USER MANUAL

ATU 301

Flygt

ITT Industries

atu301_user_eng_rev1_00_draft1

The manual is applicable to the following
Hardware: 2.05
Software: 2.20

Warning symbols

Safety instructions

Personal safety - Dangerous voltage

Special attention

Apparatus or component damage

Button	Description
	Read/Write
	Left arrow/Up-down
	Right arrow/Enter
	Group step/Shift
	Alarm acknowledgement

ITT Flygt AB
Box 2058
SE-291 02 Kristianstad
Sweden

Tel +46-(0)44-20 59 00
July 2004

Subject to changes without prior notice.

Contents

1. Introduction

ATU 301 is an alarm transmitter with flexible functions. It can be used as a combined unit for alarm and overflow monitoring of pump stations, sewage treatment plant, levels in water reservoirs, etc.

To adapt the functions to the specific conditions for an installation, the necessary set points are set for alarm conditions, alarm texts and communication.

Seven (7) digital inputs and one (1) analogue input can be monitored simultaneously. One (1) digital input can be used for pulse counting.

38 (active and passive) alarms and overflows, with associated time stamp and status, can be stored simultaneously in the alarm log. One or several alarms can be connected to the digital group alarm output. Different types of audible and visible sources can be connected to this, such as lamps, sirens and the like.

When the ATU 301 is used for overflow monitoring, a overflow sensor can be connected to a digital input in order to indicate the start level for overflow. This is combined with an analogue level sensor that gives the information necessary to calculate the overflow rates and volumes.

ATU 301 can use a selection of modems and also GSM and radio links for communicating with a central system. SMS messages can also be sent from the remote terminal unit.

When the ATU 301 is connected to a central system (CS) and a remote terminal unit (RTU), the operator can receive alarm reports and carry out data acquisition for trends and other reports. He can also send and receive set points and alter alarm codes in the RTU to suit his own requirements.

1.1. Contents of the manual

- Installation of the ATU 301

See the separate installation manual delivered for the unit.

- Menus

The way that the pushbuttons and menu window are used for presetting the unit is described in the remainder of this section.

- Settings for monitoring

The procedure for entering the settings that are unique to that particular installation is described under **"Settings" on page 7.**

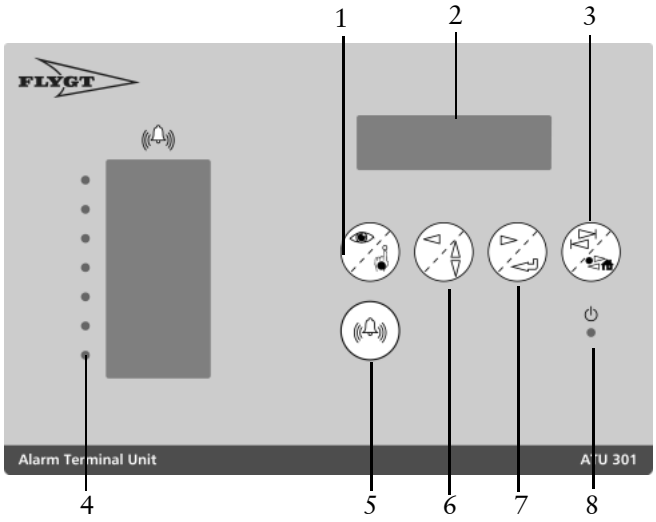
- Settings for alarm handling

Information on settings for alarms and how the alarms can be handled when the ATU 301 is connected to a central system is given in the section **"Alarm handling" on page 10**.

- Communication

Detailed instructions for communication with a central system are given in the chapter **"Communication" on page 16**.

1.2. Menus



1. Read/write
2. Menu window
3. Group step/Shift
4. Alarm diodes
5. Alarm acknowledgement
6. Left arrow /Up-Down
7. Right arrow/Enter
8. Power supply diode

The control parameters and alarms are displayed in a menu window. Using the pushbuttons on the panel, you can obtain the various menus to enter or alter the parameter values.

The menus are arranged in groups in accordance with their function. The first menu in every group also serves as a group heading.

There are two sections with menus:

- User part for reading the operating data. These menus are always visible.
- Set points for entering or altering the parameter values. The menus can be found under the group menu **PARAMETER.**

The pushbuttons are used for changing between menu groups or between the individual menus. See the section **"To move between the menus" on page 5**.

The section **"Appendix A - List of menus" on page 21** includes a comprehensive list of menus.

1.3. To move between the menus

- To scroll forward one menu at a time

Press repeatedly the **Right arrow/Enter** button until the required menu is displayed.

- To scroll backwards one menu at a time

Press repeatedly the **Left arrow /Up-Down** button until the required menu is displayed.

- To display the first menu in the next or preceding menu group

Hold down **Group step/Shift** button and at the same time press one of the above buttons.

- To change between the **ALARM LOG** menu ("Home") and the latest menu displayed

Press and release the **Group step/Shift** button.

1.4. Display the set point menus

1. Go to the **SET POINT** menu
2. Shift to the Write position

Press the **Read/write** button to shift to the Write position (The ATU is normally in the Read position).

3. Display all set point menus

Press the **Left arrow / Up-Down** button. The ***Yes*** alternative will be shown.

Conform the choice of alternative *Yes* with the **Right arrow/ Enter** button.

All set point menus can now be displayed

1.5. Alter a set point

1. Go to the menu for the parameter that is to be altered
2. Shift to the write position

Press the **Read/write** button

A flashing cursor will appear If the value cannot be changed, the message ***Read only*** will be displayed

3. If the set point is numerical, scroll to the required position in the menu window

Scroll with the **Right arrow/Enter** button

4. Select the required value

Press the **Left arrow/Up-down** button until the required value is displayed.

To select a lower value, simultaneously hold the **Group step/Shift** button depressed.

For text menus, the next available alternative is shown instead of a value

5. Save the shown value.

Press the **Right arrow/Enter** button when the cursor is at the last position.

Depending on the results, one of the following messages will be displayed:

Value stored	The value has been recorded.
Low value	The value is below the permissible range. Enter a higher value.
High value	The value is above the permissible range. State a lower value.
Store failed	The internal communication circuit is busy. Repeat the procedure until the value has been recorded.

6. Leave the menu without saving the value.

Press the Read/write button.

1.6. To enter a text

1. Go to the menu that is to be altered.
2. Shift to the write position

Press the **Read/write** button

A flashing cursor will appear If the text cannot be altered, the message ***Read only*** will be displayed instead

3. Write the first character

Scroll with the **Left arrow/Up-down** button until the required character is displayed.
If you keep the button depressed, the characters will change quicker.

If necessary, scroll back by holding the **Group step/Shift** button depressed, at the same time pressing the **Left arrow/Up-down** button.

4. Go to the next position

Press the **Right arrow/Enter button.**

5. Enter the following characters by repeating steps 3) and 4).
6. Save the text.

Press the **Right arrow/Enter** button when the cursor is at the last position.

The following message will be displayed:

Value stored	The new text has been recorded.

1.7. Menu window

The light in the menu window will be extinguished if the menu window has been passive for ten minutes. If the menus for **PARAMETER** are then open, they will automatically be closed and the **ALARM LOG** menu will be displayed

1.8. Menu language

Several menu languages are available. The following options are available in the program.

