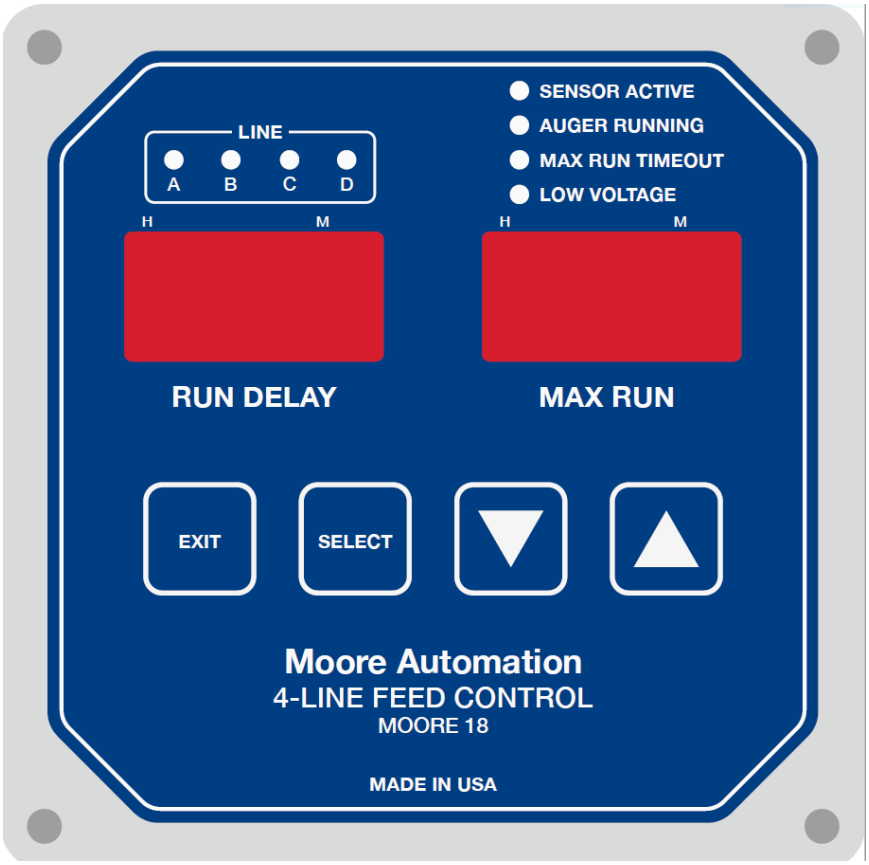
Moore 18 Console/Moore 18 Relay Module Description

Functionality will essentially have similar features to the existing Moore 06 product, but now with the new design will be able to have one NEW Moore 18 console communicate to 4 Relay boxes. Therefore, the overall system if more than 2 relay boxes should be less expensive. The console will include two strain reliefs and is assembled and sold as a complete package in a standard 5 x 5 enclosure.



Moore 18 Console Specifications:

Input Voltage: 12VDC (external power supply provided by Moore Automation)
2 pin connector 12VIN (+/-)

Alert Output: MAX RUN TIMEOUT turns on the Alert Relay
3 pin connector (COM – N/C – N/O)

Enclosure: 5 x 5 with 4 watertight grommets for cable entry. (most systems use two relay boards)

Display: 3 digit 7 segment LEDS - Run Delay (.1 hours to 99.9 hours)

Also configured for mins (.1 to 99.9 minutes) S1 (Off-HRS/ON-MIN)
3 digit 7 segment LEDS - Max Run Time (.1 to 99.9 minutes)
Also configured for hrs (.1 to 99.9 hrs) S2 (OFF-MIN/ON HRS)

LED Status: 4 LEDS for displaying which FEEDLINE status information is being displayed
4 LEDS Status for Sensor Active(YEL)/Auger Running(GRN)Max Run Timeout(RED/Low Voltage(RED)

Buttons: **Up Arrow /Down Arrow** - Used for entry of Max Run/Run Delay time and Consumption
Select- Using to access SETUP menu and select the proper FeedLine being displayed
Exit- Used to escape the consumption mode.

