

The 'Auto Total' Feature 14 May 2015

Availability: The 'Auto Total' feature is supported by:
Board version: 3.120 and above.
LCIC-WIM-SETTINGS version: 2.33 and above.

1. Introduction

(Anywhere in this document: 'send' or 'report' means 'transmit to the communication port'.)

The 'Auto Total' feature gives two new functions:

- * Selective report – user may select which vehicles are relevant and therefore should be reported, the other ones not reported as they are considered 'irrelevant'.
- * Sending a 'Total Line' of each relevant vehicle (reporting total weight & average axles speed).

2. Enabling the 'Auto Total' feature

When the '*WiM-mode starts upon card reset*' option is **unchecked**

The 'Auto Total' feature is disabled **(back compatible)**.

When the '*WiM-mode starts upon card reset*' option is **checked**
(The board is always in WiM-mode, unless it receives the 'x' command in communication.)

The "Start/End **WiM-mode**" frame is renamed to:

"Start/End **a Vehicle (for 'Auto Total' feature)**".

Like when the '*WiM-mode starts upon card reset*' option is **unchecked**, there are three options. All options have different meanings (although only the title of option #1 changed):

- 1. N/A – 'Auto Total' feature is disabled
(Back compatible.)

- 2. Starts / Ends by card's input1 (on) / (off)
**('Auto Total' feature is enabled;
input1 on = Vehicle's Start; input1 off = Vehicle's End.)**
- 3. Starts / Ends by card's input1 (on) / input2 (on)
**('Auto Total' feature is enabled;
input1 on = Vehicle's Start; input2 on = Vehicle's End.)
(If input2 becomes on while input1 is on too,
board gives ERR307 on LED & on communication port.)**

Note

In case the 'Auto Total' feature is enabled (options 2 & 3), it is user's responsibility to make sure that input #1 is off upon activating the board.

3. Board operation

3.1 Reports

*** When the 'Auto Total' feature is disabled (option #1, above):**

- * The board sends all axles (no way to skip irrelevant axles) (**back compatible**).
- * 'Total Line' is not sent automatically, as there is no digital input indication on vehicle's start/end.
- * Yet, the 'Total Line' of all axles since last 'o' command (or board activation) **is** available: Send the 'H' command in order to get this 'Total Line'. Typically, after getting the result, the user will send the veteran 'o' command in order to clear the list of the axles.

*** When the 'Auto Total' feature is enabled (option #2 or #3, above):**

- * After start of a relevant vehicle (by input 1 ON [option #2 or #3]):
 - * The board resets the 'Axle Counter' (like the 'o' command).
 - * The board sends all coming axles.
- * After end of a relevant vehicle (by input 1 OFF [option #2] or input 2 ON [option #3]):
 - * The board sends the 'Total Line'.
 - * The board stops sending axles (until next relevant vehicle starts).
- * Only the axles of a relevant vehicle are displayed on board's LED.
- * The veteran store is actually 'Axles Store'. It holds the axles information of only the last vehicle. So, if the user needs re-transmission of vehicle's axles (say that the original transmission was corrupt or lost), he should request it (by the veteran 'r' command) before the next vehicle arrives.

- * The 'Total Line' is not displayed on board's LED, but (besides being sent to the communication port) is stored in a new store – the 'Vehicles Store' – containing up to 1000 elements. So, the '**Total Lines**' of up to last 1000 vehicles are available (by the 'y' command).

3.2 Input 3

*** When the 'Auto Total' feature is disabled (option #1, above):**

The board runs the 'Reset Axle Counter' operation (like the 'o' command) – subject to the "Input#3 Mode" selection; refer to section 2.5 of LCIC-WIM-WIM-MODE.doc. (**back compatible**).

*** When the 'Auto Total' feature is enabled (option #2 or #3, above):**

(No need for 'Reset Axle Counter' request, as this operation is done automatically upon each new vehicle.)

The board zeroes the current weight.

Notes

- * The 'zero' operation is available only when the current weight is within the 'auto zero' range.
- * The new zero expires upon returning to the general mode, or restarting the board.
(This is true also for a new zero due to the auto zero.)

3.3 Output Indication

*** When the 'Auto Total' feature is disabled (option #1, above):**

There is an option to get hardware output indication when the board is in WiM-mode (refer to section 2.1.3 of LCIC-WIM-WIM-MODE.PDF) (**back compatible**).

*** When the 'Auto Total' feature is enabled (option #2 or #3, above):**

(No need for indication when the board is in WiM-mode, as the board is always in WiM-mode.)

The same optional indication (as described in section 2.1.3 of LCIC-WIM-WIM-MODE.PDF) now signals 'Active'.

'Active' **on** means: According to user's digital inputs 1 and/or 2, the board now considers the coming vehicle as 'relevant', reporting its axles & total.

3.4 New Commands

f – 'Reset Vehicle Counter':

The 'Reset Vehicle Counter' operation resets the **vehicles counter**, so the next vehicle serial no. will be 1. It also clears the 'Vehicle Store' (refer to section 3.1). This command automatically runs also the 'Reset **Axle** Counter' operation (like the 'o' command).

Board's response: `f`<c/r>.

y – Transmit the 'Vehicles Store' (list of the 'Total Lines' of each vehicle, see format below).

The list does not contain the vehicle which is still on the scale (if there is such).

H – Transmit the last 'Total Line' (see format below).

Unlike the 'y' command, in case there is a vehicle on the scale, the 'H' command **does give** its total, although it might be that this is only a subtotal and the **final** total will be different. This characteristic makes the 'total' option available although the 'Auto Total' feature is disabled (see details in the beginning of section 3.1).

@*nnnn*<c/r> –

- Transmit element no. *nnnn* of the 'Vehicles Store', where *nnnn* is vehicle's serial no. The format of the report is similar to the report sent by the veteran command "**#***nnnn*<c/r>", except that the values represent a **vehicle** (according to the 'Total Line' format below) rather than an **axle**.

Unlike the 'H' command, the '@*nnnn*<c/r>' command does not give the total of the vehicle which is still on the scale (if there is such).

'Total Line' format

The format of the 'Total Line' is similar to the format of a single axle:

Field #1: Vehicle no. = The serial number of current vehicle

Field #2: Weight = Totalizer (total weight)

Field #3: Speed = Average axles speed

Field #4: Axles = Total number of axles

4. Limitations

4.1 Incompatibility

Previously (board version 3.119 and down) the user could have the following sequence even if his board was set to automatically start in WiM-mode upon card reset:

1. Exit to general mode by a command from the PC.
2. Return to WiM-mode by input.

Now, when the '*WiM-mode starts upon card reset*' option is checked, after exiting to general mode by the 'x' command from the PC, the user can't return to WiM-mode by input, as inputs 1 & 2 have the new meaning (inside the WiM-mode) as described in section 2. In this case (after an 'x' command), the board may return to WiM-mode only by the 'w' command, or by a board reset.

4.2 Unsupported combination

In order to use the 'Auto Total' feature, the user has to choose the '*WiM-mode starts upon card reset*' option. That is, if this option is not selected, the 'Auto Total' feature will not be available.