Danish	English	Finnish	French
Dutch	Italian	Norwegian	Polish
Russian	Spanish	Svenska	German
Hungarian			

The procedure for selecting the required alternative is described in the section **"Menu language" on page 7**.

2. Settings

Connect the ATU 301 in accordance with the separate installation instructions. Conclude by switching on the power supply to the unit.

An LED that indicates operation is provided on the front panel of the unit. When the power supply is switched on, the LED will light up with a steady gren light

NOTE

When connecting or troubleshooting, care must be taken to ensure that personnel will not come into contact with live wiring or terminals. Take great care when working on the digital outputs.

Operation of the ATU takes place by means of a number of primary parameters and set points. Even if the unit is supplied with a number of standard settings, some of these must be adjusted and concluded before the unit is taken into operation. This is done by means of pushbuttons on the panel.

Most of the settings can also be made from the central system.

2.1. Menu language

Begin by setting the required language for the menus:

1. Press and release the **Group step/Shift** button for changing over to the **ALARM LOG** menu if this is not already displayed.
2. Scroll back with the **Left arrow/Up-down** button to the **LANGUAGE** menu.
3. Press the **Read/write** button to shift to the Write position.
4. Scroll down to the required language with the **Left arrow/Up-down** button.
5. Press the **Right arrow/Enter** button to confirm.

Then select ***Yes*** in the **PARAMETER** menu to make the other settings.

2.2. Pressure-levelled sensor

Carry out the following setting if an analogue pressure-level sensor is used:

1. Display the CALIB RANGEmenu (group heading **LEVEL).**
2. Enter the maximum measurement range for the sensor. The maximum permissible value is 20,0 metres.

2.2.1. Calibration

Adjust the zero point if necessary.

1. Display the **CALIBRATION** menu.
2. Raise the meter from the liquid.
3. Adjust the value in the **CALIBRATION** menu until the reading in the **LEVEL** menu is +00.00 or some other required value.
   E.g. LEVEL reads +00.20 m. Set **CALIBRARION** to -00.20 m. The **LEVEL** will now read +00.00 m.

2.3. Ultrasonic level sensor

Carry out the following setting if an analogue ultrasonic level sensor is used:

1. Display the **CALIB RANGE** menu.
2. Enter the maximum measurement range for the sensor. The maximumpermissible value is 20,0 metres.

2.3.1. Calibration

1. Display the **CALIBRATION** menu.
2. Enter the offset value for the installation For particulars ofthis, see the separate installation instructions for the sensor.

2.4. Alarm limits for levels

The ATU 301 can generate alarms at the following levels:

- High level
- Low level
- Overflow level

Set the alarm conditions in each menu

1. Display the **HIGH LEVEL** menu.
2. Enter the limit for the **HIGH LEVEL** alarm.
3. Display the **LOW LEVEL** menu.
4. Enter the limit for the **LOW LEVEL** alarm.
5. Display the **OVERFLOW LEVEL** menu.
   First select the type of spillway in the **WEIR SELECT** (group heading). See the next section.
6. Enter the limit for the overflow alarm.

2.5. Overflow monitoring

See also the section **"Appendix B - Overflow monitoring" on page 25**

2.5.1. Type of spillway

1. Display the **WEIR SELECT** menu (group heading).
1. Select the alternative.

- ***No*** (No overflow monitoring takes place)
- ***Rectangular***
- ***V-Notch***
- ***Manual***

2.5.2. Rectangular spillway

1. Display the **DISCHARGE COEFF** menu.
2. Enter for value (obtained from the spillway supplier, or the typical value of 0.62 for a rectangular spillway can be used).
3. Display the **WEIR WIDTH** menu.
4. Enter the value.

2.5.3. V-Notch

1. Display the **COEFFICIENT OF DISCHARGE** menu.
2. Enter the value (can be obtained from the spillway supplier or the typical value of 0.58 for a V-shaped spillway can be used).
3. Display the **OVERFLOW RANGE** menu.
4. Enter the value.
5. Display the **WEIR WIDTH** menu.
6. Enter the value.

2.5.4. Manual infeed of the overflows

1. Display the **OVERFLOW RANGE** menu.
2. Enter the value.
3. Display the **OVERFLOW SEG.1** menu.
4. Enter the value.
5. Continue to the following menus **OVERFLOW SEG. 2** up to and including **OVERFLOW SEG. 10** and enter the value for each of them.

2.6. Digitala inputs

The digital inputs are general, i.e. they are not limited to a certain function.

Exceptions are:

- Digital input 1, which is reserved for overflow alarm when the overflow sensor is used for overflow monitoring.
- Digital input 7, which is reserved for pulse counting if this function is used.

You can choose whether or not a digital input should generate an alarm.

2.6.1. Invert digital inputs.

The standard position for the digital inputs is ***0***. In normal cases, the digital inputs are activated by normally open contacts. The function can be inverted if the input is instead to be activated by normally closed contacts.

If normally closed contacts are to be the normal position, the inputs are inverted. An inverted input is designated ***1*** in the menu.

1. Display the **INVERT INPUTS** (group heading **DIGITAL INPUTS**).
2. Shift to the write position.
3. Scroll to the position that corresponds to the input which is to be inverted. The menu window shows the name of each input.
4. Change from ***0*** to ***1*** and continue to the next position to be altered.
5. Save by pressing Enter repeatedly until the text **Value stored** is displayed.

2.6.2. FUNCTION (1=ALARMS)

In this menu, enter whether or not each menu is to generate an alarm. A 1 denotes alarm. This is the standard position.

1. Display the **FUNCTION** menu **(1=ALARM)**.
2. Shift to the write position.
3. Scroll to the position corresponding to the input that is to be altered. The menu window shows the name of each input.
4. Change from ***1*** to ***0*** or vice versa, and continue to the next position that is to be altered.
5. Save by repeatedly pressing Enter until the text ***Value saved*** is displayed.

2.7. Timed alarms

Enter in the **TIMED ALARMS** menu whether the corresponding input is to generate an alarm only during a certain time interval.
1 denotes that the alarm is time controlled. 0 is the standard position, i.e. all alarms are generated when the respective alarm condition is met.

1. Display the T**IMED ALARMS** menu (group heading **DIGITAL INPUTS**).
2. Shift to the write position.
3. Scroll to the position corresponding to the input that is to be altered. The menu window shows the name of each input.
4. Alter from ***0*** to ***1*** and continue to the next position which is to be altered.
5. Save the changes by repeatedly presssing Enter until the text Value saved is displayed.
6. Display the **START TIMED AL.** menu.
7. Enter the time when the time-controlled alarm can be generated at the earliest.
8. Display the **STOP TIMED ALmenu.**
9. Enter the time when the time-controlled alarm can be generated at the latest.

2.8. Pulse counter

Digital input 7 can be used either as a pulse counter or as an orginary digital input.

Enter the scale factor for the pulse counter.

1. Display the **SCALEING OF D7** menu
2. Enter the scaling factor.
   With the value ***0,*** the input operates as an ordinary digital input.

2.9. Operating data

The ATU 301 collects and accumulates data for the operating time and the number of starts for each digital input that is active. In addition, it records a number of overflows and the overflow time during which the overflow function is active.

"Appendix A - List of menus" on page 21 shows the menu names for this data.

State whether the menus are to show today's or running operating data.

