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 continuos 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 continuos 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
  [2]   Gross weight   New default value and the only available choice.
       < Gross weight >

Level 7 hyst.

        < 0.0 >   New default value.

Level 8 source

  [2]   Gross weight   New default value and the only available choice.
        < Gross weight >

Level 8 hyst.

        < 0.0 >   New default value.

Menu ”Inputs”

Input 01 use - Input 28 use

[0]	Not in use	Two new choices (Special 1 and Special 2) and new default values for Input 01 and 02).
...		
...		
[17]	**Special 1**	***Special 1****: ”Discharge in progress”, signal from external equipment indicating that discharge of material is in progress.*
[18]	**Special 2**	
[19]	Finish batch	
	For Input 01:	***Special 2:*** *”Filling in progress”, signal from external equipment indicating that filling of material is in progress.*
	< Special 1 >	
	For Input 02:	
	< Special 2 >	

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	Two new choices (Special 1 and Special 2) and new default values for Output 01 and 02.
...		
...		
[20]	**Special 1**	***Special 1****: ”Control fill”, signal from TAD 3 that can be used to control the filling of material into the scale vessel.*
[21]	**Special 2**	
	For Output 01:	***Special 2:*** *”Flow freezed”, signal from TAD 3 indicating that the flow rate value is freezed due to filling.*
	< Special 1 >	
	For Output 02:	
	< Special 2 >	

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
< 2.0 >	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 freezed flow value is thawed again.

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'
0 or 1	selected:
<0>	Values below 4 mA NOT allowed under normal operation.
	('0' = (standard) valus below 4 mA allowed)

Inputs

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

Discharge in progress	This input signal should be activated when material is
(Special 1)	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	This input signal should be activated when filling starts,
(Special 2)	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 freezed (Special 2)	This output signal is activated when the flow rate value in the instrument is freezed. This signal can be used as an input signal to an external regulator to inform it that the flow rate value is freezed so the regulation can be temporary turned off.