

## Weigh Feeder Model 410-170-MI-5 *“Weight-Loss-Differential”*

*For Precise and Reliable  
Metering of Dry Solid Materials  
at Very Low Feed Rates*



*Advanced design technologies for superior  
performance, quality and reliability.*

# Weigh Feeder

## Model 410-170-MI-5

*“Weight-Loss-Differential”*

*For Metering Dry Solid Materials at Very Low Feed Rates*

### Operational Overview

Smallest of Acrison’s Model 400 Series of “Weight-Loss” Weigh Feeders, the Model 410-170-MI-5 has been specifically designed to accurately and dependably feed a wide variety of dry solid ingredients at the lowest possible rates. An Acrison Model 170-MI-5 Metering Mechanism, mounted onto an Acrison Model 410 Weighing System, provides optimum materials-handling versatility, flexibility and highly reliable metering performance at very low feed rates.

### Dry Solids Metering Mechanism

In operation, a slowly rotating, horizontally mounted “Conditioning Agitator” located within the feed chamber of the Model 170-MI-5 Feeder, promotes flow out of the feeder’s supply hopper and into the feed chamber, where the sweeping rotational action of the agitator “conditions” the material to a uniform and consistent state, while simultaneously filling the metering auger for accurate product delivery. The metering auger is housed in a trough beneath the feed chamber, offset to one side. The “Conditioning Agitator” is driven from beneath.

When permitted to feed until empty, only a minimal amount of residual material will remain within the self-emptying metering mechanism. The Model 170-MI-5 is designed for total product cleanout and is ideal for applications where frequent product changeover is a requirement. Additionally, all areas within the feed chamber and metering auger trough are active; dead zones do not exist and therefore, product stagnation cannot occur anywhere within the entire feeder.

### Weigh Feeder

As product discharges (feeds) from the scale-mounted Model 170-MI-5 Metering Mechanism, the Ratiometric Digital Weight Sensing System of the Model 410 Weighing Mechanism continuously transmits “loss-of-weight” information to the weigh feeder’s controller. In turn, the controller instantaneously calculates the rate at which product is discharging (feeding), compares that rate to the feed rate selection, and simultaneously adjusts the variable speed drive of the metering mechanism to accurately discharge product at the exact specified feed rate.

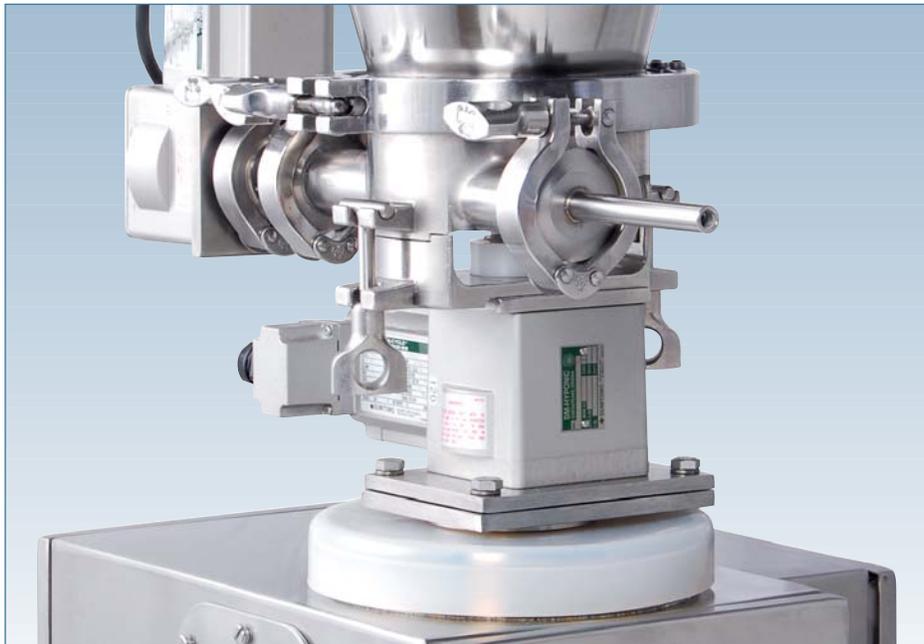
The “weight-loss” principle for continuous weigh feeding requires periodic refilling of the weigh feeder’s integral supply hopper as an operational requirement, which for the Model 410-170-MI-5 Weigh Feeder, can be either an automatic or manual function. Frequency of refills is determined by the feed rate throughput in relation to the size of the weigh feeder’s supply hopper; however, the number of refills (i.e., per hour) must remain within the parameters necessary to ensure optimum weigh feeder performance.