1. Display the **OPERATIONAL DATA** menu (group heating).
2. Select the alternative ***Per day*** or ***Total.***
3. ***Per day*** operating data comprises 24 h and is reset at midnight. ***Total*** operating data is the accumulated value.

2.9.1. Reset the operating data

1. Display the menu that is to be reset.
2. Shift to the write position.
3. The text ***Reset value?*** No will be displayed and the cursor will flash.
4. Press the **Left arrow/Up-down** button once and the ***Yes*** alternative will be displayed.
5. Press the **Right arrow/Enter** button.
6. The message ***Value stored*** will be displayed.

Repeat 1 - 6 for every menu that is to be reset.

2.10. Reset to the Flygt default set points

You can reset all set points in the ATU 301 to the values that were stored on delivery.

1. Dosplay the **ALARM LOG** menu.
2. Hold the **Group step/Shift** button depressed, and press the **Read/write** button at the same time.
   The text **PARAMETER** Flygt default will be displayed.
3. Press the **Right arrow/Enter** button to select this alternative. The texten ***Sure? No*** will be displayed.
4. Press the **Left arrow/Up-down** button to change to ***Sure? Yes***.
5. Press the **Right arrow/Enter** button to confirm.

The **LANGUAGE** menu will now be shown and is set to English. The procedure for selecting a new language is described in the section ***"Menu language" on page 7***.

3. Alarm handling

A list of the alarms in the ATU 301 is shown in the table.

Alarm code	Priority on delivery	Reason for alarm	Alarm text in ATU 301
1	A	High level	High level
2	B	Low level	Low level
3	B	Mains error	Mains error
34	A	Overflow	Overflow
81	B	Alarm digital input 1	Alarm input 1
82	B	Alarm digital input 2	Alarm input 2
83	B	Alarm digital input 3	Alarm input 3
84	B	Alarm digital input 4	Alarm input 4
85	B	Alarm digital input 5	Alarm input 5
86	B	Alarm digital input 6	Alarm input 6
87	B	Alarm digital input 7	Alarm input 7
8630	B	Testcall !	Testcall !

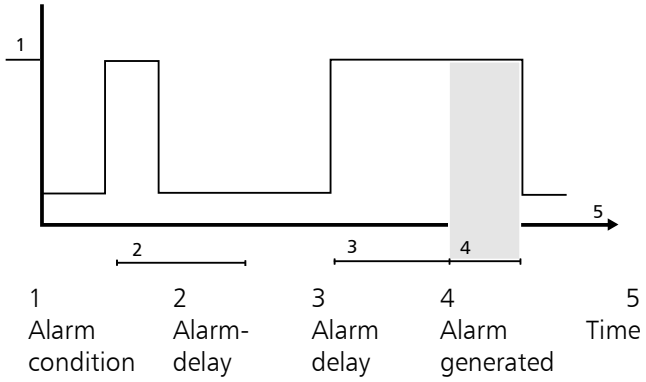
3.1. Alarm activation

Monitoring of analogue values demands that the required alarm limits are preset.

3.2. Alarm delay

Different time delays for digital and analogue alarms and for mains power supply fault alarm can be preset in the ATU 301 The menus for alarm delay are in the **ALARM DELAY** menu group A common delay is about 10 seconds.

1. Display the **ALARM DELAY** group menu.
2. Scroll to the menu for the alarm that is to be delayed.
3. Shift to the write position.
4. Enter the time for the delay.
5. Repeat steps 2 to 4 for every alarm that is to be delayed.



Example of alarm delay

In the example, no alarm is generated in the first case (2), since the time during which the alarm condition is met is too short. In the second case (3, 4), an alarm is generated since the alarm condition is met also after the alarm delay has expired.

3.3. Group alarm output

All alarms can activate the group alarm output.

3.3.1. Connect the alarm to the output

Set to 1 (active) the alarms that are to activate the group alarm output.

1. Display the **SUM ALARM OUTPUT** menu (group heading).
2. Shift to the write position.
3. Move the cursor to the alarm that is to be connected to the group alarm output.
4. Enter the value 1 (active).
5. Repeat steps 3 and 4 for every alarm that is to be connected to the group alarm output.

3.3.2. Delay of group alarm output

Enter the delay for the group alarm output in the **GROUP ALARM DELAY** menu.

1. Display the **DELAY SUM ALARM** menu.
2. Shift to the write position.
3. Enter the time for the delay.

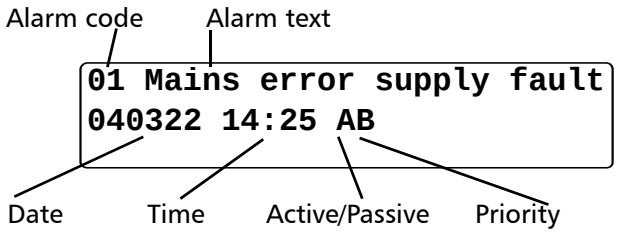
3.4. Alarm log

An alarm generated when an alarm condition has been met is recorded in the alarm log. The latest thirty eight (38) alarms are saved. When the alarm log has been filled, the oldest alarm will be overwritten by a newly received alarm.

3.4.1. Viewing the alarms

1. Dosplay the **ALARM LOG** menu The menu window shows the number of alarms contained in the alarm log.
2. Press the Read/write button. The oldest alarm will be displayed in the menu window.
3. Press the **Up/down** button to see the next alarm. When the most recent alarm is reached, the oldest alarm will again be displayed.
   To scroll back in the log, keep the **Group step/Shift** button depressed and simultaneously press the **Left/up-down** button.

The alarm text is contained in the alarm log together with the following information.



4. Press the Read/write button for closing the **ALARM LOG** menu

3.4.2. To delete an alarm in the alarm log

1. Dosplay the **ALARM LOG** menu
2. Press the **Read/write** button. The oldest alarm will be displayed in the menu window.
3. Press the **Up/down** button to scroll to the required alarm.
4. Press the **Right arrow/Enter** button.
   The text ***Delete the alarm? Current*** will be displayed.
5. Press the **Right arrow/Enter** button. The alarm will be cleared and the text Log emptied will be displayed.
   The menu window shows the number of alarms remaining in the alarm log. Any alarms that are still active cannot be deleted.

3.4.3. To delete all alarms in the alarm log

All passive alarms can be deleted simultaneously.

1. Display the **ALARM LOG** menu
2. Press the **Read/write** button. The oldest alarm will be displayed in the menu window.
3. Press the **Right arrow/Enter** button.
   The text ***Delete alarm? Current*** will be displayed.
4. Press the **Left arrow/Up/down**, text ***All?*** will be displayed.
5. Press the **Right arrow/Enter** button. The alarm will be cleared from the alarm log and the text Log emptied will be displayed.
   Any alarms that are still active cannot be deleted.

3.5. Alarm panel

The ATU 301 indicates alarms for digital inputs 1 – 7 with the diodes on the alarm panel.

When an alarm as been activated, the diode begins to flash. It will continue to flash until the alarm has been acknowledged by means of the Alarm acknowledgement button (see below). If the alarm is still active, i.e. if the reason for the alarm persists, when it is acknowledged, the diode will light up with a steady light. If the alarm becomes passive before it is acknowledged, the diode will still flash until acknowledgement has been carried out.

The alarm is	Acknowledged	Diode flashes	Diode steady light
Active	No	Yes	
Active	Yes		Yes
Passive	Yes		
Passive	No	Yes	

3.5.1. To acknowledge alarm

- Acknowledge the alarm panel indication.