Communications Ports:

Com port: Type A (MODULES) port to communicate with Moore 18 Relay Modules (MAX 4)
Optional HerdStar Type B Port: Connects to CommHub type device (Future Development)
J1: Standard Programming header (6 pin)

Dipswitch: 4 position dip-switch (DEFAULT)

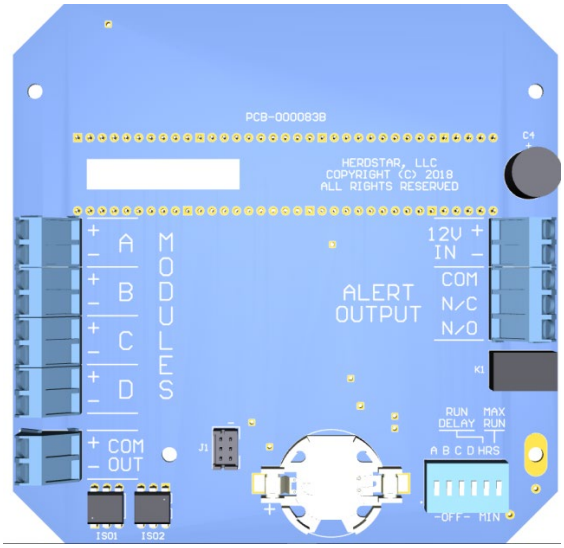
Setting	S1	S2	S3	S4	S5	S6
Feedline A Enabled	ON	OFF	OFF	OFF		
Feedlines AB Enabled (Default)	**ON**	**ON**	**OFF**	**OFF**		
Feedlines ABC Enabled	ON	ON	ON	OFF		
Feedlines ABCD Enabled	ON	ON	OFF	ON		
RUN DELAY TIME S5 (OFF-MIN/ON-HRS)					**ON**	OFF
MAX RUN TIME S6 (OFF-MIN/ON-HRS)					OFF	**OFF**

Basic Functional Features:

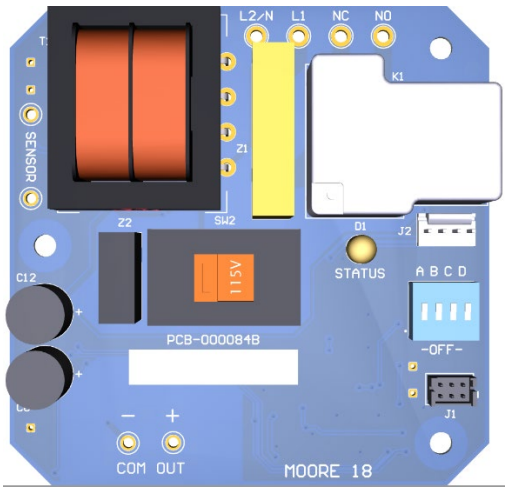
- **Easy to Read LED Displays (Large LEDs.56 in digits from new BT260)**
- **Push Button Settings**
- **Configurable for up to a maximum of four relay modules**
- **Status lights of sensor active/auger running/max run timeout/Low voltage**
- **Consumption Meter (access each feedline with Auger Run Time for last 24 hrs.**
- **Adjustable Run Delay Time (0.1 hrs to 99.9 hrs.)**
- **Adjustable Max Run Time (0.1 min to 99.9 min.)**
- **Alarm Output Contacts**
- **30 Amp – 3Hp Power Relay (capable of running 2 motors) Moore 18 Relay Module**

Board Layouts: Moore 18 PC Board Layout

Console-Fits inside standard 5 x 5 enclosure



Relay Module- Fits inside 4 x 4



Operation Instructions

Status Lights

Sensor Active - Illuminates when feed is detected at sensor. (YELLOW)

Auger Running - Illuminates when the feed Auger is running. (GREEN)

Max Run Timeout - Illuminates when a Max Run time has occurred. (Default = 30 minutes RED)

Low Voltage - Illuminates when a low voltage situation is detected (RED

Line A, B, C, D - Illuminates when appropriate Feed Line is selected (RED)

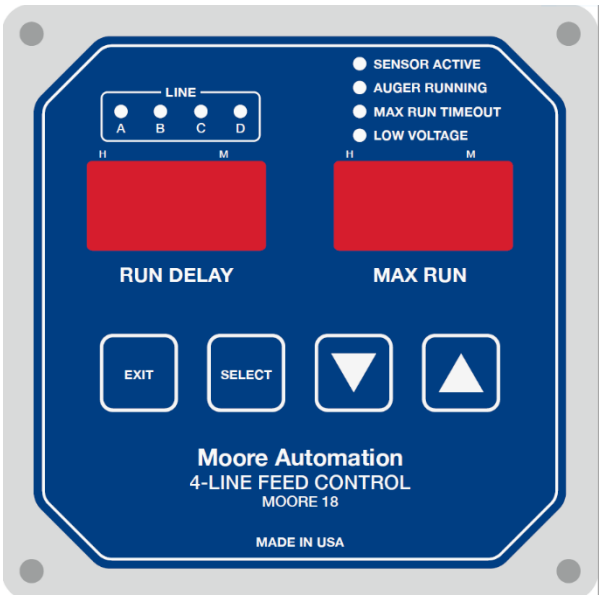
Keys

Up Arrow - Accessing and setting Max Run time, consumption meter and numerical entry scroll

