xylem
Let's Solve Water

User Guide

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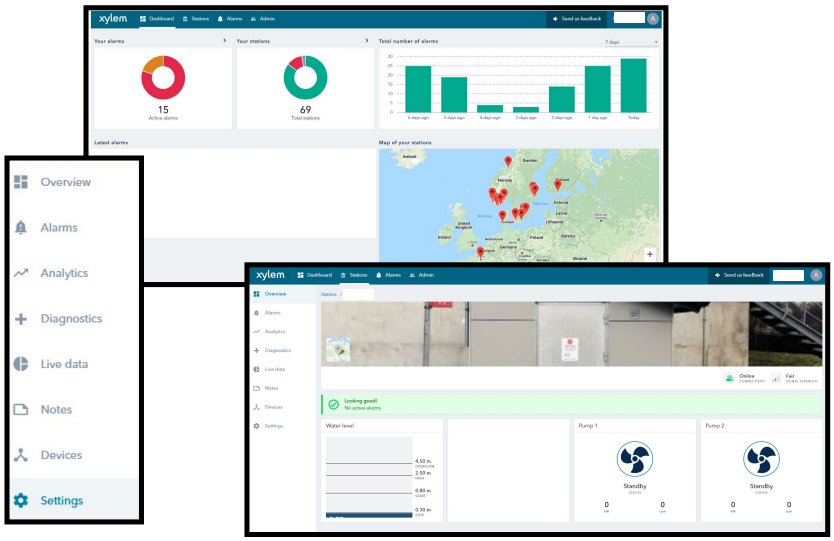

Avensor

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1 Product Overview

1.1 About Avensor

Avensor is a cloud application for monitoring stations and devices. The application retrieves data from the devices through the Flygt CCD 301 or Flygt CCD 401 modem.

The following features are available in the application:

- Station and device management
- Data management and analytics
- Alarm management

1.2 Compatible devices

The Flygt CCD 301 and Flygt CCD 401 modems are compatible with the following devices:

Device	Connection	Maximum number of connected devices for each modem
Analog input	Signal leads	Flygt CCD 301: 1 Flygt CCD 401: 2
Digital input	Signal leads	Flygt CCD 301: 1 Flygt CCD 401: 4
Flygt APP 411/412	RS-485 or Ethernet	1
Flygt APP 521/541	RS-232	1
Flygt FGC 313/323	RS-232	1
Flygt FGC 401/411/421	RS-232 or RS-485	1
Lowara Hydrovar HVL	RS-485	8
Flygt MagFlux	RS-485	8
Flygt MAS 711	RS-485	8
Flygt MAS 801	RS-485	4
SENECA Z-5/10-D-IN	RS-485	8
SENECA Z-8AI	RS-485	8
Wedeco EcoTouch	RS-485	1
Flygt SRC 311	RS-485	8
Flygt FPG 411/412/413/414/415	RS-485 or Ethernet	• RS-485: 8 • Ethernet: 1
Flygt DCM 711	RS-485 or Ethernet	1
Flygt MyConnect	RS-232 or RS-485	1
Flygt SmartRun gateway	RS-232 or RS-485	1
Flygt PS 220	RS-485 or Ethernet	• RS-485: 8 • Ethernet: 1
Godwin PV102P	RS-485	8
Aquavar IPC	RS-485	4
Sanitaire TurboLIGHT	RS-485 or Ethernet	1

It is possible to retrieve data from more than one device in a system even if the maximum number of connected devices is one:

- The Concertor™ XPC system includes one controller and up to seven gateways. The controller retrieves data from the gateways. When the controller connects to the modem, Avensor retrieves data from all devices in the system.

Requirements

- The RS-232 and the RS-485 devices cannot be connected at the same time.
- It is possible to connect the digital input device or the analog input device with the other devices that use RS-232, RS-485, or Ethernet connection.

1.3 User roles

User role	Description
No system access (NSA)	The user cannot access the cloud application but can receive alarm notifications.
Service engineer (SE)	The user can monitor all the stations that are related to the customer in the cloud application.
Customer administrator (CA)	• The user can monitor all the stations that are related to the customer in the cloud application • The user can add, edit, or delete users

1.4 Station and device management

The user can manage information about the stations and devices:

- Change the station or device names.
- Enter the location.
- Enable or disable alarm monitoring.