Press the **Alarm acknowledgement** button

The acknowledgement does not affect the alarms in the alarm log.

3.6. Alarm to the central system

The ATU 301 can be connected to a central system (CS) and then acts as a remote terminall unit (RTU) Alarms can be transmitted from the RTU to the CS via a fix or dialled up connection. Alarms that are to be transmitted are stored in the alarm log of the RTU.

If the RTU is connected via a fix connection to a central system, this will send alarm enquiries to the RTU. If alarms are stored in the alarm log of the RTU, these will be transmitted to the CS.

When the connection between the RTU and CS is dialled up, the RTU will dial up the CS when there is an alarm in the alarm log. A dialled up RTU that has a GSM modem can be configured to send an SMS in the event of an alarm.

3.6.1. Modem-dependent settings.

For setting the following menus, refer to the section **"Communication" on page 16.**

- **COMMUNICATION**
- **SPEED COM1**
- **PROTOCOL**
- **RTS DELAY**
- **MAX BUFFER SIZE**

3.6.2. Communication test

In order to verify that the alarm distribution performs satisfactorily, the ATU 301 can be configured to transmit automatically a test alarm at predetermined intervals. The alarm is transmitted in the same manner as an ordinary alarm and in accordance with the settings for these.

1. Display the **TEST ALARM INTERVAL** menu (group heading **ALARM)**
2. Shift to the write position.
3. Enter the interval for test alarms.
4. Display the **TEST ALARM TIME** menu
5. Shift to the write position.
6. Enter the time when the alarm is to be sent.

The **TEST ALARM STATE** menu displays the text ***On*** during the time when the text alarm is being sent. At other times, the ***Off*** menu is displayed.

To send a test manually, display the **TEST ALARM STATUS** menu and change over to position ***On***.

3.6.3. Date and time

1. Display the **DATE AND TIME menu (**group heading **COMMUNICATION**).
2. Shift to the write position.
3. State current date and time.

3.6.4. Station number

In a fix communication between the RTU and the CS, a station number is used to identify every RTU connected to the CS.

1. Display the **STATION NUMBER.** menu.
2. Shift to the write position.
3. Enter the station number for the RTU that is used in the central system.

3.6.5. Station name

In a dialled up connection, the station name is sent in the SMS together with the alarm text.

1. Display the **STATION NAME** menu.
2. Shift to the write position.
3. State the unique station name of the RTU.

If there is no other name, the station number will be sent instead.

3.6.6. Alarm telephone number

1. Display the **TELEPHONE CS/SMS.**
2. Shift to the write position.

Enter the unique station number of the RTU.

A telephone number may contain 16 characters, including type of pulsing and pause character.

There is the following auxiliary character to indicate the right telephone number:

Character	Explanation
T	The remote terminal unit sends digits by means of tones, known as DTMF tone signalling, which is the most common method. The character for DTMF tone signalling must be first in the telephone number to the central system.
´	The remote terminal unit makes a 2-second pause on pulsing, e.g. to dial a zero to continue further in an exchange. A pause can be made anywhere in the telephone number. Several pauses in sequence can also be made.

A telephone number to the central system/MTC-COM may have the following appearance: T123456

This means that the RTU will dial telephone number 123456 in the event of an alarm. "T" at the beginning indicates that the number is sent as tones.

Telephone number T0,234567 means that the modeml forst dials a zero. It then waits for 2 seconds and finally dials the number 234567.

3.7. Alarm priority

Alarms in the RTU may have priority A, B, C, D, F or H. The priority determines the alarms that will be sent to CS/SMS. In most cases, the priorities tabulated below are used:

Priority	Displayed in ATU 301 alarm log	Sent to CS or SMS	Comments
A	Yes	Yes	Assigned the most important alarms
B	Yes	Yes	Assigned to alarms that must be reported even if they are less important
C	Yes	No	Assigned to alarms that should only be recorded locally in the RTU
D	Yes	Yes	Serves as A alarm, except that they are only sent during predetermined times of the day.
F	No	No	The alarm is inoperative.
H	No	No	

1. Display the **ALARM PRIORITIES** menu (group heading) **ALARM**)
2. Shift to the write position.
3. Move the cursor to the alarm for which the priority is to be changed.
4. Change to the required priority

The alarm priority can also be changed from the central system.

3.7.1. Times for D alarms

1. Display the **D-ALR. START TIME** menu.
2. Shift to the write position.
3. State the times when D alarm should begin to be sent to CS or SMS
4. Display the **D-ALARM END TIME** menu
5. Shift to the write position.
6. Enter the time when D alarms should cease to be sent to the CS or SMS.

To inhibit the D alarm function, enter 0 in both menus. A D alarm will be treated as an A alarm.

3.7.2. Alarm position

Alarms can be transmitted to CS/SMS or only saved in the RTU

1. Display the **TRANSMIT ALARM** menu.
2. Shift to the write position.
3. Select ***Remote***, ***Local*** or ***Clear***.

In the ***Remote*** position, the alarms are sent to CS/SMS, whereas in the ***Local*** position, they remain in the RTU.

The ***Clear*** position prevents sending of the alarms that have not already been transmitted to the CS/SMS.

3.8. Alarm texts and alarm code filters.

Every alarm text in the RTU is linked via a unique code to an alarm text in the central system.

The digital inputs use the following alarm texts and alarm codes.

Alarm text in the ATU 301	Alarm code	Alarm text in the central system
Alarm input 1	81	Alarm digital input 1
Alarm input 2	82	Alarm digital input 2
Alarm input 3	83	Alarm digital input 3
Alarm input 4	84	Alarm digital input 4
Alarm input 5	85	Alarm digital input 5
Alarm input 6	86	Alarm digital input 6
Alarm input 7	87	Alarm digital input 7

Digital input 1 is reserved for overflow alarm when the overflow sensor is used for overflow monitoring.

You can alter the alarm texts and alarm codes at the digital inputs in accordance with your own requirements. The general text in the ATU 301 can thus be changed to a text that is suitable for the relevant installation.

Proceed as follows if you wish to display an alarm text in the ATU 301 that is already available in the central system. The text should show that the temperature of pump 1 is too high and the alarm indication is linked to digital input 1.

The central system has the alarm text ***High temperature of pump 1*** with alarm code ***35***.

1. Display the **ALARM TEXT INP.1** menu (group heading **ALARM TEXTS**).
2. Enter a text you have defined yourself, e.g. ***HtempP1***.
   A maximum of seven (7) character may be used.
3. Display the **ALARM CODE INP. 1** menu.
4. Alter the code from ***81*** to ***35.***

The following will take place in the event of an alarm at digital input 1:
In the **ALARM LOG** menu, the text ***HtempP1*** will be displayed instead of ***Alarm input1***.
The same text will be displayed in the SMS, if any.
The central system will display the text
35 High temperature of pump 1 instead of
81 Alarm digital input 01.

3.8.1. To alter alarm texts and alarm codes directly in the ATU 301

1. Display the **ALARM TEXTS** group menu
2. Continue to the menu that is to be altered
3. Shift to the write position
4. Enter the new alarm text. A maximum of seven (7) characters may be used.

An alarm code can be altered in a corresponding way. A maximum of four (4) characters may be used.
By altering the alarm code, you can select a standard text that is already available in the central system.