Down Arrow - Accessing and setting Run Delay time, consumption meter and numerical entry scroll

Select - Accessing the proper Feedline A, B, C, or D.

Exit - Used for exiting the setup mode.



The Moore 18 4-Line Feed Control – MORE than just a feedline switch.

- Feed Line System Control and Status
- Feeding Cycle Timer
- Consumption Meter (records total auger run time for past 24 hrs)

Operation

The Auger Running annunciator will be lit when the feed auger is running. The Max Run Timeout will count up displaying the amount of the auger run time. (Default = 30 minutes)

Once feed is sensed by the sensor, the SENSOR ACTIVE LED will illuminate. The auger will stop and the RUN DELAY time will be displayed. (Default = .3 hours or 18 minutes)

When the feed leaves the sensor, the SENSOR ACTIVE light goes out and the RUN DELAY begins timing. The RUN DELAY display will begin counting down showing the remaining time left. Be aware once the delay goes below one hour, the display will change every 0.1 hour or 6 minutes.

Once the RUN DELAY has reached zero the AUGER RUNNING LED will illuminate and the feed auger will run repeating the process.

If more than one feedline is configured, the system will continue to scroll around every 5 seconds automatically.

Accessing the Consumption Meter

The Moore 18 will automatically record the total amount of auger run time in hours and minutes for the past 24 hours.

To access press and hold both the UP and DOWN arrow keys and the current total will be displayed with the hour on the left LED display and the minutes on the right display for feedline A. Pressing SELECT key will move to feedline B, C and D accordingly to view auger run time on all feedlines. Pressing EXIT will escape from viewing consumption.

Setting the number of active FeedLines

The Moore 18 can communicate to a maximum of 4 Feedlines (Relay Modules). This number of active Feedlines (maximum of 4 relay modules) needs to be configured as A,B,C or D within the relay module. On the inside of the Moore 18 control, set the dipswitches properly as show below for the proper number of feedlines to be configured for the total system. (default is AB) Dipswitch S5/S6 are used for optional Run Delay time in MIN, and MAX RUN time in HRS.(DEFAULT)

Setting	S1	S2	S3	S4	S5	S6
Feedline A Enabled	ON	OFF	OFF	OFF		
Feedlines AB Enabled	ON	ON	OFF	OFF		
Feedlines ABC Enabled	ON	ON	ON	OFF		
Feedline ABCD Enabled	ON	ON	ON	ON		
RUN DELAY TIME S5 (OFF-MIN/ON-HRS)					**ON**	OFF
MAX RUN TIME S6 (OFF-MIN/ON-HRS)					OFF	**OFF**

Unit Auto Sequences through the active enabled feedlines and will return auto sequencing after 20 seconds of no activity (no keystrokes). Once completed either wait for Run Delay time to expire or turn the unit off then back on for immediate start.

Setting the Run Delay (hours)

1. Settings for Run Delay (0.1 hours to 99.9 hours) can be set for each of the maximum active feedlines configured. (Optional configuration settings for entering in minutes- see dipswitch settings)

2. Press and hold the DOWN arrow key for 5 seconds, and Feedline A light turns on and the current setting is shown on the display.

3. Press the up or down arrow keys to scroll to the desired time. Remember settings are in hours and tenths of an hour.

   Example: 1 hr 24 minutes = 1.4 for the setting.

   .1 = 6 minutes
   .2 = 12 minutes
   .3 = 18 minutes
   .4 = 24 minutes
   .5 = 30 minutes
   .6 = 36 minutes
   .7 = 42 minutes
   .8 = 48 minutes
   .9 = 54 minutes

4. After setting is displayed properly, press the SELECT key and value will be entered and unit will now advance into next feedline Run Delay. Repeat the process for all feedlines. Once completed either wait for Run Delay time to expire or turn the unit off then back on for immediate start.

