



ELCO-100
Local
Controller



Frese ELCO-100 Local Controller

Quick Guide
Setting up the standalone
ELCO-100 Local Controller

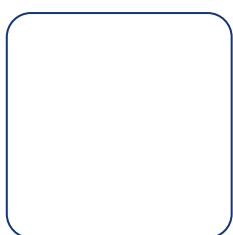
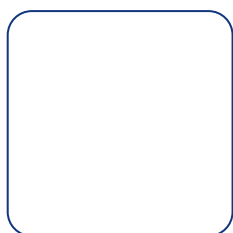




Fig. 1 – ELCO-100 front

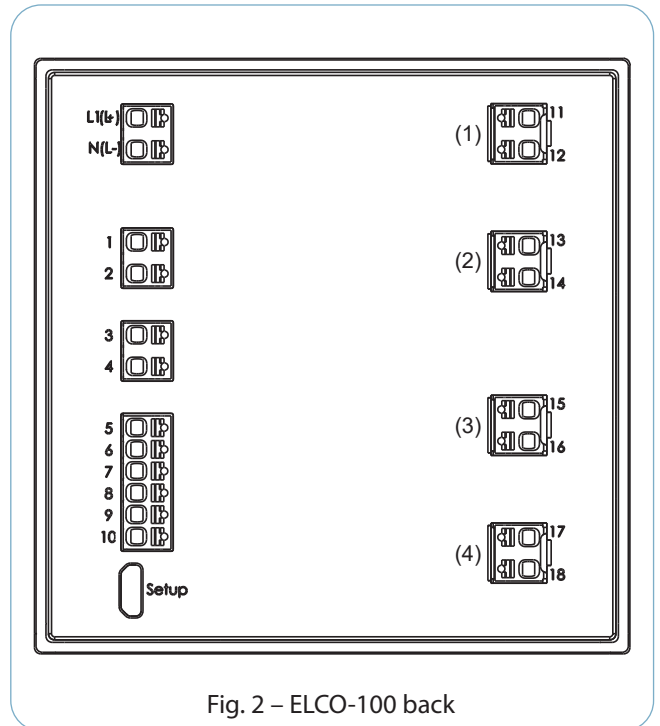


Fig. 2 – ELCO-100 back

Wiring the PT100 sensor to the ELCO-100 Controller

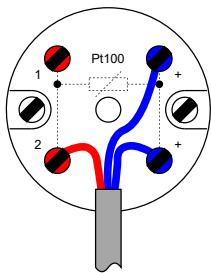


Fig. 3 – PT-100 sensor wiring

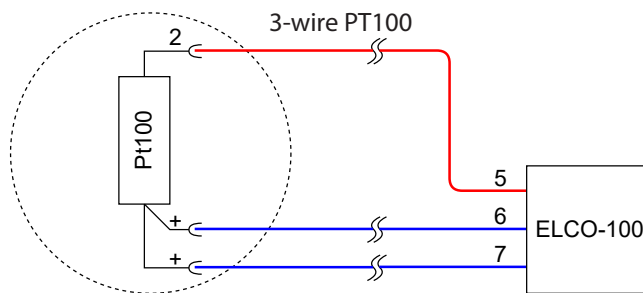


Fig. 4 – PT-100 sensor wiring to ELCO-100

Wiring the current-loop transmitter to the ELCO-100 Controller

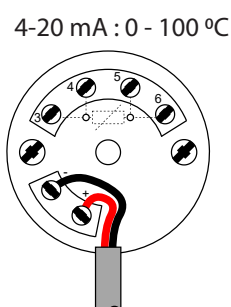


Fig. 5 – Current-loop sensor wiring

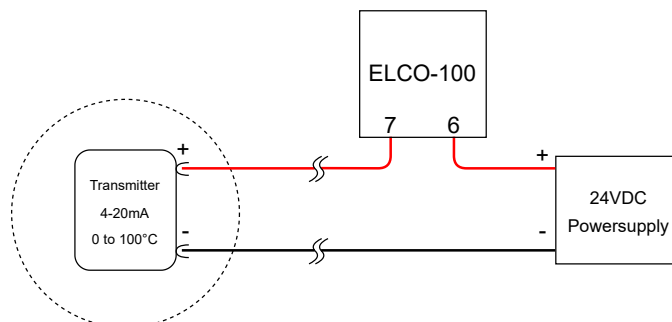


Fig. 6 – Current-loop sensor wiring to ELCO-100

Contents

Application example 1:	Set analog Input type: 4...20mA	3
Application example 2:	Set analog Input type: 3w RTD temp. probe	4
Application example 3:	Set control type	4
Application example 4:	Set analog output: 4...20mA	5
Application example 5:	Setup control for heating/cooling applications	5
Application example 6:	Change PI-controller parameters	6

Application example 1. – Set analog Input type: 4...20mA

Set the analog input to 4...20mA.