1.5 Data management and analytics

Avensor shows live data and connectivity status for the connected devices.

- The application stores the data.
- Trend graphs are shown for analysis of the data over time.
- It is possible to download the data for further analysis outside the application.

1.6 Alarm management

Avensor shows alarm notifications from the connected devices.

- There are individual alarms for each device and station in the system.
- All alarms have a default priority level for each device. It is possible to change the priority level of each alarm in the system.
- It is possible to create a call list to notify users when there is an alarm.
- There are several options to acknowledge an alarm.
- All alarms are recorded in the alarm log.

1.6.1 Alarm description

Description	Priority level	Alarm icon
Unacknowledged alarm A	**High**	Flashing red
Acknowledged alarm A	**High**	Red
Unacknowledged alarm B	**Medium**	Flashing orange
Acknowledged alarm B	**Medium**	Orange
Alarm C	**Low**	Gray

1.6.2 Priority

Priority level	Alarm notification	Description
High	• The application shows an alarm icon • The application sends a message to the user	• The application monitors the alarm • Notifications are active • The alarm is saved to the log file
Medium		
Low	The application shows an alarm icon	
Off	–	The application does not monitor the alarm

1.6.3 Alarm acknowledgement

The alarms are acknowledged through the following methods:

- In the web application
- In the mobile application
- Through an SMS

1.6.4 Call list

The call list is a list of users that are notified when there is an alarm. The users are notified in order of priority and with a time delay between each notified user. The priority order and time delay are configured in the application.

Users receive alarm notifications through SMS or email. If a user acknowledges the alarm, then the next user in the call list does not receive a notification.

2 Configurations

2.1 Configure APP 411/412

Use the FOP 315 or FOP 402 HMI to configure the APP 411/412 device.

Pump 1 or Mixer 1 must be on node 1, Pump 2 or Mixer 2 must be on node 2, and so on.

1. Go to **Settings** > **Communication**.
2. Select **TCP/IP settings** or **Modbus RTU settings**.
3. Set the communication parameters.

Parameter	Setting
Default gateway	0.0.0.0
IP address	10.10.10.10
Subnet mask	255.0.0.0
Slave address	The Modbus address in the network.
Baud	9600
Stop bits	1
Parity	None
Port	502

2.2 Configure APP 521

The communication module must be installed in the operator panel. For more information, see the Installation Manual of APP 521.

1. Go to parameter 16, **Show more menus**.
2. Click **Yes**.
3. Go to **Settings** > **Communication** 13_ menu.
4. Set the communication parameters.

Parameter submenu	Parameter name	Setting
13_1	**Station no./id**	1–247
13_10	**Communication COM1**	**RS232 FDX**
13_13	**Speed COM1**	1200–115200 bps
13_14	**Parity COM1**	**Even**
13_15	**Protocol COM1**	**Modbus fixed**

5. Press **Ok**.

2.3 Configure APP 541

The communication module must be installed in the operator panel. For more information, see the Installation Manual of APP 541.

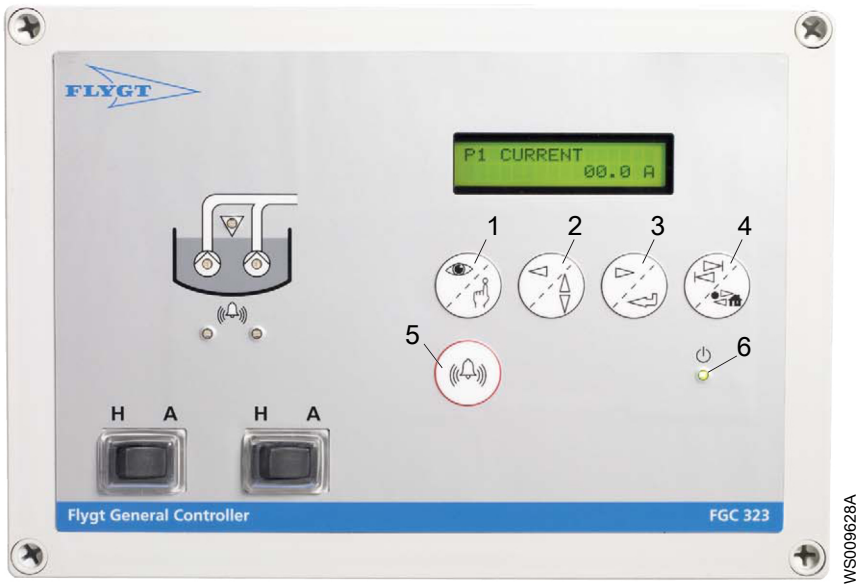
1. Go to parameter 18, **Show more menus**.
2. Click **Yes**.
3. Go to **Settings** > **Communication** 15_ menu.
4. Set the communication parameters.

