

SMART WEIGHING SOLUTIONS



rinstrum

5120
Batch Controller
Installation &
Operators Manual

5120-600-120

Wiring

There are four main places to connect wires to the 5120. They are the relay board, the power input, the main board and the 5100 Digital Indicator.

Power input

This is found on the gear plate, beside the relay board, and can be connected to mains voltage (110 - 240VAC) The power supply that is in the case of the 5120 also supplies power to the 5100 as well. This power input does not supply power to the contacts of the relays, only the coils.

If you are going to run the system as a 12VDC system, please remove the two wires from the 12Vin on the main board, and replace them with the supply from your 12V system.

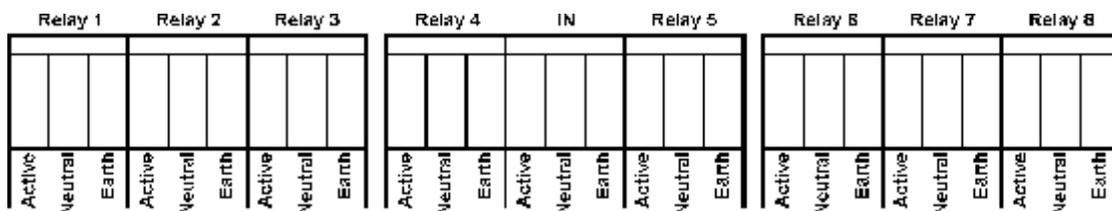
Relay Board

The relay board is set up to switch power from the centre terminals to each of the relay terminals.

For a 240VAC system, connect 240V AC Active neutral and earth wires to the centre terminals marked IN.

For a 24V system, connect +24V to Active on the terminals marked in, and 0V to neutral on the terminals marked in.

There is a 2A fuse on the relay board, so the total loading at any one time must be less than or equal to 2A.



Main Board

If you have a dump gate open detector in the system you will need to remove the short on J17, and install the wires from the dump gate open detector into the discharge gate open connector.

Also available on the main board is the 5 remote switches for external buttons. The first four remote switches will operate in parallel with the four function keys on the 5120.

If you are connecting a PLC via an analogue signal, connect to the correct position on J10. For voltage output use V (voltage +) and C (common -). For current output use I (current +) and C (common -).

Analog OP			Emergency Stop	Discharge Gate Open	+12V in		+12V to 5100	
V	C	I			+	-	+	-
J10			J16		J17		J18	

J11	J12	J13	J14	J15
IP1	IP2	IP3	IP4	IP5

5100 Digital Indicator

The 5100 has connections for serial outputs and the load cell(s). Please refer to the 5100 users manual for these connections.

Settings

There are two dip switches on the inside of the 5120 door.

8 way dip switch

The 8 way dip switch (marked SW 1) is used as follows:

Switch	Function
SW1-1: ON	The Manual Dump Gate is permanently enabled
SW1-2: ON	The Manual Dump Gate enable is connected to the 5100 output #4, for when there is a dump signal coming out of the 5100 output #4.
SW1-3: ON	The Manual Dump Gate enable is connected to the 5100 output #6 for when there is a dump signal coming out of the 5100 output #6.
SW1-4: ON	Manual Dump Gate open latching, for when you need power constantly applied to the dump gate to hold it open.
SW1-5: ON	Enables an auto dump gate hold and close (when running dump enable lines from the 5100) generally for inching ram.
SW1-6: ON	Enables the front Manual Override system. Switch Off to permanently disable the front Manual Override buttons.
SW1-7: ON	No Function
SW1-8: ON	No Function

4 Way Dip switch

The 4 way dip switch (marked SW2) is used as follows:

Switch	Function
SW2-1: ON	The dump gate open detection is connected to the 5100 remote input #4, for when the dump gate interlock to the 5100 is set to remote input #4
SW2-1: ON	The dump gate open detection is connected to the 5100 remote input #5, for when the dump gate interlock to the 5100 is set to remote input #5 (Default)
SW2-1: ON	No Function
SW2-1: ON	No Function



Operation

The first four buttons on the top row of the 5120 are the first four remote inputs to the 5100, and can be programmed to do any number of things, as described in the 5100 Reference manual.