This example is applicable for Frese temperature sensors with the following numbers.

Type: **58-8965, 58-8966, 58-8967, 58-8968**

1. Press "OK" – Enters Menu
2. Scroll down to "-> Configuration" – Press "OK."
3. Scroll down to "-> Analog input" – Press "OK."
4. Press "OK" to change signal type.
5. Change signal type to "-> 4...20mA" – Press "OK."
6. Scroll down to Linearization – Press "OK."
7. Change to "->Linear" – Press "OK."
8. Scroll down to Scaling start – Press "OK."
9. Change scaling to "->0.0" – Press "OK."
10. Scroll down to Scaling End – Press "OK."
11. Change Scaling to "->100.0" – Press "OK."
12. Scroll down to Temperature – Press "OK."
13. Change to "->Absolute" – Press "OK."



Application example 2. – Set analog Input type: 3w RTD temp. sensor

Set the analog input to 3w RTD temp probe.

This example is applicable for Frese temperature sensors with the following numbers.

Type: **58-8961, 58-8962, 58-8963, 58-8964**

1. Press "OK" – Enters Menu
2. Scroll down to "-> Configuration" – Press "OK."
3. Scroll down to "-> Analog input" – Press "OK."
4. Press "OK" to change signal type.
5. Change signal type to "-> 3w RTD temp probe." – Press "OK."
6. Scroll down to Linearization – Press "OK."
7. Change to "->Pt100" – Press "OK."



Application example 3. – Set control type

Set control type to 3-P step controller (3-point actuator control) or Continuous (4-20mA control)

This is applicable for Frese Rotary Actuators ROL-series.

1. Press "OK" – Enters Menu
2. Scroll down to "-> Configuration" – Press "OK."
3. Scroll down to "-> Controller" – Press "OK."
4. Scroll down to "-> Controller config" – Press "OK."
5. Change configuration to "-> 3-P step controller" for 3-point control or "Continuous" for 4-20mA – Press "OK."
6. Scroll down to Linearization – Press "OK."
7. Change to "->Linear" – Press "OK."



Application example 4. – Set analog output: 4...20mA

Set the analog output to 4...20mA.

This is applicable for Frese Rotary Actuators ROL-series.

1. Press "OK" – Enters Menu
2. Scroll down to "-> Configuration" – Press "OK."
3. Scroll down to "-> Analog output" – Press "OK."
4. Press "OK" to change signal type.
5. Change signal type to "-> 4...20mA" – Press "OK."



Application example 5. – Setup control for heating/cooling applications

Set the control mode to heating (default) or cooling

1. Press "OK" – Enters Menu
2. Scroll down to "-> Configuration" – Press "OK."
3. Scroll down to "-> Controller" – Press "OK."
4. Scroll down to "-> Controller config" – Press "OK."
5. Scroll down to Control direction – Press "OK."
6. Change to "->Direct" for cooling – Press "OK."

Inverse: Controller will increase the output signal for a higher temperature/input signal.

Direct: Controller will decrease the output signal for a higher temperature/input signal.



Application example 6. – Change PI-controller parameters

Changing of PI controller settings to fit a specific actuator

1. Press "OK" – Enters Menu
2. Scroll down to "-> Parameterization" – Press "OK."
3. Press "OK" to enter 1. Parameter Block
4. Press "OK" to change "->PID" to "->PI"
5. Scroll down to Xp1 Proportional band – Press "OK."
6. Change Xp1 to "->40.0" – Press "OK."
7. Scroll down to Tn1 Reset time – Press "OK."
8. Change Tn1 to "->300.0" – Press "OK."
9. If using a 3-Point actuator, scroll down to TT Actuator time – Press "OK."
10. Change TT according to the running-time table below – Press "OK."