Parameter submenu	Parameter name	Setting
15_1	**Station no./id**	1–247

Parameter submenu	Parameter name	Setting
15_10	Communication COM1	RS232 FDX
15_13	Speed COM1	1200–115200 bps
15_14	Parity COM1	Even
15_15	Protocol COM1	Modbus fixed

5. Press **Ok**.

2.4 Configure FGC 313/323



1. Read/Write
2. Left/Up-Down
3. Right/Enter
4. Step group/Home
5. Reset

1. Open the configuration mode.
   a) Press **Right/Enter** repeatedly to go to **PARAMETERS**.
   b) Press **Read/Write** to go to the edit mode.
   c) Press **Left/Up-Down** to change to **Yes**.
   d) Press **Right/Enter** to save the value.
2. Open the service menu.
   a) Browse to parameter 13, **SERVICE**.
   b) Change the setting to **Yes**.

      This setting enables the communication parameter changes.
3. Set the communication parameters.

Parameter number	Parameter name	Setting
18_	COMMUNICAT. COM1	RS232 FDX or RS232 HDX
18_1	Speed COM1	9600 bps
18_2	Protocol COM1	Modbus fixed

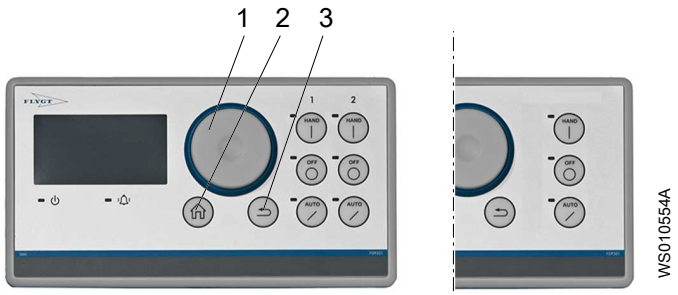
4. Change the controller identity.
   a) Browse to parameter 12_7, **Station no./id**.
   b) Set the identity to a number between 00001 and 00255.

      The identity number for the pump controller is the same as the unique number of the station in the system.
5. Complete the configuration.

a) Browse to parameter 13, **SERVICE**.
b) Change the setting to **No**.
The communication parameter changes are locked now.

The pump controller can communicate with the modem now.

2.5 Configure FGC 401/411/421



Number	Part	Description
1	Jog wheel	The jog wheel is used for navigation and selection in the menus. • Rotate it to navigate. • Press it to select.
2	Home button	The home button is used to return to the **Home** menu.
3	Back button	The back button is used to return to the previous menu.

1. Press the **Home** button.

2. Go to  and press to select all the menus.

3. Select **Settings**.
4. Select **Communication**.
5. Set the communication parameters.

Parameter	Setting
Protocol	**Modbus Slave**
Channel type	**RS232**
Slave address	The controller address in the network

Parameter	Setting
Channel configuration	– Baud = 9600 – Parity = None

6. Turn off the pump controller and start it again.

The pump controller can communicate with the modem now.

2.6 Configure Hydrovar HVL

On the Hydrovar HVL device, the up and down key must be pressed to change the submenus.

