Feed & Water Metering, Alarm and ShutOff

Applies to programs 020-239 and greater

Feed & Water Metering

Feed use is metered by measuring the amount of time the feed auger runs. Water is measured using a standard water meter.

Feed augers run in the normal way, regulated by their own level or pressure switches in the feed line. When level or pressure is low the feed auger is triggered into action by this switch, until the level or pressure gets high enough to shut it off. (Note : Dicam measures feed use, but doesn't control it.)

A "detector" is connected to the feed auger motor circuit, and measures when mains is switched on.

When the motor is powered up, the Dicam unit counts the running time. By adding up the total amount of running time, feed use in any 24 hour period can be estimated.

Calibrating the auger (to indicate the weight of feed delivered per second) gives a better indication.

Water is metered by counting pulses from the water meter - each time a unit of water is delivered (e.g. 1 gallon, according to the model of meter) a pulseis transmitted to the Dicam unit, which counts up the readings.

For both Feed and Water, the Dicam unit displays total and recent consumption.

To View Feed & Water Meters

From Keypoint (Actual/Set display) turn knob to Feed & Water. Press button to enter F&W menu.

Turn the knob to Water/Feed/Feed1/Feed2.

The dispay shows e.g. WATER TOTAL 22 47.0 (Total water used since Water Meter was last reset = 2247.)

Press the button to see e.g. WATER TODAY 24.0 (water used today = 23)

Press the button to see e.g. WATER LAST 46.0 (water used yesterday = 46).

If there has been a problem, the display may show e.g. WATER MAX RUN ExCEEDED.

Depending on the program and configuration, there may be several feed and/or water meters.

Note the Today and Last figures are reset daily at a certain time. (Such as midnight or 6 am.)

Today shows the value since the daily reset (e.g. since 6 am today). Last shows the previous 24 hours (e.g. The 24 hours up to 6 am today).

If you wish to keep written recoirds, note down the LAST reading - you can do this anytime up until the next daily reset.

To Reset/Clear Feed & Water Meters

Reset Totals is provided so that you can clear the readings, such as before a new batch of animals.

From Keypoint (Actual/Set display) turn knob to Feed & Water. Press button to enter F&W menu.

Turn the knob to CLEAR TOTALS. Press butto.

You are asked to confirm (Clear Totals Sure?). If you are sure you want to clear all the readings, turn knob to YES and press button.

NOTE : Clearing Totals will also reset alarms, if present.

Feed & Water Failure Alarm & Feed Shut Off

Feed Failure Alarm & Shut Off means that as well as monitoring Feed use, the unit detects feed system problems.

A Feed Failure Alarm is triggered if the auger runs for too long, or if too much time elapses before the motor runs.

For example, if the motor runs too long because of bin bridging, or is tripped out. The allowable times are adjustable.

Feed Shut Off (optional extra) operates only if auger runs too long (Max Run Exceeded). An extra switching module is connected in the supply the feed auger (or its control circuit).This switches out if masx Run is exceeded.

(May have one or two augers - Feed 1 and Feed 2 - and associated Shut Off outputs Feedoff1 and Feedoff 2.

A Water Failure Alarm is triggered if too much or too little water is used in a certain period. (If the meter runs at a high rate for too long, or runs at a low rate for too long.) High rate and low rate settings and period are adjustable.

When an alarm occurs, it is displayed on the unit and is transmitted to the Netmon (Network Monitor unit).

To Enable Meter Alarms and Feed ShutOff

From Keypoint (Actual/Set display) turn knob to Feed & Water. Press button to enter F&W menu.

Turn knob to Meter Alarms : Active. Press button. Turn knob to change No to YES and press button.

Turn knob to Active *Yes* and press button to enter selection.

To Disable Meter Alarms and Feed ShutOff

From Keypoint (Actual/Set display) turn knob to Feed & Water. Press button to enter F&W menu.

Turn knob to Meter Alarms : Active. Press button. Turn knob to change No to YES and press button.

Turn knob to Active *Yes* and press button to enter selection.

> **W**arning : Feed Shut Off only functions if meter Alarms are enabled (Active = Yes) If meter alarms are disabled (Active = No), Feed Shut Off is also disabled.

