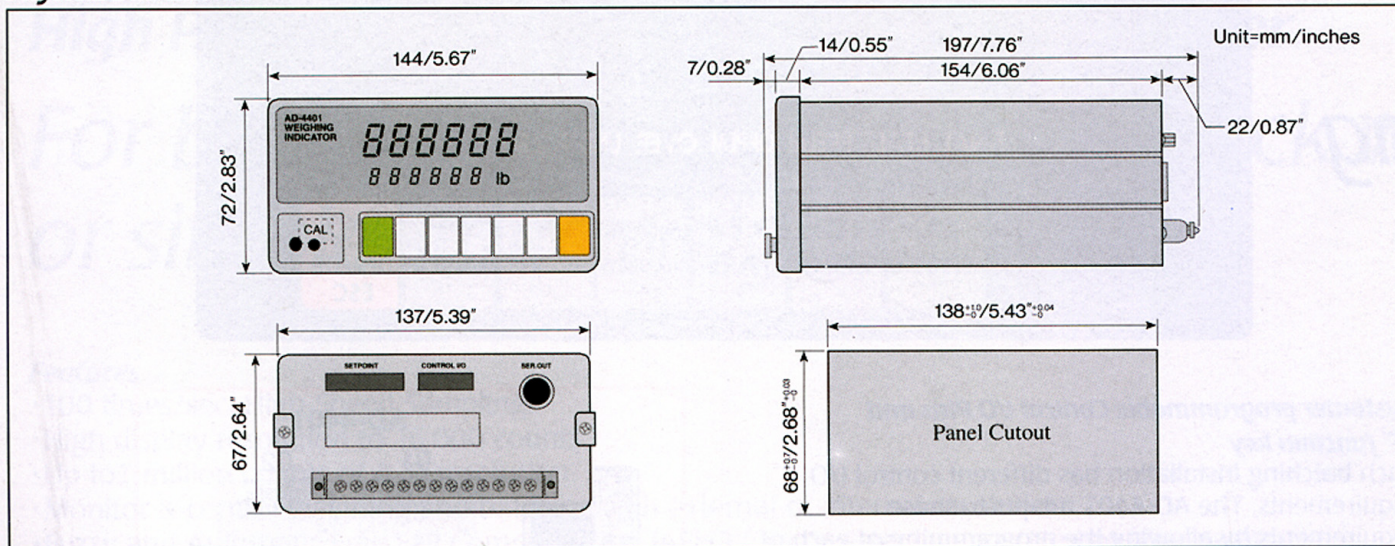


- Option Slot
- Power Source Connection
- Analog Output (When used with AD4401-07 option)
- Load cell connection

AD-4401

High Performance Weighing/Batching Indicator

Physical Dimensions



Specifications

ANALOG INPUT AND A/D CONVERSION

| | |
|------------------------------|--|
| Input Sensitivity | Greater than 0.3 μ V/d |
| ZERO Adjustment Range | -0.3mV~+20mV |
| Load Cell Excitation | 10V DC \pm 5% 230mA, Remote Sensing (Up to 8 load cells at 350/load cell) |
| Zero Temperature Coefficient | \pm (0.2 μ V+0.0008% of dead load)/ $^{\circ}$ C |
| Span Temperature Coefficient | 8ppm/ $^{\circ}$ C of reading |
| Non-Linearity | 0.01% of full scale |
| Input Noise | \pm 0.3 μ Vp-p |
| Input Impedance | 10M(Min.) |
| A/D Conversion Method | Sigma Delta |
| A/D Resolution | 1,000,000. counts(Max.) |
| A/D Conversion Rate | Approximately 100 times/second |

DIGITAL SECTION

| | |
|-----------------------|--|
| Main Display | 7-segment, 7-digit 13mm(H) blue fluorescent, Displays the weight |
| Sub Display | 7-segment, 8-digit 7mm(H) blue fluorescent, Displays Tare, Final weight, Accumulated weight, Count of measurements |
| Display Resolution | 16000D |
| Minimum Division | Times 1, X2, X5, X10, X20, X50 |
| Maximum Display | "999950" |
| Under ZERO Indication | "-" minus sign |
| Annunciator | |
| Keys | Setpoint, Zero, Tare, Net/Gross, Enter, OPR/STB, F, CAL |
| Programmable "F" Keys | Select one: Emergency Stop, Clear to zero, Clear tare, Clear total, Manual Print, Hold, Loading start or No capability |

GENERAL

| | |
|-------------------------|--|
| Power | 85~132V AC or 170~264V AC 50/60Hz |
| Net Weight | Approximately 1.3kg(2.7 lb) |
| Operating Temperature | -5 $^{\circ}$ C~40 $^{\circ}$ C(23 $^{\circ}$ F~104 $^{\circ}$ F) |
| Storage Temperature | -15 $^{\circ}$ C~70 $^{\circ}$ C(-5 $^{\circ}$ F~158 $^{\circ}$ F) |
| Operating Humidity | Less than 85% RH(non-Condensing) |
| Physical Dimensions | 144(W) \times 72(H) \times 197(D) mm 5.67(W) \times 2.83(H) \times 7.76(D) inches |
| Panel Cutout Dimensions | 138+1.0/-0(W) \times 68+0.7/-0(H) mm 5.43+0.04/-0(W) \times 2.68+0.03/-0(H) inches |
| Memory Battery Backup | Lithium over six years without AC power |
| Standard Accessories | Manual, Fuse, Sticker, Serial Connector, Load cell connector, Rubber foot, Terminal cover |

Options

| | |
|------------|--------------------------------------|
| AD-4401-01 | Parallel BCD Output (Open Collector) |
| AD-4401-03 | Serial Interface RS-422/485 |
| AD-4401-04 | Serial Interface RS-232C |
| AD-4401-05 | Setpoint Unit |
| AD-4401-07 | Analog Output(4~20mA) |

Only one can be selected from 01, 03, or 04.

Specifications subject to change for improvement without notice.

AND
A&D WEIGHING
...Clearly a Better Value

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LIT:4401 VersionA