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Tech TALK

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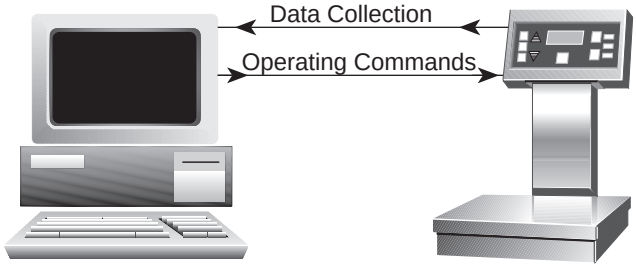
CW-40 Checkweigher Expanded Software and Improved 4.0 Board Design

In this issue, we'll detail the main improvements in the revised CW-40 Checkweigher. Both the main board architecture and the operating software have been completely redesigned to increase the CW-40's versatility. This bulletin describes board revision 4.0 and the updated software introduced August 20, 1993.

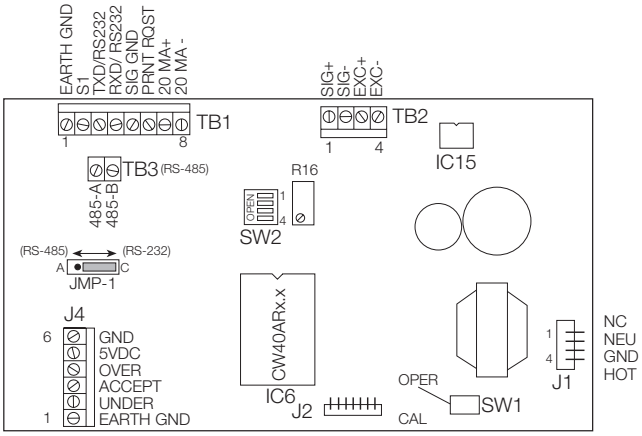
BIDIRECTIONAL COMMUNICATION AT 19,200 BAUD

To make the CW-40 more efficient when interfaced with high-speed computers, the maximum baud rate has been increased to 19,200. When configuring the CW-40, you will see the new parameter (19.2k) under the "b.r." menu. You should also note that the factory default is no longer 1200 baud (120), but has now been set at 9600 baud (960).



Because the CW-40 now supports two-way RS-232 serial communication, an attached computer or terminal can give commands to the checkweigher, and the computer can receive data for storage, accumulation, and later retrieval. Several types of commands for changing scale parameters and retrieving data can be sent from the keyboard in real time. When sending commands that do not return values, the CW-40 can be set up to return a verification signal (*) that the command was correctly interpreted. A (?) tells you the command was unrecognized. This verification function can be turned on or off through a new parameter "bhs" in the setup menu. The updated manual sent with the CW-40 explains this and the other new functions very well.

The expanded wiring terminal to accommodate the bidirectional RS-232 can be identified as terminal strip TB1 on the drawing of the new CW-40 main board below. A remote Print Request input (TTL) is also available on TB1. A new jumper, JMP1, located beneath TB3 in the drawing, enables either RS-232 or RS-485 serial communication. The factory default is the RS-232 position (BC position with A left open). The opposite jumper position (AB position with C left open) enables the new RS-485 communication capability of the CW-40.



CW-40 CPU BOARD VERSION 4.0

RELAY OUTPUTS FOR OVER, UNDER, AND ACCEPT

Notice on the above board drawing the new J4 terminal for wiring TTL outputs. Once the terminal is energized with 5 VDC, any relay wired to the OVER, UNDER, or ACCEPT connections on J4 will be active whenever the corresponding annunciator light for that function is illuminated. This function is valuable for automating rejection rams, alarms, or line shut-offs for out-of-tolerance products. Note that the outputs are not tied to a particular weight value as normal setpoints are, but are tied directly to the same circuitry as the annunciator lights.

Also note the new switchbank (SW2) and potentiometer (R16) near the middle of the board drawing. The SW2 switch settings allow different span settings so many different capacities of bench or floor scales can easily be interfaced to the CW-40. With the addition of the potentiometer, setting of the deadload offset now becomes fast and easy.

NEW MOTION-SENSITIVE AUTO PRINT MODE

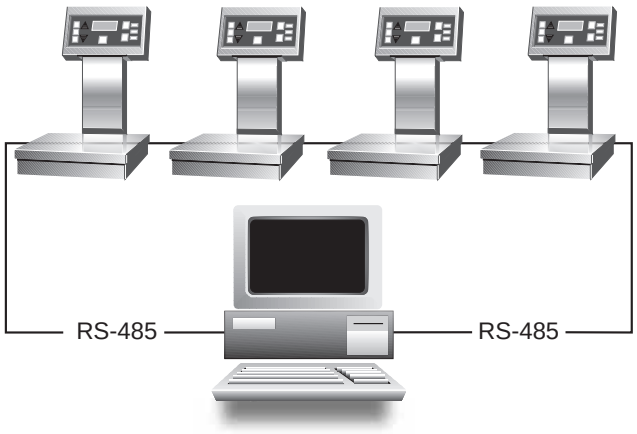
The CW-40 previously had three auto print modes. The new software adds a fourth, (AP4). This mode uses a return to gross zero to signal a print transmission sending the last stable weight seen by the CW-40. The gross zero threshold can be reestablished by pressing the ZERO button. When configuring the CW-40, you will notice this new (AP4) setting under the menu for Serial Data Output, “d.o.”.

STORAGE OF 25 TARES AND ASSOCIATED TOLERANCES

The new CW-40 now stores up to 25 different tare and tolerance combinations. When this parameter is active, the operator can select any of the 25 tare registers by scrolling with the up or down keyboard arrows. This useful function can be enabled or disabled under the new menu, Store Tares, “Stt”.

RS-485 COMMUNICATION WITH BUFFER AND ID SETTINGS

With the optional RS-485 communications package, up to 32 devices—CW-40’s, each individually addressed—can be networked with a computer.



A new menu in the CW-40 setup chart, “I.d.” allows entry of any identification number between 1 and 32. This number is then the ID or address by which the individual CW-40 will be known in the network. Each device will respond to commands given from the host computer which include its ID; commands which do not include that CW-40’s ID will be ignored.

A new serial terminal, TB3, located directly adjacent to the regular TB1 serial communications terminal on the new board, is used for wiring the bidirectional RS-485 cable. As mentioned previously, the jumper next to this new terminal is defaulted to the RS-232 position. It must be changed to the opposite position to activate RS-485 communication.

Networked systems of checkweighers often operate so rapidly that the weighing devices need to temporarily store some of their weight data until they are polled by the data collection device. The CW-40 now has a 10-transaction storage buffer to hold data for delayed transmission. The buffer is enabled by choosing the (buF) setting in the Printout Format menu, “P.O.”.

This buffer storage mode holds up to 100 characters (10 transactions) in a streamlined format containing only weight data and an Over/Under/Accept status indicator. The host computer normally scans each device in the network, “asking” each device if its buffer has data to send, then collects the data in an orderly fashion. The CW-40 displays a warning message when its buffer is 90% full, and gives the operator a second warning when the buffer is completely full and data is being lost.

An extensively-revised operator’s manual is shipped with the new units, explaining all of the changes in very user-friendly terms. As a service to our dealers wishing to leave an operator’s manual with their customers, a second manual is available at no charge upon request when ordering the new CW-40.