

Special Documentation

Liquiline Control CDC90

Data transmission via
analog communication 0/4 to 20 mA

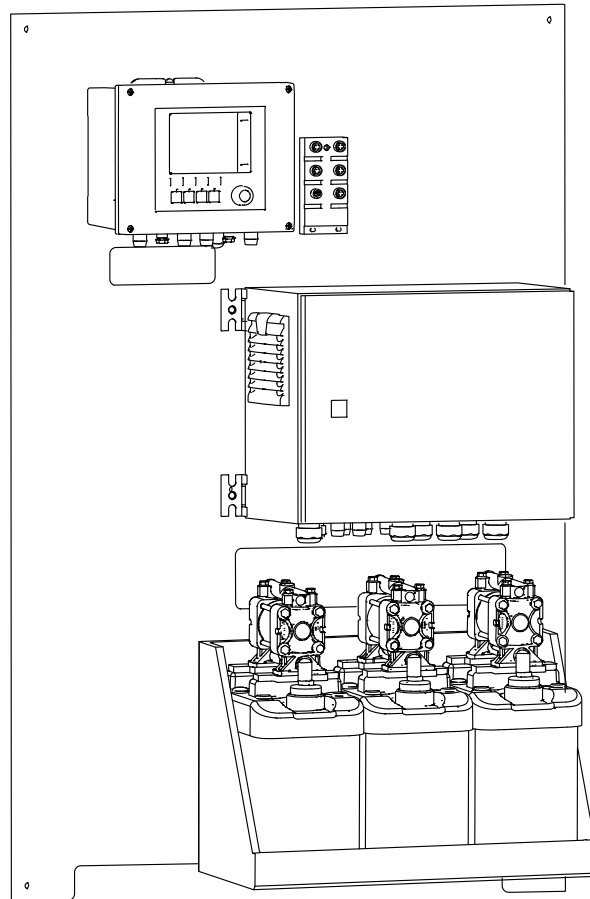


Table of contents

1	Notes	4
1.1	Using the supplementary document	4
1.2	Abbreviations	4
2	Installation and wiring	5
2.1	Notes	5
3	Commissioning	6
3.1	Connection with the CDC90 control unit	6
3.2	Configuration of the CDC90 control unit	6
3.3	Configuration in Liquiline Control CDC90	7
4	Parameter tables	8
4.1	Input and output parameters	8
4.2	Program control	9
4.3	Diagnostics	10

1 Notes

1.1 Using the supplementary document

This supplementary documentation must be used only in conjunction with a Liquiline Control CDC90 with analog communication.

This supplementary documentation is an integral part of the Operating Instructions and provides additional information on the use of the device with analog communication.

More information can be found in the following Operating Instructions:

Operating Instructions CDC90 [BA01707C](#)

It is assumed that the reader has basic knowledge in this area.

This document is aimed at individuals who are incorporating the CDC90 into a control system via analog communication. It is assumed that the reader has basic knowledge of the CM44 transmitter.

1.2 Abbreviations

n/a	Not applicable
NaN	Not a number (IEEE-754, 7Fh A0h 00h 00h)
ENP	Electronic name plate
I&M	Identification & Maintenance
AI	Analog Input (PA Profile function block)
DI	Discrete Input (PA Profile function block)
AO	Analog Output (PA Profile function block)
DO	Discrete Output (PA Profile function block)
DCS	Distributed Control System

2 Installation and wiring

Installation and wiring is described in the Operating Instructions of Liquiline Control CDC90.

The Anybus X gateway connects a Modbus TCP network to a , thereby enabling the seamless flow of information between the CDC90 and a control system.

Only one gateway is required for a one-channel and two-channel system and is included with the order. For the installation and wiring procedure, please refer to the Gateway Installation Instructions provided with the Liquiline Control CDC90 upon delivery.