**Model 410-170-MI-5**  
**Weigh Feeder**

# The Model 410 Weighing System used in conjunction with Acrison's Model 170-MI-5 Feeder

The Model 410-170-MI-5 Weigh Feeder is durably constructed in 304 stainless steel, resulting in exceptional equipment longevity



## Features/Benefits

- The very compact Model 410 Weighing System has been specifically designed for use with Acrison's smallest dry solids metering mechanisms, and in particular, the Model 170-MI-5. The Model 410 Weighing Mechanism also includes all of the standard features incorporated into all of Acrison's various Model 400 Series "Weight-Loss-Differential" Weigh Feeders.
- Like the weighing systems of all Acrison Model 400 Series "Weight-Loss-Differential" Weigh Feeders, the Model 410-170-MI-5 Weigh Feeder also utilizes a technologically advanced, heavy-duty lever weighing network equipped with durable stainless steel flexures for all pivotal connections. The weighing mechanism is frictionless in operation and counterbalanced for optimum weight sensing; only the net weight of material in the metering mechanism is weighed.
- Weight is sensed by Acrison's Ratiometric Digital Weight Resolver System which is a unique, non-contacting, exceptionally precise displacement measurement technique employing synchro-resolver technology that instantaneously converts "displacement" (movement) of the lever network - - - as weight (product) is added or subtracted from it - - - into a highly accurate, non-integrated output signal directly proportional to weight. The time/performance-proven Ratiometric Weight Sensing System is impervious to any overload or shock that the weighing system may experience since its physical "sensing element" does not contact any part of the weighing mechanism's lever network.
- The entire weighing mechanism of the Model 410-170-MI-5 Weigh Feeder, including its associated electronics, boasts an industry unprecedented five-year unconditional guarantee.
- The Weighing System of the Model 410-170-MI-5 Weigh Feeder is permanently, calibrated and adjustment-free, analogous to all Acrison "Weight-Loss" Weigh Feeders; provisions for adjustment do not exist.
- The Metering Mechanism of the Model 410-170-MI-5 Weigh Feeder responds instantaneously upon a command from the weigh feeder's controller to alter its feed output accordingly. Absolutely no response lag exists since product discharge is directly out of the "scale-mounted" metering mechanism.
- The Model 410-170-MI-5 Weigh Feeder includes ACRI-LOK® to ensure accurate metering performance should the weighing system detect any type of abnormal disturbance during operation that would otherwise adversely affect metering performance.
- The Model 410-170-MI-5 Weigh Feeder is available with Acrison's various model weigh feeder controllers for highest levels of metering performance.
- All external areas of the standard Model 410-170-MI-5 Weigh Feeder are constructed in 304 stainless steel. Equipment longevity is exceptional.
- The Model 170-MI-5 Metering Mechanism is entirely dust-tight from inlet to outlet.
- The weigh feeder is silent when operating.

## Specifications

- Continuous metering accuracy typically ranges between +/- 0.25 to 1 percent or better (error), at two sigma, based on a given number of consecutive one-minute weighments. Batch accuracy typically ranges between +/- 0.1 to 0.5 percent or better (error), at two sigma, based on a given number of consecutive weighments.
- Acrison's Ratiometric Digital Weight Resolver provides unamplified weight sensing resolution of better than one part in one million.
- The Model 410-170-MI-5 Weigh Feeder will operate over an ambient temperature range of -10 to 140 degrees Fahrenheit.
- The Model 410-170-MI-5 footprint measures 14.5 X 15 inches, including its electrical junction box.
- Power requirements are 115/1/60 or 230/1/60.

# Weigh Feeder Controllers and Control Systems

Acrison Weigh Feeder Controllers and Control Systems are universally recognized for their design superiority, unparalleled versatility, ease-of-use and operational reliability. From basic single weigh feeder controllers to multi-feeder supervisory control systems, the technologically advanced designs of these devices, including their cutting-edge software

routines, provide users with unexcelled weigh feeder performance to satisfy the most demanding metering requirements across a broad spectrum of applications. With a wide range of options, accessories and interfacing capabilities, these controllers and control systems are also available in a number of different packaging configurations.

## Acrison Weigh Feeder Controllers

For decades, Acrison Weigh Feeder Controllers have provided state-of-the-art performance for thousands of global processors. With leading edge products such as the MD-II-2000® and SBC-2000® Family of Controllers, these devices, widely recognized for their robust and quality designs, have gained a reputation for exceptional reliability throughout all sectors of the processing industries.