1. Go to **M1200 RS-485 INTERFACE**.
2. Set the following parameters.

ID	Parameter	Setting
P1203	PROTOCOL	Modbus RTU
P1205	ADDRESS	1
P1210	BAUD RATE	9600
P1215	FORMAT	8, N, 1

2.7 Configure Magflux

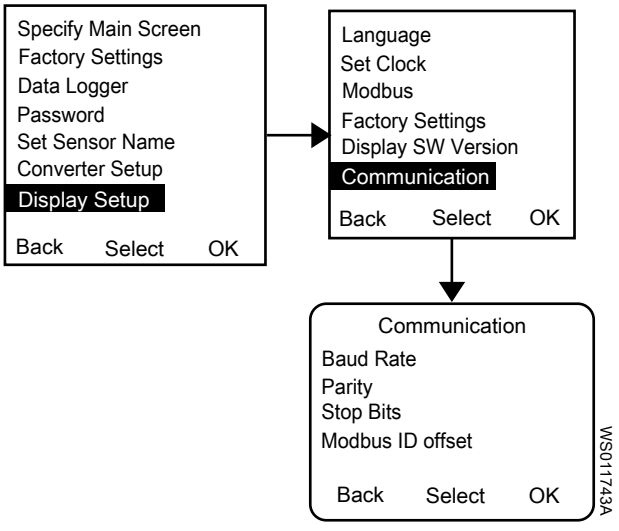
The modbus communication module must be installed on the Magflux flowmeter.

For more information, see Modbus and RS 485 Communication Module manual.

To prevent noise, disturbance, or traffic into bus line, the **Termination** switch must be set to **ON**.

1. On the Magflux screen, go to **Setup > Display Setup > Modbus COM module/ Communication**.

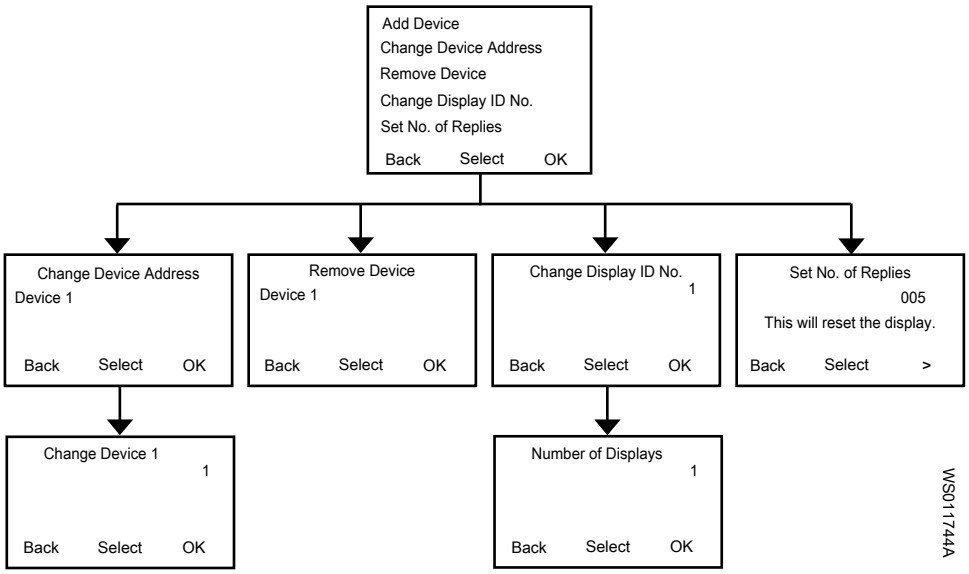
   The **Modbus COM module/Communication** setting is available when a communication module is connected.



2. Set the communication parameters.

Parameter	Setting
Baud rate	9600
Parity	Even
Stop bits	1
Modbus ID offset	000

3. Click **OK**.
4. Go to **Setup** > **Display Setup** > **Network/Modbus**.



5. Click **Add device**.
6. Select **Device 1** or **Device 2**.
7. Click **OK**.
8. Click **Change Device Address**.
9. Select **Device 1** or **Device 2**.
10. Set the address.
11. Click **OK**.
12. Click **Change Display ID No.**.
13. Set the number.
14. Click **Number of Displays**.
15. Set the number.
16. Click **OK**.
17. Click **Set no. of Retries**.
18. Increase the number by 1.
19. Click **OK**.
20. Change the Modbus speed to low.