The next two buttons operate as a manual dump gate open and a dump gate close. Depending on how the 5120 is setup, the manual dump gate open may be latched, with the dump gate close button unlatching it.

If the 5120 has been set up to allow manual operation, you can enable the manual override, and press any of the gate buttons at any time and operate the particular drive relay. When the manual override is active the two manual dump gate buttons are also enabled.

The 5120 has an Emergency Stop button that stops the drive relays from operating.

The 5120 will work with the 5100's function button set to auto/manual. While the 5100 is in auto mode, it will process a batch, after pressing the green start button, until the batch is completed, or the abort button is pressed. When the 5100 is in manual batch mode, press the green start button to start the batch and then hold the jog/fill button to operate the correct output for each material in turn. Press the green start button to accept the weight of each material and proceed to the next material in the batch.

Dump Gate Functions

The 5120 can operate in either auto dump mode or manual dump mode. In auto dump mode, the 5100 dump control signal's associated relay is directly connected to the dump gates, and the 5100 will open and close the dump gates as necessary. In manual dump mode the manual dump gate controls can be setup in several different modes of operation.

The Manual Dump controls may be enabled by a dump signal configured in the 5100. The 5120 can use dump signals from the 5100 either from output #4 (set SW1-2 ON) or output #6 (set SW1-3 ON). Alternatively, the Manual Dump controls can be permanently enabled (SW1-1 ON).

The 5120 has two relays for manual dump control. Relay 7 is used for Dump Gate Open and relay 8 is used for Dump Gate Close if required. In all modes relay 8 is energised while the Manual Dump Gate Closed button is pressed.

- A. Latching (dip switch 1-4 ON). If you need the power permanently supplied to the dump gate open device to hold it open, select this method. With this option a single press of the Manual Dump Gate Open button will latch relay 7 ON. Relay 7 will turn off automatically when the weight reaches zero if a dump gate enable signal from the 5100 is used. Otherwise press the Manual Dump Gate Close button to turn relay 7 OFF. Relay 8 is not used.
- B. Non latching (dip switch 1-4 OFF). If you do not need the power permanently supplied to the dump gate open device to hold it open, select this method. Relay 7 and relay 8 operate only while the Manual Dump Gate Open and Manual Dump Gate Close buttons are pressed.
- C. Auto hold & close (dip switch 1-5 ON). If you are using the dump gate enable signals from the 5100 and need to supply power permanently to the dump gate closed device to hold it closed, select this method. Whenever the dump signal from the 5100 is absent, relay 8 will be energised to keep the dump gate closed.

5100 setup

By default the 5100 is set up to operate with 6 materials and dump gate interlocking set on input #5.

If you want to change the default settings of the 5100, please ensure that the 5100 has the following settings to make it compatible with the 5120 hardware:

1. Remote Input 1 set to start
2. Remote Input 2 set to pause/abort
3. Remote Input 5 set to dump gate interlock.

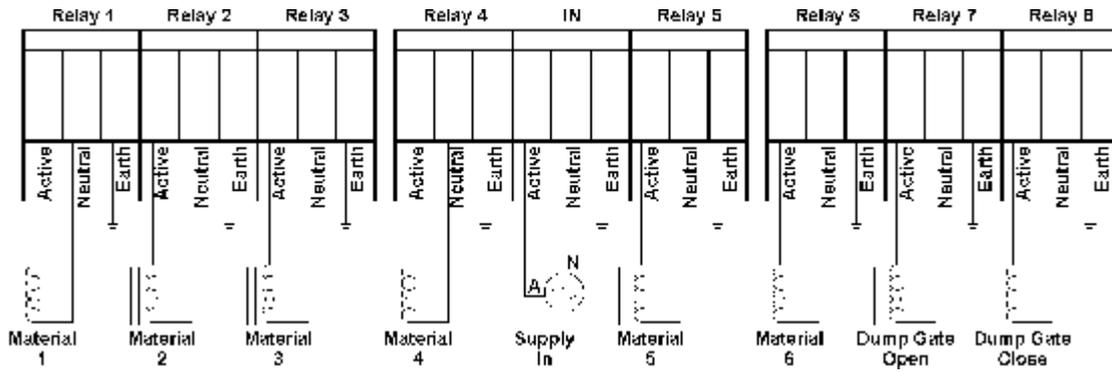
Wiring

Output	MT1.SP2	MT1. SP3	MT2.SP2	MT4.SP1	User Option	Default wiring connection
Output 1	Material 1 Slow	Material 1 Slow	Material 1 Slow	Material 1		Material 1
Output 2	Material 1 Fast	Material 1 Medium	Material 1 Fast	Material 2		Material 2
Output 3		Material 1 Fast	Material 2 Slow	Material 3		Material 3
Output 4	Auto Dump **	Auto Dump **	Material 2 Fast	Material 4		Material 4
Output 5						Material 5
Output 6			Auto Dump **	Auto Dump **		Material 6
Manual Discharge Open	Manual dump gate open *		Manual dump gate open*			
Manual Discharge Closed	Manual dump gate close ***		Manual dump gate close***			

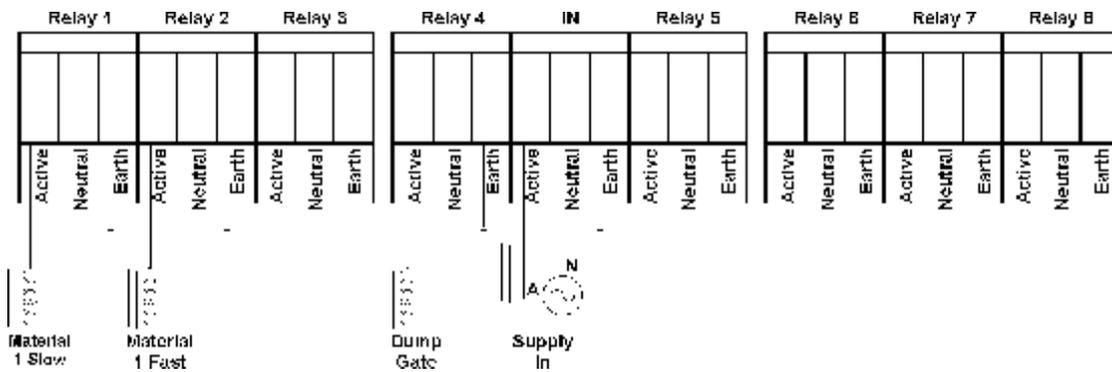
Notes

- * The "Manual dump gate open" drive may not be enabled depending on SW1 settings.
- ** The Auto Dump output can be used to drive the dump gate directly or it may be used to enable the Manual Dump Gate controls.
- *** "Manual dump gate close" may not be needed.

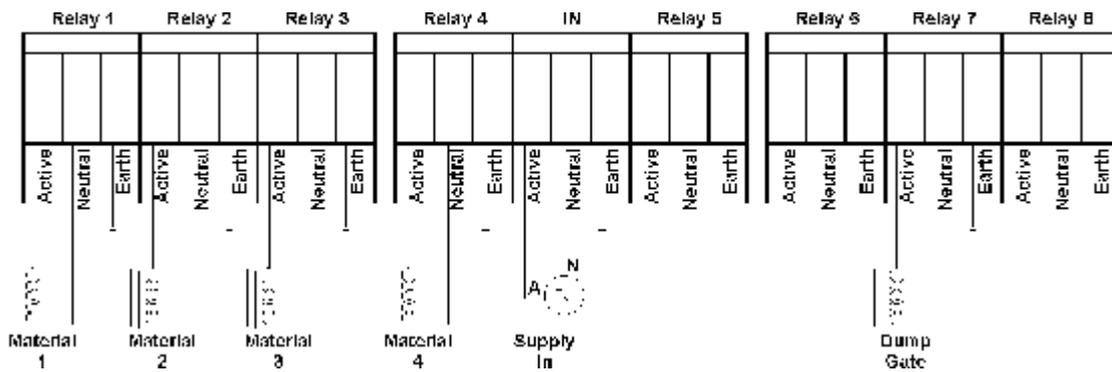
Example 1: Default wiring with 6 materials and manual dumping using both dump Open and Close drive.



Example 2: MT1.Sp2 wiring with auto dump control.



Example 3: MT4.Sp1 wiring with a latching manual dump enabled by output #6.



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