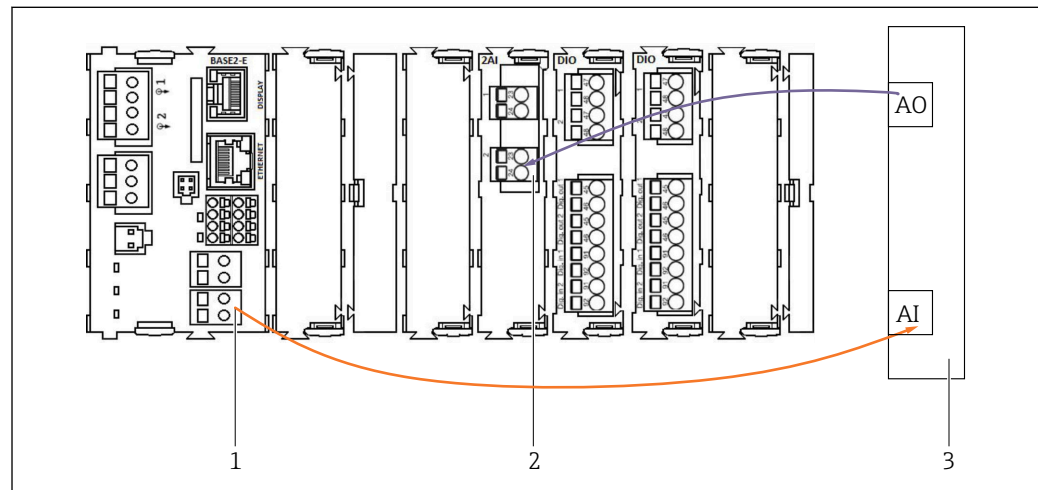
2.1 Notes

The device starts when the supply voltage is applied. This start-up process can take up to two minutes, depending on the device configuration. Communication with the device is not possible during the start-up process.

3 Commissioning

The internal analog input of the CDC90 control unit is used to send commands to the CDC90. Conversely, the analog output of the CDC90 control unit is used to receive analog feedback signals from the CDC90.

3.1 Connection with the CDC90 control unit



- 1 Analog output in BASE2-E
 2 Analog input 2AI
 3 Process control system, PCS

1) The second analog output in BASE2-E is used to monitor and receive feedback from the CDC90.

2) The second analog input (2AI module) is used to send specific current values in mA.

Connecting analog communication

1. Unscrew the housing from the CDC90 control unit. See Operating Instructions [BA01707C](#).
2. Connect a 2-wire cable from the analog output AI of the control system (3) to the analog input of the 2AI module (2) in the CDC90 control unit.
3. Connect a 2-wire cable from the analog input AI of the control system (3) to the analog input of the BASE2-E module (1) in the CDC90 control unit.

Current input 4:1 are internal for the soft keys and

Current output 1:1 for the status of the LED. These settings must not be changed.

For more details on analog input and output characteristics of the CM44x transmitter, please refer to the Operating Instructions of the CM44x ([BA00451C](#)).

3.2 Configuration of the CDC90 control unit

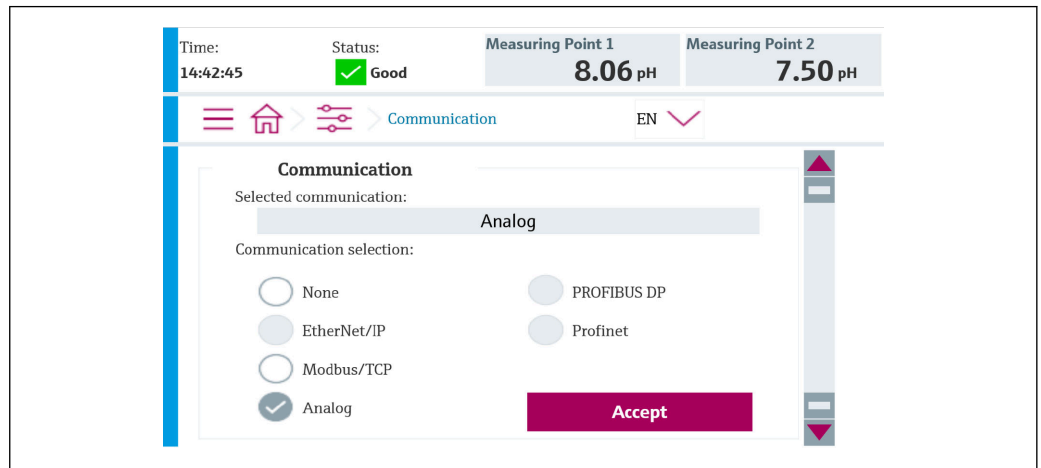
The settings of the CDC90 control unit are preconfigured. So that the configuration can be reviewed and changed, the configuration is described as follows.

1. Adjust the settings via the remote display or web server access.
2. For web server access, enter 192.168.0.4 as the IP address.

See under **Menu/Setup/Inputs/Current input 4:1**; these values are reserved for the soft keys of the CDC90 control unit and must not be changed.

The configuration of the Modbus AO must not be changed under **Menu/Setup/Outputs/Current output 1:2**. The **Current output 1:2** is linked to the internal Modbus TCP of the Liquiline Control CDC90.

3.3 Configuration in Liquiline Control CDC90



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To start remote control of the CDC90, the CDC90 must be set to the **Remote access** mode.