1. Display the **ALARMCODE FILTERS** group menu
2. Continue to the menu that is to be altered
3. Shift to the write position
4. Enter the new alarm code. A maximum of four (4) characters may be used.

3.8.2. To alter the alarm texts and alarm codes from the central system

Altered alarm texts and alarm codes can also be sent as set points from the central system to the RTU.

4. Troubleshooting

4.1. Status of digital input signals

The status of the digital signals can be viewed in the **STATUS INPUTS** menu (group heading **DIGITAL INPUTS**).
(0 = not active, 1 = active)

4.2. Inversion of digital inputs

Check that an input has not been inadvertently inverted.

4.3. Diagnostic functions

Use the **DIAGNOS. PROGRAM** function for troubleshooting in the hardware. The table is an overview of the functions that are tested and the results displayed in the menu window and by the diodes.

Value	Function	Results
1	Text version	X.XX
2	Communication module program version	X.XX
10	Digital input signal	Menu window 000000000000
11	Alarm diodes	The diodes flash
20	Analogue input signal	Shows the level in bits (0-1023)

1. Display the **DIAGNOS. PROGRAM** menu (group heading)
2. Shift to the write position
3. Press the **Left arrow/Up-down** button to arrive at the required function in accordance with the table above.
4. Press the **Right arrow/Enter** button when the value of the function is displayed.
5. The results of the diagnosis are displayed in the menu window.

NOTE

While the Diagnostics function is activated, other functions are inactive, i.e. the normal functions are inhibited.

After 10 minutes in the rest position, the unit shifts to normal function.

5. Communication

5.1. Systems

5.1.1. Direct communication with the central system

In this system the RTU communicates directly with the central system.

A modem, a radio or a signal cable is used for the transmission of information between the units in the system.

Either the factory settings or the first user profile of the modem (profile 0) can be used. In the first case no special configuration of the modem is required but in the second case the user profile has to be configured prior to use with the RTU.

5.1.2. Communication via MTC-COM

In this system the RTU communicates with the central system, via the communication unit, MTC-COM.

A modem, a radio or a signal cable is used for the transmission of information between the units in the system.

Prior to use with the RTU the first user profile of the modem (profile 0) has to be configured.

Note! The factory settings of the modem cannot be used in this case.

5.1.3. Modems

Communication is possible using:

- GSM-modem
- Hayes-modem
- Radio in transparent mode

The modem can either use factory settings or user profile 0, which must then be pre-configured.

5.2. Connection

5.2.1. Connection to a modem or radio

Connect a straight serial cable from the modem/radio to the RS232 connector on the COM1.

Connect the modem/radio to its own supply.

5.2.2. Connection to a PC using fix line

Connect a straight serial null-modem cable from the PC to the RS232 connector on the COM1.

5.3. Configuration

5.3.1. Fix line FDX

Can be used for:

- Communication directly to a PC
- Communication using a fix line modem
- Communication using radio

Menu	Values	Description
Communication COM1	RS232 FDX	Normally FDX can be used if the central system has not specially been set-up to use HDX
Protocol COM1	AquaCom Fix	
Speed COM1	2400-57600 bps	Set this value to the same as the port baudrate in the central system
Max buffer size	80-4000	Normally 2000 is used. If your radio has a limited buffer or there are disturbances decrease this value. E.g. 500.

5.3.2. Fix line HDX

Can be used for:

- Communication directly to a PC
- Communication using a fix line modem
- Communication using radio

Menu	Values	Description
Communication COM1	RS232 HDX	Will work with normal settings in the central system.
Protocol COM1	AquaCom Fix	
RTS delay COM1	25-1000 ms	Low delay means faster communication. Use higher value if required by the radio. I.e. if there is problems with the communication.
Speed COM1	2400-57600 bps	Set this value to the same as the port baudrate in the central system.
Max buffer size	80-4000	Normally 2000 is used. If your radio has a limited buffer or there are disturbances decrease this value. E.g. 500.

5.3.3. Dialled line modem

Can be used for:

- Communication using a Hayes compatible telephone modem
- Communication using a GSM modem

Note: Please observe the limitation in combinations of modems and their configuration strings.

Menu	Values	Description
Communication COM1	Hayes modem GSM/Hayes predef.	Select Hayes modem when communicating directly to the central system. In all other cases configure the modem using a PC and select GSM/Hayes predefined. See appendix on preconfiguration of modems. Select this option if an MTC-COM is included in the system.
Protocol COM1	AquaCom dialled	
Speed COM1	2400-57600 bps	If your modem supports autobauding, set this as high as possible to get the best communication performances. Otherwise set this value to the same as the value used in the pre configuration of the modem.
Telephone no. CS/SMS		Enter the telephone number to the Central system or MTC-COM.

5.3.4. GSM modem

Can be used for:

- Communication using a GSM modem or a telephone modem

Note: Please observe the limitation in combinations of modems and their configuration strings.

Menu	Values	Description
Communication COM1	GSM/Hayes predef.	Configure the modem using a PC and select GSM/Hayes predefined. See appendix on pre-configuration of modems.
Protocol COM1	AquaCom dialled	
Speed COM1	2400-57600 bps	If your modem supports autobauding, set this as high as possible to get the best communication performances. Otherwise set this value to the same as the value used in the pre-configuration of the modem.
Telephone no. CS/SMS		Enter the telephone number to the Central system or MTC-COM.

5.3.5. GSM modem and SMS

Can be used for:

- Communication using a GSM modem

Note: Please observe the limitation in combinations of modems and their configuration strings

Menu	Values	Description
Communication COM1	GSM/Hayes predef.	Configure the modem using a PC and select GSM/Hayes predefined. See appendix on pre-configuration of modems.
Protocol COM1	AquaCom/SMS	
Speed COM1	2400-57600 bps	If your modem supports autobauding, set this as high as possible to get the best communication performances. Otherwise set this value to the same as the value used in the pre-configuration of the modem.
Telephone no. CS/SMS		Enter the telephone number to the SMS recipient. I.e. the personnel.
Station name		Enter a name that will be sent in the SMS alarm message.

6. AquaView Centralsystem

For general instructions on the AquaView central system, refer to the auxiliary function of the system.

6.1. Settings

Using the AquaView central system for checking and altering the set points in the ATU 301 presupposes the following:

- The AquaView must be of version 1.22.00 or later.
- The following additions that alter the size of the special alarm buffer in the AquaView must be made:

1. Locate the AquaView file: **\Central\Data\AqvSys.ini**.
2. Open the file and go to the section for the relevant station: **[Stn###]**, where ### indicates the 3-digit station number.
3. Write the following text line: ***MaxXmitSize=200*** See the example in the following illustration.
4. Save and close the file.

