

**Universal Flow Controller
Model 261 / 261-EC-01**



Type ARS 261-EC 01
Art.-no: 82212264



Type ARS 261
Art.-no: 82212164

ARS261-E.doc

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We reserve the right to make technical changes without notice.

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Instruction Manual

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1. Safety Instructions

This instrument has been manufactured in accordance with the applicable state of the art and meets all safety regulations as shipped from the factory. Installation and startup must be performed by qualified electricians only!

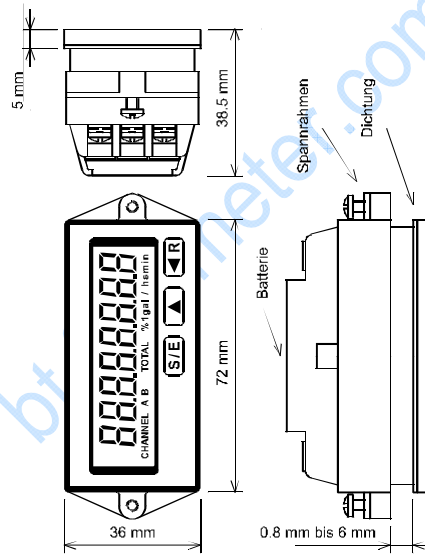
Operate instrument only when properly installed!

If safe operation can no longer be ensured, disable the instrument and secure it against unauthorized operation.

Prevent injury to people or damage to property due to failure or malfunction of the equipment through additional safety measures such as limit switches, protective equipment, etc. .

Read the Instruction Manual carefully before startup!

2. Product Identification - Dimensions



3. Function Description

This instrument is used as a pulse counter.

You should adapt the factory-programmed instrument to your counting process prior to first use (see Section 5, Programming).

The instrument is ready for operation when the programming input is not wired.

The instrument has two counter inputs, A and B.

You can program the following counting modes: ADD/SUB, ADD/ADD and ADD/Count Direction.

For ADD/SUB: Counter input A adding
Counter input B subtracting

For ADD/ADD: Counter input A adding
Counter input B adding

For ADD/Count Dir: Unwired counter input B:
Counter input A adding

Counter input B switched to 0 V:
Counter input A subtracting

The pulses entering at the inputs are evaluated and displayed according to the counting mode selected.

You can program the counter inputs either as HIGH SPEED inputs ("High" active) or as LOW-SPEED inputs ("Low" active). For the ADD/ADD and ADD/SUB counting modes this applies to both counter inputs together.

For ADD/Count Direction, it only applies to Counter Input A, while Counter Input B is permanently programmed as a LOW-SPEED input ("Low" active).

You can scale the display by programming suitable scaling factors. For the ADD/SUB and ADD/ADD counting modes, this can be done separately for each counting mode; for the ADD/Count Direction mode, a single scaling factor can be set.

You can set a fixed decimal point and program the pulse counter so that you can reset the instrument using the front side **R** key in addition to the regular electric reset on the back.

Backlighting is activated and load on the battery is reduced by applying an external voltage of 24 VDC.

When replacing the battery, all stored data is lost. After installing the new battery, the display shows "261_xx" (xx for software version number). You are ready to operate with the factory-programmed parameters after pressing **S/E**.

Display as delivered:



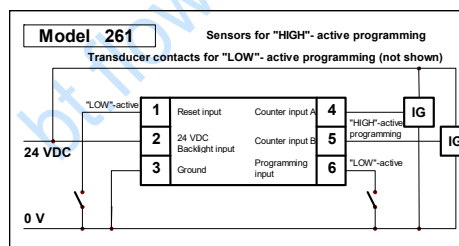
4. Installation – Battery Replacement

After unpacking the instrument, remove the light-colored frame from the back of the housing by simultaneously bending both long sides of the frame slightly apart to disengage them from the locking holes.

Then slide the housing through the cutout prepared in the front panel, attach the frame onto the back of the housing, slide it all the way against the back of the front panel, and carefully attach it with the two side screws to the front panel.

In this way, you can compensate for different front panel thicknesses. Class IP 65 front protection is achieved through the seal integrated in the housing.

See the wiring diagram below for the electric wiring.

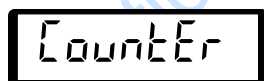


The battery is accessible from the back of the instrument. There is a vertical notch under the middle of the nameplate. Cut through the nameplate there. Then slide out the two-part battery cover to one side along the guide grooves, and replace the battery observing the correct polarity. The instrument should **not** be connected to 24 VDC at this time!

5. Programming

The instrument can only be programmed by setting the programming input PROG to 0 V. Please note that this causes the pulse counter to be reset.

After having set the programming input PROG to 0 V, the following is displayed:



This display identifies the pulse counter; it cannot be changed.

By repeatedly pressing the **S/E** key, you can cycle through the individual menu items. The following figures correspond to the factory settings of the instrument:

Add Sub

Count Mode

SPEED HI

Count Frequency

SF 10000
A

Scaling Factor
Counter Input A

SF 10000
B

Scaling Factor
Counter Input B

DP 0

Decimal Point

RES on

Reset Enabled

You can make changes within each menu point as follows:

1. Press the **<R>** key:
The parameter to be changed is activated, i.e., it begins to flash.
2. Press **^** repeatedly if necessary:
Set the desired parameter.
3. Press **S/E**:
The parameter just set is confirmed and displayed steadily.