2.8 Configure MAS 711

The unit is connected to this device through the following terminals:

Terminal	Description
41	Ext. 1, RS-485 (A)
42	Ext. 1, RS-485 (B)

1. Click **Settings** > **General configuration** > **RS485/ Modbus**.
2. In **Higher level controller (External 1)** group, set the following parameters:

Parameter	Setting
Activate	Active
Baudrate	9600 or 19200
Modbus protocol	MAS Modbus revision 3

Parameter	Setting
Address (MAS Modbus ID)	1 to 247

3. Click **Update**.
4. Click **Restart** to execute the settings.

2.9 Configure MAS 801

The modem is connected to this device through the following terminals:

CCD 301/401	MAS 801
RS-485 A	Modbus A-
RS-485 B	Modbus B+

1. Go to **Settings**.
2. In the **Modbus RTU** group, set the following parameters:

Parameter	Setting
Enable	Enabled
Baudrate	19200
Parity	None
Stop bits	2

3. Click **Save**.

One MAS 801 device must be added in Avensor for each pump. The Modbus ID in Avensor must correspond to the Modbus ID in the MAS 801 device. The **Modbus id mapping** group in the MAS 801 device shows the Modbus ID of each pump.

2.10 Configure SENECA module, digital input 5/10 ports

The module must be turned off before it is configured.

Configure the communication settings by using the DIP switch.

a) Set the baud.

DIP switch position		Baud
1	2	
_	_	9600
_	On	19200
On	_	38400
On	On	57600
_	_	EEPROM

b) Set the address.

DIP switch position						Address
3	4	5	6	7	8	
_	_	_	_	_	On	1
_	_	_	_	On	_	2
_	_	_	_	On	On	3
_	_	_	On	_	_	4
_	_	_	_	_	_	- - -
On	On	On	On	On	On	63

DIP switch position						Address
3	4	5	6	7	8	
_	_	_	_	_	_	EEPROM

c) Set the status of the RS-485 terminator.

DIP switch position	Status
10	
_	Disabled
On	Enabled

2.11 Configure SENECA module, analog input 8 ports

The module must be turned off before it is configured.

1. Configure the Modbus settings by using the SW1 DIP switch.
   a) Set the baud.

DIP switch position		Baud
1	2	
_	_	9600
_	On	19200
On	_	38400
On	On	57600
_	_	EEPROM

   b) Set the address.

DIP switch position						Address
3	4	5	6	7	8	
_	_	_	_	_	On	1
_	_	_	_	On	_	2
_	_	_	_	On	On	3
_	_	_	On	_	_	4
_	_	_	_	_	_	- - -
On	On	On	On	On	On	63
_	_	_	_	_	_	EEPROM

   c) Set the status of the RS-485 terminator.

DIP switch position	Status
10	
_	Disabled
On	Enabled

2. Set all SW2 DIP switches to ON to set all input ports to measure current.
   Avensor only supports the SENECA Z-8AI module when it is used as an input for a 4–20 mA current.

DIP switch position	Mode
1–8	
_	Voltage

DIP switch position	Mode
1–8	
On	Current

3. Configure the inputs.
   a) Download the Seneca Easy Setup tool from the SENECA home page.
   b) Install the Seneca Easy Setup tool on a computer.
   c) Connect the SENECA Z-8AI module to the computer through a USB cable.
   d) Use the Seneca Easy Setup tool to configure the inputs.

Parameter	Setting
Start scale	4000 uA, converted to 4000
Stop scale	20 000 uA, converted to 20 000
Sampling speed	120 ms

2.12 Configure EcoTouch

The unit is connected to this device with RS–485 through the following terminals.

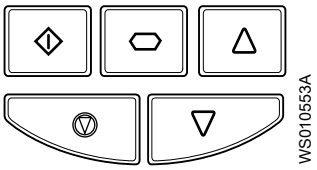
Terminal	Description
ST5 pin 5/6	RS–485(A)
ST5 pin 7/8	RS–485(B)
ST5 pin 3/4	GND
ST5 pin 9/10	Termination (120R)

Termination must be activated by a wire jumper between ST5 pin 9/10 and ST5 pin 7/8.