Setting the Max Run Time (minutes)

1. Settings for Max Run time (0.1 minutes to 99.9 minutes) can be set for each of the maximum active feedlines configured. (Optional configuration settings for entering in hours- see dipswitch settings)

2. Press and hold press the UP-arrow key for 5 seconds until the Feedline A light turns on and the current setting is shown on Max Run Display.

3. Press the UP or DOWN arrow keys to scroll to the desired time. Remember setting are in minutes and tenths of minutes.

4. After setting is displayed properly, press the SELECT key and value will be entered and unit will now advance into next feedline Max Run time parameter. Repeat the process for all feedlines. Once completed either wait for Run Delay time to expire or turn the unit off then back on for immediate start.

Error Messages

The following error messages will be displayed in fault conditions.

1. nO . rEL – Means the Moore 18 is not properly communicating with the relay modules. Check wiring or dipswitch selection on relay modules cards.

    - Validate the dipswitch settings on the relay modules. S5 and S6 currently not used.
    - Updated version will only use a 4-position switch (S1-S4)

FeedLine	S1	S2	S3	S4
A	**ON**	OFF	OFF	OFF
B	OFF	**ON**	OFF	OFF
C	OFF	OFF	**ON**	OFF
D	OFF	OFF	OFF	**ON**

Moore 18 Relay Module Specifications:

Input Voltage: 115 /230 VAC (configurable by 6 pin header connector) 230 VAC Std

Enclosure: Will be packaged by Moore Automation (Must fit in 4 x 4 enclosure)

Display: NONE

LED Status: 1 LED for indicating communication status

Buttons: External Wiring assembly can connect to J3 to manually control the relay.

Communications Ports:

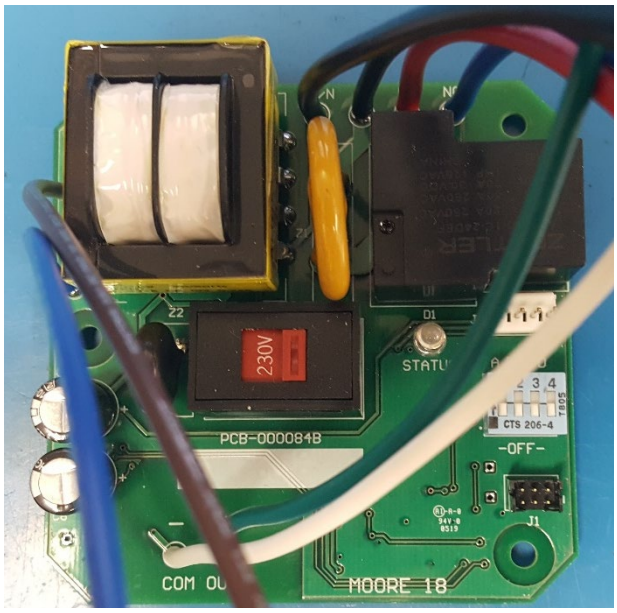
Com port:	Port to communicate with Moore 18 Console (up to 4 maximum relay modules can communicate to one Moore 18 Console)
J1:	Standard programming header

Wiring Connections:

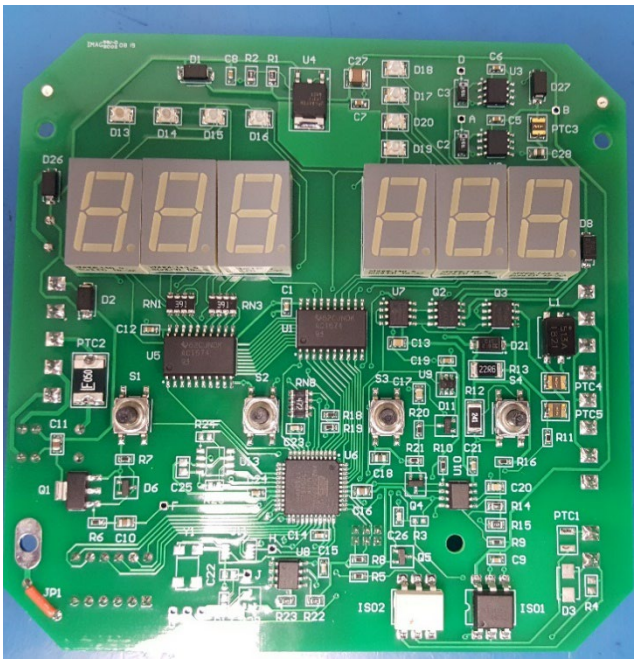
Black Wire:	Line 1 Voltage
Black Wire:	Line 2 (Neutral)
Red Wire:	N.O.
Blue Wire:	N.C.
Green Wire:	Common (GND)
Brown Wire:	Feed Sensor FS1 (common)
Blue Wire:	Feed Sensor FS2 (N.O.)
Green Wire:	COM OUT +
White Wire:	COM OUT -