To View and Reset Meter Alarms and Feed Shut Off

In the event a detected problem (of whatever type), the normal display changes to :

!! ALARMS PRESS BUTTON !!

Button presses (repeated if necessary) reveal the type of problem encountered.

If the fault shown is Feed or Water Failure, press the button until the display returns to the Keypoint (Actual/Set display).

Note : Resetting the alarm display at Keypoint display does NOT reset feed and water failure alarms.

From Keypoint (Actual/Set display) turn knob to Feed & Water. Press button to enter F&W menu.

Turn the knob to Feed and/or Water - the type of fault is displayed - e.g. FEED : MAX RUN EXCEEDED.

Either :

Press the button where the fault is displayed (e.g. Press button where problem (e.g. Max Run Exceeded) is shown

Or :

Turn the knob to RESET ALARMS and press button.

Resetting alarms (by either method) restores Feed Shut Off to normal (Ok) operation.

> **W**arning : resetting the alarm restores normal function but does NOT cure the problem, whatever it is. Make sure you investigate the reason for fault fully.

Depending on your auger, you may have to reset overloads or other control circuits.

To check status of Feed Shut Off

In Test : Outputs find FEEDOFF (or Feedoff1/Feedoff2). Menu shows current status of output.

Feedoff = 0% means output Ok = relay is energised, auger should work as normal.

Feedoff = 100% = fault state = relay is released, auger should not operate.

To check operation of Feedoff relay - select Feedoff output and set to 0% or 100% and press button to take effect.

Technical : Installing Feed Detection, Alarm & ShutOff

Wiring the MD2 Detector

The MD2 modules detects when mains is present on its terminals. When mains is present, it switches on it's low voltage (isolated) output.

We recommend this is wired as electrically close to the auger terminals as practical (i.e. After all overloads, control switches, timers etc.) so that it detects when and only when mains is present on the auger motor itself.

If the MD2 is wired elsewhere (such as before overloads) it may detect mains present when the motor has tripped out.

Depending on the circuit rating, it may be necessary to install an in-line fuse to the MD2 module.

Configuring Input Channels and Devices

Feed and Water devices are normally configured to a channel already. Do not change the chosen channels unless absolutely necessary.

If you are not using a particular device (e.g. If you are not monitoring water), set it to CH = NONE in I/O Config Input Devices (then it will not be shown in the F&W menu, and no alarms will occur).

If you need to change to a different channel :

Input Devices : Adjust channel to channel you are using.

Input Channels : Set Type = Pulse for water device or Type = Timed for Feed device.

If input channel is on a different network unit (different Dicam unit on the network) set Input Channels (chosen channel) Net = Yes.

Note : Earlier program versions of Feed meters alarms and shutoff may use different channel types. This documentation refers only to programs 020-239 and above.

Feed ShutOff Output

Feed ShutOff is intended to operate a CTR1, connected in series with supply to motor or switchgear.

Use Output Type = NormOn.

Config : Meter Settings

Feed Max Run : Adjust to the longest feed motor run you want to allow. (Note : Typically, runs are under 10 minutes.)

Hint : You may get longer runs while a building is being stocked up, which might give an alarm. It's better to accept occasional false alarms during these times(when the site is manned), than suffer delayed alarms and shut off at other times.

Feed Max Off: Adjust to the longest period expected between motor runs. (Note : Typically : 4 hours or less.)

Hint : You may get longer periods between running while a building is being stocked up, which might give an alarm. It's better to accept occasional false alarms during these times(when the site is manned), than suffer delayed alarms during normal running.

Hint : After installation, allowed times can be adjusted based on recorded performance.

Water Max Run : Adjust to the longest period when water is expected to run at a high rate.

Water On Rate : Adjust to value you want to be the "high rate" in pulses per minute.

Water Max Off : Adjust to the longest period when water is expected to run at a low rate.

Water Off Rate: Adjust to value you want to be the "low rate" in pulses per minute.

Hint : It may be advisable to check logging results before adjusting values.

Scaling

Selects multipliers to be used in Water and Feed displays. Note :These settings only affect the display, not max on/off values.