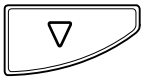
1. On the EcoTouch screen, go to **Menu > I/O Setting, page 3**.
2. Click **Avensor Mode**.
3. Select **OFF** or **Monitor only** or **Monitor & Control**
4. Press **Enter**.
5. Set the communication parameters.

Parameter	Setting
Modbus Device Address	1
Baud rate	9600
Parity	None
Stop bits	1

2.13 Configure SRC 311



Button	Name	Description
	Navigate	The button is used to enter/exit (2 seconds) the menu and to confirm selection/change (< 2 seconds).

Button	Name	Description
	Up	The button is used to increase a value or selection in the submenu.
	Down	The button is used to decrease a value or selection in the submenu.

1. Go to the advanced parameters.
   a) Press the button and hold it down for a few seconds.
      The main menu shows **P1–01**.
   b) Use the up button to go to **P1–14**.
   c) Press the navigate button to go to the submenu.
   d) Use the up button until the screen shows the value, **505**.
      Press down the up button to make it go faster.
   e) Press the navigate button to accept the value.

Advanced parameter number	Parameter name	Setting
P5–01	Drive fieldbus address	The communication address for the controller is the same as the pump ID in the system.
P5–03	Modbus or BACnet baud rate	**9.6**
P5–04	Modbus or BACnet data format	**0 – 1**

2. Set the address.
   a) Press the up button to go to **P5–01** .
   b) Press the navigate button to go to the submenu.
   c) Use the up and down buttons to set a communication address for the unit.
   d) Press the navigate button to accept the address.
3. Set the baud.
   a) Press the up button to go to **P5–03**.
   b) Press the navigate button to go to the submenu.
   c) Use the up and down buttons to set the baud.
      9.6 = 9600 baud
   d) Press the navigate button to accept the baud.
4. Set the data format.
   a) Press the up button to go to **P5–04**.
   b) Press the navigate button to go to the submenu.
   c) Use the up and down buttons to set the correct parity and stop bits.
      0 – 1 = no parity bit and 1 stop bit.
   d) Press the navigate button to enter the value.

2.14 Configure FPG 411/412

1. Press the **Home** button.
2. Go to  and press to select all the menus.
3. Go to **Settings** > **Communication**.
4. Select **RS-485 RTU Port** or **Ethernet Port**.
5. Set the communication parameters.
   – RS-485 RTU Port

Parameter	Setting
Protocol	Modbus Slave
Protocol Settings	The Modbus address in the network.
Channel settings	– Baud = 9600 – Parity = None

– Ethernet Port

Parameter	Setting
Protocol	Modbus Slave
Protocol Settings	The Modbus address in the network.
Channel settings	– IP address = 10.10.10.20 – Subnet mask = 255.0.0.0 – Port = 502

2.15 Configure FPG 413, FPG 414, or FPG 415

Use the FOP 315 or FOP 402 HMI to configure the FPG 413, FPG 414, or FPG 415 device.

1. Go to **Settings** > **Communication**.
2. Select **Modbus RTU** or **Modbus TCP**.
3. Set the communication parameters.

Parameter	Setting
Default gateway	The settings for communication over Ethernet.
IP address	10.10.10.10
Subnet mask	255.0.0.0
Slave address	The Modbus address in the network.
Baud	9600
Stop bits	1
Parity	None
Port	502