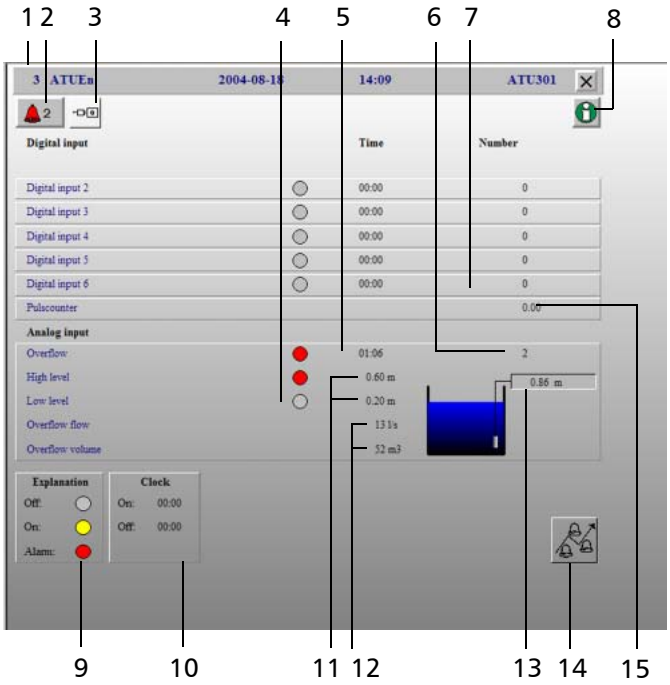
Note that an addition is also required in the same file when the time interval is to be changed for the historical trend. See **"To alter the time interval for historical trend" on page 20**.

```
.
.
System0=2
[Ports]
0=1 MCOM-900 (COM1)
[Stn001]
Template=TEMPLATE\ATU301_220SV.ATF
Adr=F0 1-1
Server=0
DaysRep=30
DaysHtr=7
DaysHtr2=14
DaysAlr=30
DaysEvt=7
EnableRep=2
EnableHtr=2
EnableAlr=2
EnableEvt=2
MaxXmitSize=200
TrendType=1
 [Stn512]
Template=TEMPLATE\FGC_STD2P_200_SV
.
.
```

Extract from the AqvSys.ini setting file with the additions marked in grey.

6.2. The status

The status figure shows the instantaneous status of the pump station, with the operating data and active alarms for the day. Running operating data is shown only in the RTU.



1. Station number
2. Number of active alarms
3. Mains error
4. Status of digital inputs
5. Operating times digital inputs and overflows
6. Number of overflows
7. Number of starts of digital inputs
8. Versions facts on ATU 301
9. Explanation of status of digital inputs
10. Starting and stopping times for time-controlled alarms
11. High-level and low-level limits
12. Overflow flow and overflow volume
13. Current level
14. Alarm position (remote/local)
15. Reading of pulse counter

6.3. Periodic reports

The following parameters are transmitted to the central system for periodic reporting:

Operating time, digital input 1, h	Starts, digital input 1
Operating time, digital input 2, h	Starts, digital input 2
Operating time, digital input 3, h	Starts, digital input 3
Operating time, digital input 4, h	Starts, digital input 4
Operating time, digital input 5, h	Starts, digital input 5
Operating time, digital input 6, h	Starts, digital input 6
Operating time, digital input 7, h	Starts, digital input 7
Overflows operating time, h	Overflow volume, m^3
Overflow starts	Large overflow starts

6.4. Historical trend

CS can create trend graphs for values from the following inputs:

Level, m	Digital input 4
Digital input 1	Digital input 5
Digital input 2	Digital input 6
Digital input 3	Digital input 7
Pulse counter	

The measured values are stored in the RTU at the time intervals specified in the **TREND RESOLUTION** menu (group heading **COMMUNICATION**). The defaultvärdet in the ATU 301 and in the AquaView is 5 min. This can be altered to 1 min.

6.4.1. To alter the time interval for historical trend

A change of the trend resolution to 1 min presupposes the following:

- The AquaView must be of **version 1.23.00** or later to ensure that the trend curves will be presented correctly.
- The following changes must be made in the AquaView.

1. Locate the AquaView file: **\Central\Data\AqvSys.ini**.
2. Open the file and go to the section for the relevant station: **[Stn###]**, where ### indicates the 3-digit station number.
3. Write the following text line: ***TrendType=1***. See the exampled in the earlier figure.
4. Save and close the file.

To alter the value in the RTU,

1. Display the **TREND RESOLUTION** (group heading **COMMUNICATION**)
2. Shift to the write position.
3. Enter ***01.***

7. Appendix A - List of menus

Menu	Note	Menu line	Flygt Default	Description
ALARM LOG		High level Low level Mains error Overflow Alarm input 1 . . Alarm input 7 Testcall !	0	Number of generated alarms
LEVEL		Format ± xx.xx m	00.00	Level in the pump pit
Calib range	1	Format xx.xx m	01.00	Measurement range for level sensor.
Calibration	1	Format ± xx.xx m	00.00	For calibration of level meter Reference value: 0-point.
High level	1	Format ± xx.xx m	00.90	High level alarm limit
Overflow level	2	Format ± xx.xx m	00.00	Height above 0 point at which overflow alarm is to be initiated
Low level	1	Format ± xx.xx m	00.00	Low level alarm limit
WEIR SELECT		No Rectangular V-Notch Manual	No	Selection of overflow calculation. See "Appendix B - Overflow monitoring" on page 25
Overflow flow	2	Read only	00000	Shows calculated overflow, l/s
Overflow volume	2	Reading and resetting to zero	00000	Shows the calculated overflow volume, m^3
Discharge coeff.		Format 00.00	00.00	Setting of outlet coefficient
Overflow range	2	Format xx.xx m	00.00	Setting of overflow range
Weir width		Format xx.xx m	00.00	Setting of overflow outlet width
Overflow seg. 1	3	Format xxxxx l/s	00.00	Manual input of overflows l/s: Flow at point 1 on the overflow curve
Overflow seg. 2	3	Format xxxxx l/s	00.00	Flow at point 2
Overflow seg. 3	3	Format xxxxx l/s	00.00	Flow at point 3
Overflow seg. 4	3	Format xxxxx l/s	00.00	Flow at point 4
Overflow seg. 5	3	Format xxxxx l/s	00.00	Flow at point 5
Overflow seg. 6	3	Format xxxxx l/s	00.00	Flow at point 6
Overflow seg. 7	3	Format xxxxx l/s	00.00	Flow at point 7
Overflow seg. 8	3	Format xxxxx l/s	00.00	Flow at point 8
Overflow seg. 9	3	Format xxxxx l/s	00.00	Flow at point 9
Overflow seg. 10	3	Format xxxxx l/s	00.00	Flow at point 10
DIGITAL INPUTS				
Status inputs		Format xxxxxxx	0000000	Status of digital inputs 0 = not active, 1 = active
nvert inputs	1	Format xxxxxxx	0000000	Inversion of digital inputs. The names of the inputs are shown in the Write position.
Function (1=alarm)	1	Format xxxxxxx	1111111	Shows the inputs that are connected to alarm (1).
Timed alarms	1	Format xxxxxxx	0000000	Shows the inputs that are connected to time-controlled alarms