All Acrison Weigh Feeder Controllers will operate in either a continuous or batch mode using internal or external set points, and in master/slave or ratio-proportioning control modes. They are available with a choice of membrane keyboard or graphic touchscreen displays and include multiple languages, recipe storage capability, and a very wide selection of interfacing options (i.e., analog, Bluetooth, digital, wireless Ethernet, infrared, modem, and networking).

## SBC-2000® Family Controllers

Acrison's ongoing investment in research and development continues to result in the evolution of its leading-edge controls and control systems, as evidenced by the addition of the Models SBC-2000 CM and DSP Controllers to Acrison's SBC-2000 Weigh Feeder Controller Family. These new, small yet powerful devices encompass the latest technologies and functional algorithms, providing users with an unprecedented number of standard and optional features, including native Ethernet connectivity and a single operating program capable of controlling one or more Acrison weigh feeders. In particular, these controllers are ideally suited for those applications that require central computer control with minimal hardware. A variety of keyboard/display options is also available to suit specific user requirements.

## Multiple Weigh Feeder Control Systems

When combined with Acrison's Acri-Data® Supervisory and Control System Software hosted on a wall or desktop-mounted Microsoft® Windows® Embedded XP Platform, the Model SBC-2000 DSP and/or SBC-2000 CM Controllers form the basis for the SBC-2000 MFC Multiple Feeder Control System. This control system, with its color touchscreen, provides the ability to operate and control up to 20 Acrison Weigh Feeders while displaying rapid data and screen updates, and includes master/slave and ratio-proportioning operation, unlimited recipe storage and retrieval, trending, event and alarm logging, automatic shut-down configurability, and more.

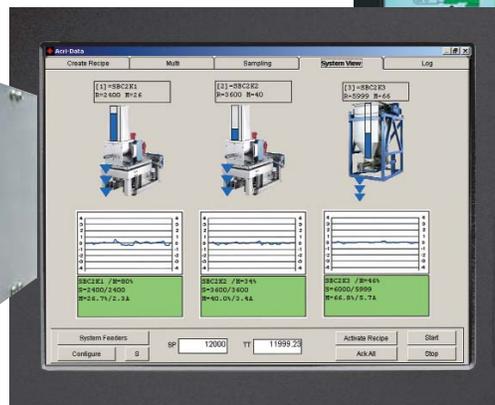
User PLC and DCS equipment can also serve as a host for an SBC-2000 Family Controller System.

*Reference Design Specifications 1-200-0602, 1-200-0627 and 1-200-113.*

All Acrison controllers are certified to UL, CSA and EC specifications.



▲ Model SBC-2000 CM Controllers (Card Rack)



◀ Model SBC-2000 DSP Single Weigh Feeder Controller



▲ SBC-2000 MFC Touchscreen Displays

# Model 410-170-MI-5 Weigh Feeders

*For Dry Solid Materials*



# Acrison Facilities



Empire Boulevard Facility  
Moonachie, NJ USA



Trafford Park Facility  
Manchester, UK



Joseph Street Facility  
Moonachie, NJ USA

## Acrison products...

- Models 101 and 130 Volumetric Feeders
- Models V-101 and V-130 Volumetric Feeders
- Model 1015 Volumetric Feeder Series
- Model 105 Volumetric Feeder Series
- Model W-105 Volumetric Feeder Series
- Model 120 Volumetric Feeder
- Model 140 Volumetric Feeder Series
- Model 170 Volumetric Feeder Series
- Model 905-14 Volumetric Feeder
- Bin Discharger Feeders
- Model 200 Series of Weigh Belt Feeders
- Model 203B Series of Weigh Auger Feeders
- Model 270 Series of In-Line Weigh Feeders
- Models 402, 404, A405, 406, 407 and 410 Series ("Weight-Loss-Differential") Weigh Feeders
- Model Series 403 ("Weight-Loss-Differential") Weigh Feeders
- Model 403B(D) Batch/Dump Weighing Systems
- Model 404BZ(BU) Bulk Bag Unloader Batch Weigher
- Models 350 and 301 Continuous Blenders and Blending Systems
- Multiple Auger Bin Dischargers and Multiple Auger Bin Discharger Hoppering Systems
- Vibratory Bin Dischargers
- Model 170-BD-30 Bin Dischargers
- Model 500 Series of Polyelectrolyte Preparation Systems
- Water and Waste Water Treatment Systems
- Volumetric and Gravimetric Feeder Controllers and Control Systems
- Accessory Equipment for Acrison Products
- Systems Engineering

*Quality built, total performance products to satisfy  
your dry solids metering/handling needs.*

# Acrison<sup>®</sup>

*"Visibly Different... Measurably Better"*

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