AD-4402 Multi-Function Weighing Indicator

Specifications

Analog Input and A/D Conversion
- Input Sensitivity: 0.3mV/dV
- Zero Adjustment Range: 0mV - 20mV
- Load Cell Excitation: DC 10V ± 5% 230mA (Remote Sensing)
- Zero Temperature Coefficient: ±0.2%/1°C (of load cell)
- Span Temperature Coefficient: ±0.1% of reading (typically)
- Non-Linearity: ±0.3% of full scale
- Input Noise: less than 0.5μV/p-p
- Input Impedance: 10MΩ or more
- A/D Conversion method: Delta Sigma
- A/D Resolution: 1,000,000 counts
- Maximum display resolution: 16,000 counts (This limitation can be expanded)
- A/D Conversion rate: 100 times/sec.

Digital Section
- Main Display: Blue Fluorescent, 7-segment, 7-digit
- Character Height: 10mm
- Subdisplay: Blue Fluorescent, 7-segment (54 digits)
- Character Height: 5mm
- Status Displays/Symbols: 8 displays/10 symbols (5×7 dots)

External Input/Output Section
- Control I/O: Inputs 11/Outputs 11
- Standard Serial I/F (Ch. 1): RS-485 (Terminal)
- Standard Serial I/F (Ch. 2): Current loop (Terminal)

General
- Power: AC 85V - 250V (50/60Hz)
- Consumption: Approximately 30VA
- Operating Temperature: -5°C to +40°C (13°F - 104°F)
- Operating Humidity: Less than 85% RH (non-Condensing)
- Physical Dimensions: 192(200) × 330(340) × 96(106) mm
- With terminal block: 192(200) × 177(178) × 96(106) mm
- Panel Cutout Dimensions: 186.5 × 80.5 mm
- Net Weight: Approximately 1.8 kg / 4.0 lb

Options
- OP-01: Parallel BCD Output
- OP-02: Relay Output
- OP-03: RS-422/RS-485 I/O
- OP-04: RS-232C I/O
- OP-05: Parallel I/O
- OP-07: Analog Output
- OP-10: CC-Link Interface
- OP-21: DeviceNet Interface
- OP-22: PROFIBUS Interface

AD-4402 performs many operations, from batch weighing to field bus networking applications.
AD-4402

A&D’s new indicator, the AD-4402 is designed for batching operations and can also be incorporated into systems using Field Bus such as CC-Link, DeviceNet and PROFIBUS.

AD-4402 has almost all the functions, user-friendly operating procedures and software you need for your weighing system.

Hopper gate control is done by forecast control mode with 1msec high speed response.

Incorporates Recipe and Mixing modes.

Select from 50+ functions for each of the 11 Control Inputs and 11 Control Outputs.

Meets Fieldbus requirements by employing CC-Link, DeviceNet and PROFIBUS.

Features
- Large and easy to see blue Vacuum Fluorescent Display (VFD).
- Uses a ten key pad and function buttons that are designed for ease of operation and understanding.
- The main display has a 7-digit VFD with 18mm tall characters.
- The subdisplay has 108, 5mm tall characters and shows the values and error comments.
- Pre-programmed with multiple sequences and functions for filling machines, simple mixing machines and other applications.
- Stores 100 data for raw materials and 100 data for recipe codes.
- RS-485 Serial Interface standard feature allows you to link up to 32 units to the display and supports the Modbus function.
- The Monitor Function shows each operating interface and provides a confirmation on the display.
- The compact body meets DIN requirements, while minimizing the depth of the indicator to 135mm.
- With the proper optional interface, the AD-4402 is compatible with CC-Link, DeviceNet, PROFIBUS.

Multi-Function Weighing Indicator

Applications
AD-4402 can be incorporated in various applications that integrate complex systems, thereby facilitating a wide variety of sequences, such as basic filling/discharge, recipe, mixing, compensation and preliminary sequences.

Mixing System Control by AD-4402
- Direct Control up to 10 Material Hoppers
- Full Draggable Slow Filling Control

Recipe 1
- Maximum 10 Materials Controlled
- Up to 100 Recipe Combinations
- All the relay boards, field bus interface boards are optional. The necessary software is built-in.

Nozzle Control Application
- Bin-Gate Timer
- At the assignment of this supply is short, the re-supply will work until the single amount is supplied.