Menu	Note	Menu line	Flygt Default	Description
Start timed al.	1	Format xx:xx hh:mm	00:00	Shows the earliest time at which the time-controlled alarms can be created.
Stop timed al.	1	Format xx:xx hh:mm	00:00	Shows the latest time at which the time-controlled alarms can be created.
Scaleing of D7	1	Format xx.xx	00.00	Setting of scaling factor for pulse sensor.
Counter value D7	6	xxxxxxxx.xx		Shows the counted value for the pulse sensor.
OPERATIONAL DATA	1	Today's Running	Today's	Select whether the operating data is to be displayed "*Running*" or "*Today's*".
No. overflows	2	Format xxxxx	00000	Number of overflows
No. Major Overfl.	2	Format xxxxx	00000	Number of large overflows If the time between two overflows is less than 24 h, the second overflow is regarded as belonging to the first and the latter is then regarded as a large overflow.
Overflow time		Format hh:mm	00000	Overflow time
No. starts D1	5	Format xxxxx	00000	Number of starts of input 1
Runtime input1	5	Format hh:mm	00000	Operating time input 1
No. starts D2		Format xxxxx	00000	Number of starts of input 2
Runtime input2		Format hh:mm	00000	Operating time input 2
No. starts D3		Format xxxxx	00000	Number of starts of input 3
Runtime input 3		Format hh:mm	00000	Operating time input 3
No. starts D4		Format xxxxx	00000	Number of starts of input 4
Runtime input 4		Format hh:mm	00000:00	Operating time input 4
No. starts D5		Format xxxxx	00000:00	Number of starts of input 5
Runtime input 5		Format hh:mm	00000:00	Operating time input 5
No. starts D6		Format xxxxx	00000:00	Number of starts of input 6
Runtime input 6		Format hh:mm	00000:00	Operating time input 6
No. starts D7		Format xxxxx	00000:00	Number of starts of input 7
Runtime input 7		Format hh:mm	00000:00	Operating time input 7
ALARM TEXTS	1	Read only		
Alarm text inp. 1	1,5	Xxxxxxx	Blank	Own alarm text for input 1.
Alarm text inp. 2	1	Xxxxxxx	Blank	Own alarm text for input 2.
Alarm text inp. 3	1	Xxxxxxx	Blank	Own alarm text for input 3.
Alarm text inp. 4	1	Xxxxxxx	Blank	Own alarm text for input 4.
Alarm text inp. 5	1	Xxxxxxx	Blank	Own alarm text for input 5.
Alarm text inp. 6	1	Xxxxxxx	Blank	Own alarm text for input 6.
Alarm text inp. 7	1	Xxxxxxx	Blank	Own alarm text for input 7.
VERSION	1	Read only		Software version
ALARM	1			
Alarm priorities	1	A B C D F H	BABABB BBBBBB	Selection of alarm priority: A, B, C, D F or H

Menu	Note	Menu line	Flygt Default	Description
D-Alr.start time	1	Format hh:mm	00:00	Starting time for distribution of D alarm
D-Alarm end time	1	Format hh:mm	00:00	Stopping time for distribution of D alarm
Transmit alarm	4	Local Remote Clear	Local	Selection of alarm position.
Test alarm interv	4	Format xx days	00 Day	Number of days between sending of test alarm
Test alarm time	4	Format xx:xx hh:mm	00:00	Time for sending the test alarm
Test alarm state	4	Off On	Off	Manual activation of test alarm.
Alarmcode filter	1			
Alarm code input 1	1,5	Format xxxx	0081	Change of alarm codes at input 1
Alarm code input 2	1	Format xxxx	0082	Change of alarm codes at input 2
Alarm code input 3	1	Format xxxx	0083	Change of alarm codes at input 3
Alarm code input 4	1	Format xxxx	0084	Change of alarm codes at input 4
Alarm code input 5	1	Format xxxx	0085	Change of alarm codes at input 5
Alarm code input 6	1	Format xxxx	0086	Change of alarm codes at input 6
Alarm code input 7	1	Format xxxx	0087	Change of alarm codes at input 7
ALARM DELAY				Time between satisfied alarm condition and generation of alarm
Al.del. Main.err	1	Format xx:xx mm:ss	00:00	Alarm delay network error.
Al.del. High lev	1	Format xx:xx mm:ss	00:00	Alarm delay for high level
Al.del. Low lev.	1	Format xx:xx mm:ss	00:00	Alarm delay for low level
Alarm delay D1	1,5	Format xx:xx mm:ss	00:00	Alarm delay for input 1.
Alarm delay D2	1	Format xx:xx mm:ss	00:00	Alarm delay for input 2.
Alarm delay D3	1	Format xx:xx mm:ss	00:00	Alarm delay for input 3.
Alarm delay D4	1	Format xx:xx mm:ss	00:00	Alarm delay for input 4.
Alarm delay D5	1	Format xx:xx mm:ss	00:00	Alarm delay for input 5.
Alarm delay D6		Format xx:xx mm:ss	00:00	Alarm delay for input 6.
Alarm delay D7	1	Format xx:xx mm:ss	00:00	Alarm delay for input 7.
SUM ALARM OUTPUT	1	Mains error High level Low level Overflow Alarm input1 Alarm input2 Alarm input3 Alarm input4 Alarm input5 Alarm input6 Alarm input7	0 0 0 0 0 0 0 0 0 0 0	Selection of signals that will activate the group alarm output. Active = 1. Passive = 0.
Delay sum alarm	1	Format xx:xx mm:ss	00:00	Alarm delay, group alarm output
COMMUNICATION	1	None Hayes modem GSM/Hayes ppredef RS232 HDX RS232 FDX	None	Choice of communications method.
Date and time	4	Format xxxx-xx-xx xx:xx	Blank	Setting of date and time.
Station no./id	4	Format 001 - 899	999	Station No. used in the communication

Menu	Note	Menu line	Flygt Default	Description
Station name	4	Format ATU301	ATU301	Station name sent in the SMS alarm
Telephone CS/SMS	4	Format xxxxxxxxxxxxxxx	Blankt	The alarm telephone number to the central system or SMS
Trend resolution	4	Format xx m	05	Time period used for trend calculation Area 1 - 60 min
Speed COM1	4	2400 bits/s 4800 bits/s 9600 bits/s 19200 bits/s 38400 bits/s 57600 bits/s	9600 bits/s	Selection of transmission speed
Protocol	4	AquaCom fixed AquaCom dialled AquaCom/SMS	AquaCom dialled	Selection of communication protocol.
RTS delay	4	Format xxxx ms	1000	Delay of RTS control signal in the communication. Only if RS 232 FDX is selected. Range 25-1000 ms X.
Max buffer size	4	Format xxxxx bytes	2000	Maximum telegram size for trend. Range 80-4000 character.
DIAGNOS. PROGRAM		Off 1-39	Off	Diagnostic program for production test of hardware
PARAMETER		Yes No	No	Certain menus are displayed only when the **SET POINTS** menu is activated (marked 1)
LANGUAGE		Dansk Deutsch English Español Français Italiano Magyar Nederlands Norsk Polski Pycck-˜ Suomi Svenska	English	Selection of language for menu texts.

1) Displayed only when the PARAMETER menu is activated
2) Displayed only when OVERFLOW is selected
3) Displayed only when WEIR SELECT = Manual is selected
4) Displayed only when COMMUNICATION is selected
5) NOT displayed when OVERFLOW is selected
6) Displayed when PULSE COUNTER is activated SCALEING OF D7 >0 menu
Menus that are group headings at the same time are written in CAPITALS in the menu list

8. Appendix B - Overflow monitoring

ATU 301 calculates the overflow rate and stores the overflow time, number of overflows and the overflowed quantity.

If the ATU 301 is to initiate an alarm when overflow occurs, this must be specified. Follow the instructions under **"Overflow monitoring" on page 8.**

Calculation of the flow is based on formulas in the ATU programs, which obtain their data from level measurement and from level measurement and from input particulars of the dimensions and type of the spillway for the relevant measurement place.

