PROGRAM DESCRIPTION
TAD 3

Program: T102A202
This description is valid for:
Weight indicator **TAD 3** with application program **T102A202**

See also the following descriptions
**Weight Indicator TAD 3, Operating instructions, Quick installation**
**Weight Indicator TAD 3, Technical Manual**
If these descriptions in any case are contradictory, this description is valid.

**Option codes:**
This program requires program option codes for
02: Flow rate
06: Option 6

**General**
This program is using the functions for flow rate measuring in TAD 3 and adds functions to handle continuous discharge of material out of a vessel and filling the vessel at the same time as discharging is in progress.

This program is intended for an application where material is discharged from a scale vessel with a constant flow rate, and where the vessel during short periods is filled with material (the flow out of the vessel continues also during the filling). This program adds the following functions to TAD 3:

- Flow rate measurement. TAD 3 calculates the flow of material out of the vessel all the time. During the filling period and a short time thereafter the flow value is frozen to the value when filling started.
- Flow rate value and/or weight can be displayed on TAD 3.
- Analogue output signal corresponding to the flow rate value or the weight can be achieved (external unit, ANA 3, is required).
- The weight of all discharged material from the vessel is accumulated in a register in TAD 3 (Discharged weight). The weight taken out of the vessel during filling is calculated with the flow value when the filling started and the time used by the filling. Display, printout, and clearing this register is done as described in TAD 3 Technical Manual (see chapter 4).
- Control signal for filling the scale vessel can be achieved (low level is set in Level 7 and high level in Level 8).
- Control signal indicating that the flow rate value is frozen can be achieved.
**Indications**

A frozen flow rate value is indicated by the text "(F)" after the flow rate value on the display (after the unit).

Following indications will be displayed in the same position as the indicator for "Print" (in the lower right corner at normal weight/flow display and in the upper left corner during batching), if no printing is in progress. None of this indications will be displayed if any program option in the instrument is using a temporary program option code (the text "DEMO" will be displayed in this position to indicate that any program option is running in demo mode).

program option code (the text "DEMO" will be displayed in this position to indicate that any program option is running in demo mode).

INACT. The input signal "Discharge in progress" (Special 1) is inactive.

DISCH. Discharge in progress.

The input signal "Discharge in progress" (Special 1) is active and the input signal "Filling in progress" (Special 2) is inactive.

FILL. Filling in progress.

The input signals "Discharge in progress" (Special 1) and "Filling in progress" (Special 2) is active (and also during the time after the deactivation of "Filling in progress" until the flow rate value is thawed).

**Discharged weight**

The discharged weight can be found in menu "Accumulated weight" from where it can be printed and cleared.

The discharged weight can also be handled via serial communication and can be found in Modbus register 40808 - 40813 (integer), 40632 - 40635 (float) and 45632 - 45635 (Modicon float).

See also TAD 3 Technical Manual chapter 5 and 6 for more information about accumulated weight.

**Flow rate measurement**

See chapter 8 in TAD 3 Technical Manual.

**Changed set-up parameters**

Following set-up parameters is changed (new default values or changed choice).

**Menu "General"**

**Display info**

< Off > New default value.

**Menu "Level supervision"**

**Level 7 source**


< Gross weight >
Level 7 hyst.
< 0.0 >
New default value.

Level 8 source
< Gross weight >
New default value and the only available choice.

Level 8 hyst.
< 0.0 >
New default value.

Menu "Inputs"

Input 01 use   -   Input 28 use
[0]   Not in use
... 
[17]   Special 1
[18]   Special 2
[19]   Finish batch
For Input 01:
< Special 1 >
For Input 02:
< Special 2 >

Special 1: "Discharge in progress", signal from external equipment indicating that discharge of material is in progress.
Special 2: "Filling in progress", signal from external equipment indicating that filling of material is in progress.

NOTE! If more than one Input is configured as "Special 1" or Special 2, then only the input with the lowest input number for respectively function will work.

Output 01 use   -   Output 28 use
[0]   Not in use
... 
[20]   Special 1
[21]   Special 2
For Output 01:
< Special 1 >
For Output 02:
< Special 2 >

Special 1: "Control fill", signal from TAD 3 that can be used to control the filling of material into the scale vessel.
Special 2: "Flow freeze"ed", signal from TAD 3 indicating that the flow rate value is freeze due to filling.
**New set-up parameter**

**Menu "Special menu"**

**Delay factor**
- **Range:** Delay after filling is finished.
  - 0.0 till 10.0: The value is a factor that is multiplied with the derivation time for the flow measurement. This is used to get a delay time after filling in order to have a correct flow value when the freezeed flow value is thawed again.
  - < 2.0 >: E.g. The value 2.0 means that freezing of the flow rate value is thawed (2.0 x Derivation time) after that the input signal "Filling in progress" is deactivated.

**Menu "Special menu"**

**Analogue 4 mA**
- **Range:** When monpolar analogue output 4 – 20 mA and ‘1’ selected:
  - 0 or 1: Values below 4 mA NOT allowed under normal operation.
  - <0>: (‘0’ = (standard) value below 4 mA allowed)

**Inputs**

Following inputs is used for the above-described functions (see also drawing T102V0E.DWG).

**Discharge in progress** (Special 1)
- This input signal should be activated when material is taken out of the scale vessel.
- When this signal is deactivated, all material that has been discharged since last accumulation will be added to the accumulated "Discharged weight" register.

**Filling in progress** (Special 2)
- This input signal should be activated when filling starts, and shall then be activated until filling is stopped.
Outputs
Following outputs is used for the above-described functions (see also drawing T102V0E.DWG).

**Control fill**
(Special 1)
This output signal is activated when the gross weight in the scale vessel goes below "Level 7" (low level). It will then be activated until the weight goes above "Level 8" (high level).
This signal can be used to fill up the scale vessel when the gross weight goes below "Level 7.

**Flow freezeed**
(Special 2)
This output signal is activated when the flow rate value in the instrument is freezeed.
This signal can be used as an input signal to an external regulator to inform it that the flow rate value is freezeed so the regulation can be temporary turned off.