4. Press **S/E** again:
You reach the next menu item.

The following illustrations show the settings allowed in the individual menus.
Flashing display elements are shown in a lighter color.

Count Mode



Count Mode 1: Difference
Counter Input A: adding
Counter Input B: subtracting



Count Mode 2: Sum
Counter Input A: adding
Counter Input B: adding



Count Mode 3:
Counter Input A: adding
Counter Input B: Count Direction

Count Frequency



maximum frequency 10 kHz



maximum frequency 30 Hz

**Scaling Factor Counter Input A,
Scaling Factor Counter Input B**

If you have selected Count Mode 1 or 2, you can set a separate **S**caling **F**actor in the range of 0.0001 to 99.9999 for both Counter Input A and Counter Input B.

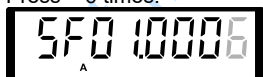
Example: Set a scaling factor 3,1416 for Counter Input A

Press <R>:



Press ^ 6 times:

Press <R>:



Press ^:

Press <R>:

SFO 100 16
A

SFO 100 16
A

Press ^ 4 times:

SFO 104 16
A

Press <R>:

SFO 104 16
A

Press ^:

SFO 114 16
A

Press <R>:

SFO 114 16
A

Press ^ twice:

SFO 3.14 16
A

Press S/E:

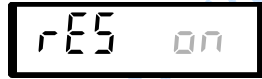
SF 3.14 16
A

Please note that only one scaling factor can be programmed when Count Mode 3 is selected.

Decimal Point



Reset Key Enabled



Reset key enabled



Reset key disabled

If the Reset key has not been enabled, the string "TOTAL" is displayed.

Having completed the programming, isolate the programming input PROG from 0 V.

Please note that only the parameters confirmed with **S/E** are accepted.

6. Technical Data

Displays

Special LC display with dimension line, 8 digits, digit height 10 mm, pre-decimal point zero suppressed.

Display Capacity: +/- 99999999

Programmable decimal point

Power Supply

internal lithium battery 3.6 V / 1.2 Ah

Average battery life 5 years

LED – Display backlighting

The LED display backlighting must be operated with external voltage connected to 24 VDC and 0 V screw terminals.

External Voltage: 24 VDC max. residual ripple 5%
absolute limits 19 to 30 VDC

Electromagnetic Compatibility (EMC)

Interference emission EN 55011 Group 1 Class B

Interference strength EN 50082-2

EN 61010-1 Measuring Insulation Voltage

100 Veff, Contamination Class 2, Surge Category III

DIN VDE 0411 Protection Class

Protection Class II

Electrical Connection

Terminal screw connection, P Phillips screws, size 1
max. lead section 2 x 1.5 mm²
min. lead section 2 x 0.2 mm²

IEC 529 Protection Class

IP 65 front

Temperature / Humidity range

Operating temperature range -10°C to +50°C
Storage temperature range -20°C to +70°C
Temperature / Humidity 90% relative humidity @ 38°C

IEC 68-2-6 Vibration Strength

Variable frequency range 10 to 500 Hz
0.35 mm or 5 g amplitude
10 Frequency cycles per axis

Dimensions

Frontal dimensions 36 mm x 72 mm
Total depth 38.5 mm

Fastening

Front panel mount via frame
Front panel thickness 0.8 mm to 6 mm
Front panel cutout DIN 43700
33 +0.6 mm x 68 + 0.6 mm

Weight

approx. 95 g

Housing Material / Combustibility

PC plastic

Inputs

Counter Input A

Pulse shape any
Programmed as "HIGH-SPEED" input "High" active
Signal level L <= 1 VDC H >= 5 VDC
Max. voltage amplitude ± 30 VDC
Input resistance approx. 39 kOhm

Max. frequency (pulse duty factor 1:1) 10 kHz
min. pulse time 50 µs
min. pulse pause 50 µs

Active edge High/Low
Programmed as "LOW-SPEED" input "Low" active
Signal level L <= 0 VDC H >= 5 VDC or open
Max. voltage amplitude ± 30 VDC
Input resistance approx. 1 MOhm
Max. frequency (pulse duty factor 1:1) 30 Hz
min. pulse time 16 ms
min. pulse pause 16 ms
Active edge Low/High

Counter Input B

Pulse shape any
Programmed as "HIGH – SPEED" input "High" active

Signal level L<= 1 VDC H>= 5 VDC
 Max. voltage amplitude ± 30 VDC

Input resistance approx. 1 MOhm
 Max. frequency (pulse duty factor 1:1) 10 kHz
 min. pulse time 50 µs
 min. pulse pause 50 µs
 Active edge High/Low
 Programmed as "LOW – SPEED" input "Low" active
 Signal level L<= 1 VDC H>=5 VDC or open
 Max. voltage amplitude ± 30 VDC
 Input resistance approx. 1 MOhm
 Max. frequency (pulse duty factor 1:1) 30 Hz
 min. pulse time 16 ms
 min. pulse pause 16 ms
 Active edge High/Low

Reset Input R

Pulse shape any
 Signal level L<= 0 VDC H>=5 VDC or open
 Max. voltage amplitude ± 30 VDC
 Input resistance approx. 1 MOhm
 Static response "Low" - active
 min. pulse time 65 ms

Programming Input PROG

Static response "Low" active
 Input open Operating mode
 Input connected to "0 V" Programming mode

7. Spare Parts

Lithium battery Art.-No.: 82202233