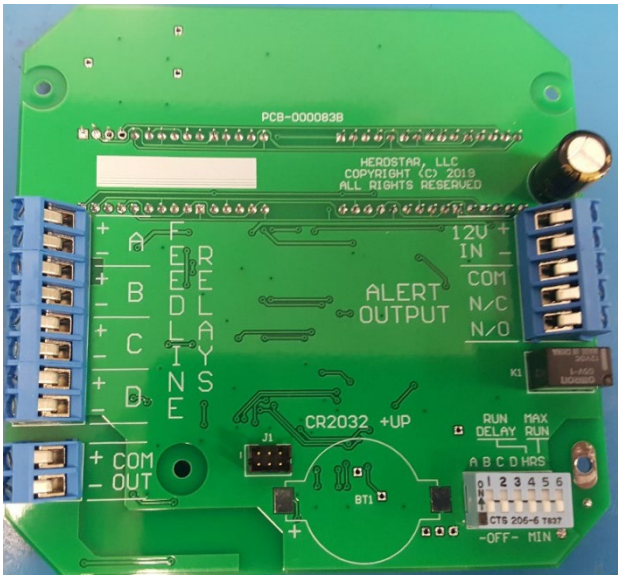
Dipswitch: 4 position dip-switch
1-4 allowing selection of relay modules A, B, C, D.

Actual Relay PC BOARD assembly



Actual Moore 18 Console





2-WIRE COMMUNICATION CONNECTIONS

1. Run any 2-wire communications wire, (18 gauge or larger) shielded or non-shielded from one smart relay to the next in a daisy chain fashion. Continue this until you reach the Moore 18 Console. Connect the (+) Com out wire to the A (+) on the Moore 18 Console and the (-) to the A (-) on the Moore 18 Console feed line relays.
   Note: feed the line relays B, C, and D will not be used.

2. **Do Not** run the communication wire in a conduit with high voltage wires. The communication wire can be fastened to the outside of a conduit with tyraps.

3. Each smart relay should be identified by the line selector found on each relay board, blue module marked 1, 2, 3, and 4. Then on the Console, select the number of smart relays that are to be connected by selecting A, B, C, and D – pushing the selector up to the ON position.

Moore 18 Controller Commands

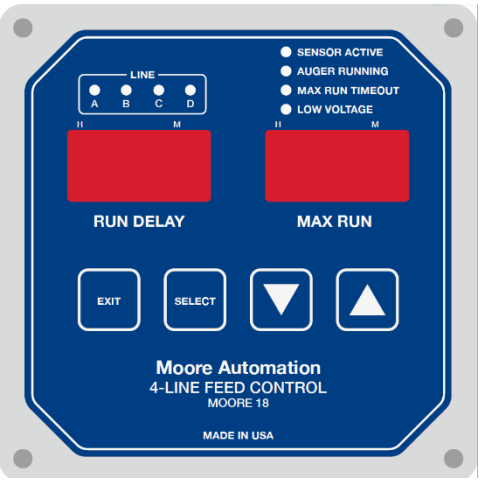
- While Holding **Down and Exit** Keys: resets run delay for currently selected device, then resets run timer for the currently selected device, then clears ANY overrun fault.

- While Holding **Up and Exit** Keys: resets run timer for currently selected device, than clears ANY max run timeout.

- While Holding **Up and Down** Keys: view meter

- While Holding **Up** Key: edit max run

- While Holding **Down** Key: edit run delay



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1. Notify Moore Automation, Inc. of return.
2. Enclose your name, address, phone number, and a brief description of the problem and or the reason for the return.
3. Ship to Moore Automation, Inc: **411 Main Street East, PO Box G, Trimont, MN 56176.** Be sure to include proper shipping charges. Moore Automation, Inc. will pay return shipping charges.

MOORE AUTOMATION

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