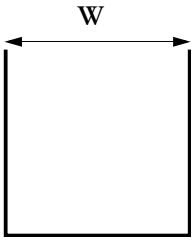
Use an analogue level sensor for measuring the level.

It is important to select a level sensor that is insensitive to changes in atmospheric pressure, deposits, floating sludge and foaming. In addition, it must be fully submersible.

Three different calculation cases can be preset:

1. Rectangular spillway
2. V-shaped spillway
3. Manual calculation

8.1. Rectangular spillway.



W=Width of spillway

The program calculates the flow over a rectangular spillway from the expression

$= h^{1,5} \times W \times K \times \sqrt{2g} \times 2/$ where

Q = flow (m^3/s)

h = retained water height (m), variable value from level measurement. h =measured level - preset overflow level.

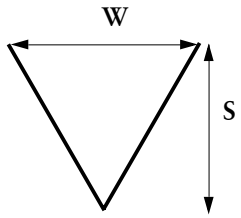
W = width of spillway (m)

K = coefficient of discharge

g = gravitation acceleration = 9.81 m/s^2

The coefficient of discharge is a value between 0.00 and 1.00, which describes certain properties of the spillway, such as the edge design, channel design, etc. A typical value for a rectangular spillway is Dc = 0.62. The spillway manufacturer should submit this information.

8.2. V-shaped spillway



W=Width of spillway

S = Overflow range

The progam calculates the flow over a V-shaped spillway from the expression

$= h^{2,5} \times (W/\ S/\ 2) \times (8/\ 15) \times \sqrt{2g} \times$ where

Q = flow (m^3/s)

h = retained water height (m), variable value from level measurement. h =measured level - preset overflow level.

W = width of spillway (m)

S = spillway range (m)

K = coefficient of discharge

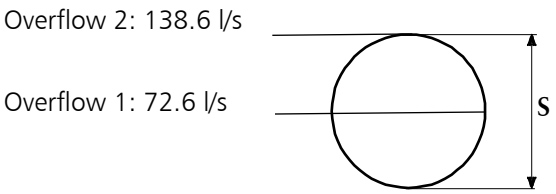
g = gravitation acceleration = 9.81 m/s^2

The coefficient of discharge is a value between 0.00 and1.00 that describes certain properties of the spillway, such as the edge design, channel design, etc. A typical value for a V-shaped spillway is Dc = 0.58. The spillway manufacturer should submit this information.

8.3. Manual infeed of the overflows

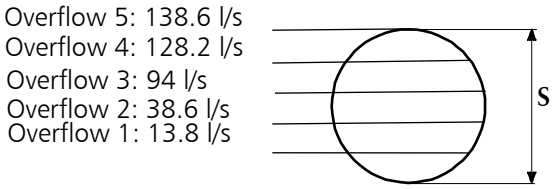
If the overflows at a minimum of two levels are known, the ATU can calculate the intermediate flows. The overflow at a maximum of ten (10) levels can be specified. The levels selected should be uniformly distributed within the overflow range.

An overflow curve is determined by the program, based on the input values. Flows from the intermediate levels can be obtained from the curve. The larger the number of values plotted, the more accurate they will be. If the flow is specified only at two overflow levels, one of these should be at half of the overflow range height and the other at the maximum overflow level.



S=Overflow range

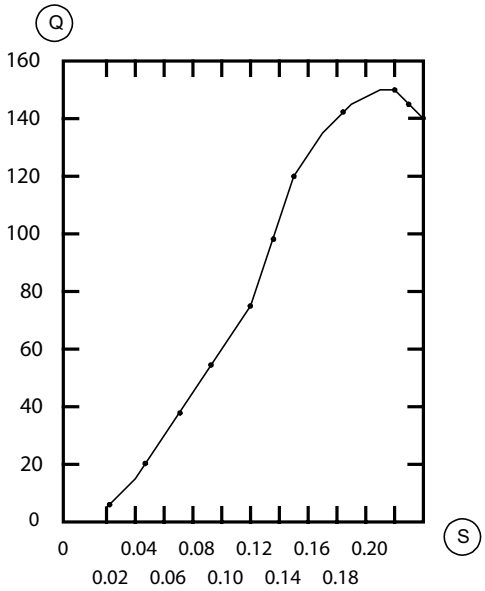
The flow curve is defined by levels.



S=Overflow span

The flow curve is defined by five levels.

Example of overflow curve calculated from ten input values.



Q=Overflow l/s

S=Overflow span

Overflow curve.

If the overflow is clogged or if the drop from the spillway to the recipient is not free, the calculated overflow curve will be wrong.

9. Appendix C

9.1. Configuring a TD-33 modem

1. Start Windows Hyperterminal.
2. Select and configure the COM-port to which the modem is connected.
   - Bits per second: 9600 (or another speed you want to use)
   - Data bits: 8
   - Parity: none
   - Stop bits: 1
   - Flow control: Hardware

Type "AT&F" and press Enter. The modem will answer with "OK".

Type in the initialisation string: E.g. AT&FE0V1\N0W2 S0=0&W. and press Enter.

9.2. Modems and initialization strings

9.2.1. RTU versus MTC-COM

The following modem combinations and configurations will be possible to use. Pre-configured modems must use initialisation strings as listed below.

Modem in RTU	**MTC-COM Baudrate**	**Modem in MTC-COM**				
		CourierV90 Pre-config.	**TDK 2814 Pre-config.**	**TDK 5660 Pre-config.**	**TD22 Pre-config.**	**TD33 Pre-config.**
Westermo TD-33	4800	OK	OK	OK	OK	OK
Siemens TC35	4800	OK	NOT POSSIBLE TO USE	OK	OK	OK

9.2.2. RTU versus AquaView

The following modem combinations and configurations will be possible to use. Pre-configured modems must use initialisation strings as listed below.

Modem in RTU	**AquaView Baudrate**	**Modem in AquaView**		
		TD-33 Pre- configured	**TD-33 Factory settings**	**CourierV. Everything Factory settings**
Westermo TD-33 Factory Settings	2400	Not tested since factory settings is ok	OK	OK
	4800	Not tested since factory settings is ok	OK	OK
	9600	Not tested since factory settings is ok	OK	OK
	19200	Not tested since factory settings is ok	OK	OK
Siemens TC35	2400	OK	NOT RECOMMENDED	NOT RECOMMENDED
	4800	OK	OK	OK
	9600	OK	OK	OK
	19200	OK	OK	OK

9.3. Initialisation strings

Modem	Initiation string in RTU	Initiation string in MTC-COM
Siemens TC-35	AT+CBST=0,0,1 AT+IPR=9600 ATV1	
Westermo TD-33	AT&FE0V1 \N0W2 S0=0	AT&FE0V0 \N0 W2 S0=0 AT+MS=V34,1,300,4800,300,4800
Westermo TD-22		AT&F1E0V0 F5&C1&D2 \N0 S0=0
TDK 5660		AT &FE0V0 %C0 \N0 W0 S0=0+MS=11,1,300,4800,0,0
TDK 2814		AT &F E0 V0 \N0 %G0 %E0 %C0 -K0 S0=0
Courier V. Everything		AT &F1 E0 V0 &B1 &N0 &M0 &K0 X4
Courier V. Everything		AT &F1 E0 V0 &B1 &N4 &M0 &K0 X4 (only in combination with TC-35)

www.flygt.com