2.16 Configure DCM 711

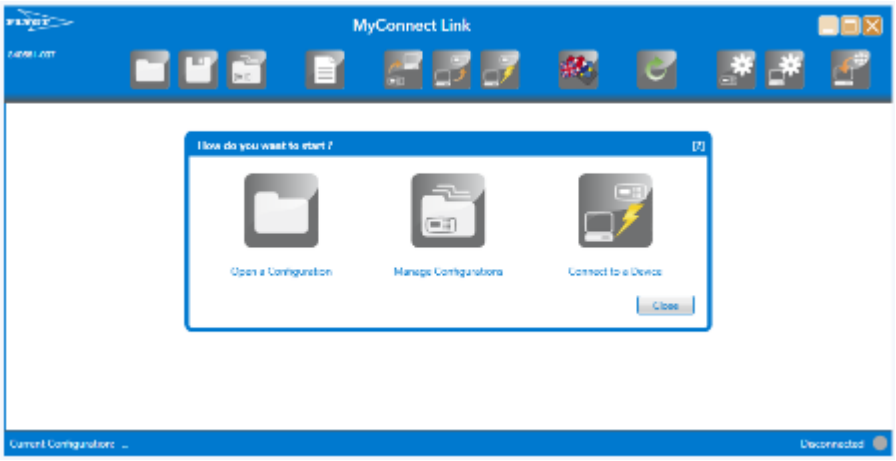
1. Go to **Settings** > **Communication settings**.
2. Select **Ethernet**.
3. Set the communication parameters.

Parameter	Setting
Local IP address	10.10.10.10
Subnet mask	255.0.0.0
Default gateway	Flygt CCD 301: 10.0.0.2 Flygt CCD 401: 10.10.10.2
Modbus TCP – Slave address	The Modbus address in the network

2.17 Configure MyConnect or SmartRun Gateway

Use the Flygt MyConnect Link application to configure the MyConnect or SmartRun Gateway device.

1. Start the Flygt MyConnect Link application on the computer.
   The following dialog box opens.



2. Click the **Open a Configuration** icon.
3. Select the **Open Default Configuration** option.
4. Click **OK**.
5. Go to **Connect "MyConnect"** > **System Setup** > **Communication**.
6. Enter the **Connect ID**.
   The connect ID is same as Modbus address.
7. In the **ID Sensitiv** list, select **Yes**.
8. In the **Master or Slave** list, select **Slave**.
9. Set the master ID number to 1.
10. Go to **Connect "MyConnect"** > **System Setup** > **SCADA Setup**.
11. In the **SCADA System** list, select **SYSTEM 2000 60 COMMAND**.

2.18 Configure TurboLIGHT

Modbus TCP connection

1. Go to **Control**.
2. Set **MB_OFFSET_ADDR** to 0.

The IP address of the blower must be the same in TurboLIGHT and Avensor. The IP address is shown in the **Settings** menu in TurboLIGHT.

Modbus RTU connection

1. Go to **Control**.
2. Set the Modbus address of the blower in the **MB_SLAVE_NUM** parameter.
3. Go to **Settings**.
4. Set the baud in the **Modbus 485** parameter.

The Modbus address and baud must be the same in TurboLIGHT and Avensor.

3 Common procedures

3.1 Change the priority of an alarm

1. Go to **Stations**.
2. Select the station for which to change the alarm priority.
3. Go to **Alarms**.
4. Click the button.
5. Select the alarm.
   Detailed information about the alarm is shown.
6. Select a priority level in the drop-down list.
7. Click the **Update priority** button.

The priority of the alarm is changed for the selected device and station.

3.2 Create a call list

1. Go to **Admin** > **Call lists**.
2. Click the **+** button.
3. Fill in the required text boxes.
4. Click the **Save** button.

The call list is created.

3.3 Add a user to a call list

1. Go to **Admin** > **Call lists**.
2. Select the call list which to add the user to.
3. Click the button.
4. Click the **Add user** button.
5. Click the **User** text box.
   A list of users appears.
6. Select a user from the list.
7. Select the type of notification that the user receives.
8. Click the **Add** button.

The user is added to the call list.

3.4 Remove a user from a call list

1. Go to **Admin** > **Call lists**.
2. Select the call list from which to remove the user.
3. Click the button.
4. Click the button to remove a user.

The user is removed from the call list.

Xylem |’zīləm|

1) The tissue in plants that brings water upward from the roots;
2) a leading global water technology company.

We’re a global team unified in a common purpose: creating advanced technology solutions to the world’s water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced analytics solutions for water, electric and gas utilities. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

For more information on how Xylem can help you, go to www.xylem.com

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Visit our Web site for the latest version of this document and more information

The original instruction is in English. All non-English instructions are translations of the original instruction.

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