High Communication Capability
- Standard RS-485
- RS-485 Interface
  - Network up to 32 Units
  - PLC, PC Direct Connection
  - Lower Control System Costs

Overwriting and Memorizing Setting Parameters via PC
- AD-4402 parameters and function settings can be memorized.
  - Overwriting Settings
  - Download
  - Uploading Settings
  - Upload

Field Bus Network
- Freely expand your network
- Simple wiring between modules in the system
- Easy signal upload and download
- Lighter load on PLC

Field Bus
- CC-Link
- DeviceNet
- PROFIBUS

PLC
- Easy maintenance

Weighing Instruments
- Robot & NC Machines
- Measuring Instruments
- Signals & Switches
Here is why we recommend our AD-4402 Multi-Function Weighing Indicator for your weighing system.

**Sequential weighing mode**
The sequential weighing mode directly outputs control signals such as supply, discharge, preliminary-full-medium-dribble flow, recipe and mixing materials and nozzle control without PLC.

**Interface monitoring function**
Control I/O, RS-232C, 485 I/F, Current Loop, A/D converter, BCD output, Relay output, Parallel I/O, Analog output, etc. can be monitored to see if they are working correctly. You can see each interface status visually during operation without stopping the weighing system.

**Interactive messages**
Messages that assist current operations are shown on the display and allow anyone to operate the AD-4402 without an instruction manual. Just follow the interactive setting and operating procedures on the display. Sometimes mistakes happen. When they do, a message is displayed so you can recognize the situation and take corrective steps.

**Digital Span and Gravity Acceleration Compensation**
When you cannot use an actual calibration weight due to location, just input the load cell rated output voltage for zero point and full capacity calibration. After moving the calibrated weighing system, recalibrate it by inputting the local gravity acceleration value.

**Calibrated A/D board**
The A/D board is calibrated before shipment and guaranteed to 1/500 accuracy. You can quickly replace the A/D board if there is a malfunction.

**Safety check function**
This function is used to stop the sequence when an error or an emergency occurs. When the safety function is used, an error code is displayed and an error signal is output automatically to the PLC to stop the system. Up to eight emergency overrides can be installed.

**11 Control Inputs/11 Control Outputs**
50+ functions (such as Full Flow, Over, Under, Discharge Bin, Net Display, etc.) for each of the 11 Control Inputs and 11 Control Outputs, depending on the weighing system.

**Standard RS-485**
32 indicators can be hooked up to the PLC (programmable controller), a PC (personal computer) or other equipment that supports Modbus. This is useful for control commands input and recalling/updating the code memory.

**Optional Field bus networking interface boards for CC-Link, DeviceNet or PROFIBUS**
To meet increasing requirements for networking with field bus systems, there are three bus-interface options (CC-Link, DeviceNet and PROFIBUS), which can be hooked up directly to the PLC units. More than two indicators can be hooked up to the PLC at one time.
On the main and subdisplays, a Vacuum Fluorescent Display was used for easy visual recognition. Operation keys are arranged by function for easy setting and recalling the contents. What's more, there are messages for each setting and function and current status on the subdisplay. Even without an instruction manual, you can handle many emergencies.

Display example

The AD-4402's interactive, easy to see character arrangement and graphics are very user-friendly.

- The main display has 18mm tall characters and a 7-digit VFD for the weight value displays.
- The code name, code number, total, set-point, counts, bar graph and judgment can be displayed on the subdisplay.
- Displays calibration, current status (like setting procedures), error, malfunction and trouble-shooting messages.

Rear Panel Descriptions

There are many features, like selectable I/O control terminals, standard RS-485 I/F and PLC field-bus networking interfaces such as CC-Link, DeviceNet and PROFIBUS.

1. Load cell input 350Ω L/C up to 8 units Replacement A/D board available
   Accuracy guaranteed to 1/500
2. 3 Options slots – Up to 3 options installed
3. External control RS-485 standard, up to 32 units controlled simultaneously
4. Programmable Control I/O – Input 11 /Output 11
5. AC Power 85 ~ 250V
   DC 24V available factory installed option

Optional interface boards

Top Row: DeviceNet, RS-232C and CC-Link
Bottom Row: RS-422/485, Analog output, and PROFIBUS