1. In the CDC90, go to **Application/Communication**.
2. Select **Analog**.
3. Press **Accept** to confirm.

 Only fieldbus communication or analog communication is used to send commands to the Liquiline Control CDC90 or to read the values.

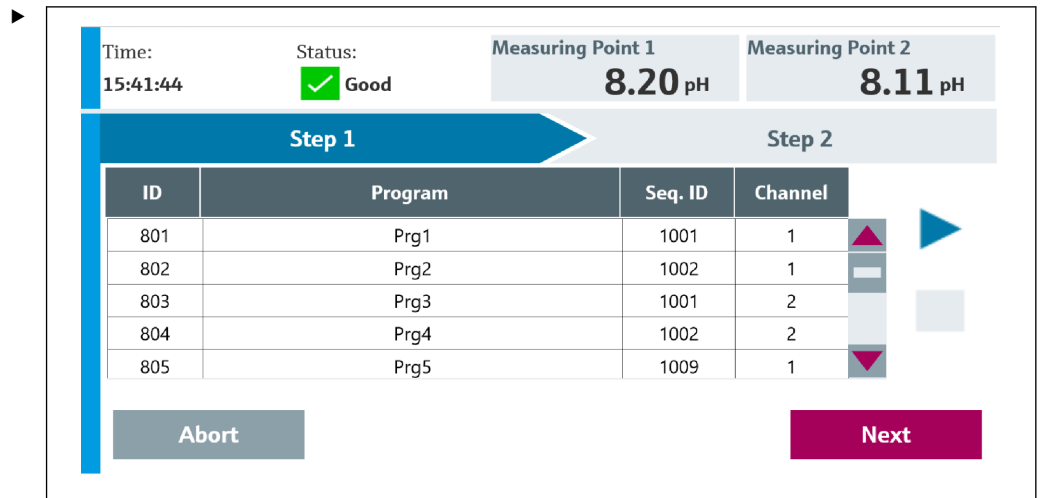
4 Parameter tables

4.1 Input and output parameters

The following table provides an overview of the possible commands that CDC90 can receive via the analog input. Once a corresponding current signal has been sent and accepted, the CDC90 responds with the corresponding current level.

Commands [mA]	Description	Response from CDC90 [mA]	
4	No command active Do not select a program	4	No program is active No program is selected
5	How to start	5	Program is started
6	Pause program (currently not supported)	6	Program is paused (currently not supported)
7	Stop program	7	Program is stopped
8	Not defined	8	Program is canceled
9	Not defined	9	Program is quit successfully
10	Not defined	10	CDC90 has a failure alarm
11	Select program 801	11	Program 801 is selected
12	Select program 802	12	Program 802 is selected
13	Select program 803	13	Program 803 is selected
14	Select program 804	14	Program 804 is selected
15	Select program 805	15	Program 805 is selected
16	Select program 806	16	Program 806 is selected
17	Select program 807	17	Program 807 is selected
18	Select program 808	18	Program 808 is selected
19	Select program 809	19	Program 809 is selected
20	Select program 810	20	Program 810 is selected

4.2 Program control



1 Overview of programs (20 programs are shown)

The program IDs are in the "CDC90 program configuration tool" or can be found on the local display under the menu: **User Guidance/Programs**.

Programs			
ID	Name	Sequence	Channel
801	Prg1	Service	1
802	Prg2	Measure	1
803	Prg3	Service	2
804	Prg4	Measure	2
805			
806			
807			
808			
809			
810			

2 Programs

Each program must be selected before starting. An example of controlling program 801:

1. Set AI to 4 mA.
 - ↳ Initialization in progress.
2. Wait for confirmation AO equal to 4 mA.
3. Set AI to 11 mA.
 - ↳ Program selection in progress.
4. Wait for confirmation AO equal to 11 mA.
5. Set AI to 5 mA.
 - ↳ Program starts.


After the program starts, the analog output outputs 5 mA as long as the program is running. When the program is finished, the analog output outputs 9 mA.

With short programs (e.g. valve travel), the AO may output 9mA.

After quitting a program successfully, a new program can be selected and started immediately.

If the program is stopped or is aborted due to an error:

1. First initialize the system by sending 4 mA.
2. Select and start a new program.

 With analog communication, only the first 10 programs are controlled.

4.3 Diagnostics

Diagnosis via digital inputs 13-16:

DO13: Assembly 1 (0 = service, 1 = measure)

DO14: Assembly 2 (0 = service, 1 = measure)

DO15: Program (0 = no program, 1 = program active)

DO16: Alarm (0 = No Alarm, 1 = Alarm)

Flashing = other diagnostic message)



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