Recommended PI-controller setup

"P" stands for Proportional. The "P" creates an output signal proportional to the **magnitude** of the error signal.

"I" stands for Integral. The "I" creates an output proportional to the **duration** and **magnitude** of the error signal.

The two parameters must be in balance:

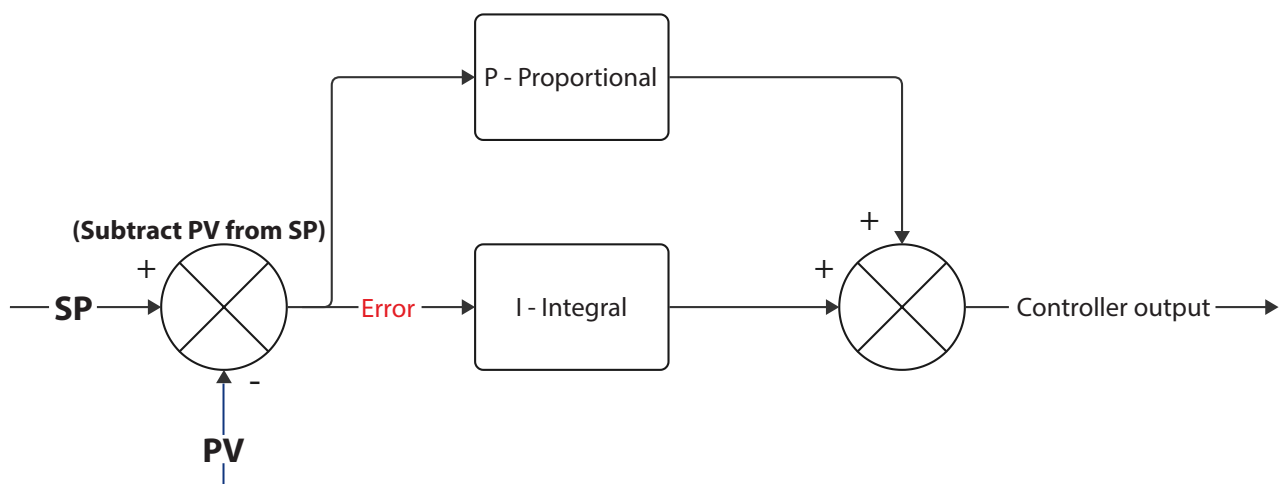
- "I" becomes active when there are rapid and significant temperature changes.
- "P" becomes active in response to substantial temperature errors.

Recommended **Xp1** value is around **40**. If the temperature correction is too slow, lower this parameter to e.g. **30**.

Recommended **Tn1** value around **300**. This translates to **300** seconds response time. If the system does not reach the setpoint within x amount of time, this value should be reduced, but never lower than **100** seconds.

If the **Tn1** value is set too low, the actuator will under and overshoot the setpoint, leading to erratic behavior..

Please note: The gain factor "P" is smaller, the bigger the **Xp1** value is.



Actuator running time

Running time: **ONLY 3-point actuators.**

Type	Running time 90° - 50 / (60) Hz
58-8936	17 / (14)
58-8937	
58-8938	
58-8939	
58-8940	
58-8941	
58-8942	
58-8943	
58-89A009-XXXX	17 / (14)
58-89A015-XXXX	20 / (17)
58-89A028-XXXX	20 / (17)
58-89A060-XXXX	29 / (24)
58-89A100-XXXX	29 / (24)
58-89A200-XXXX	87 / (72)
58-89A250-XXXX	87 / (72)
58-89A300-XXXX	116 / (96)



www.frese.eu/marine

Denmark - Main Office

Frese A/S
Tel: +45 58 56 00 00

Germany

Frese Armaturen GmbH
Tel: +49 (0)241 475 82 333

United Kingdom

Frese Ltd
Tel: +44 (0) 1704 896 012

Turkey

Frese Eurasia DIS TIC. LTD. STI.
Tel: +90 216 580 93 60

China

Frese Valves (Ningbo) Co., Ltd.
Tel: +86 (21) 5110 3212

Saudi Arabia

Frese Saudi Arabia
Tel: +966 5410 25 405

Australia & New Zealand

Frese Asia Pacific
Tel: +61431 794 414

South Africa

Frese Asia Pacific
Tel: +61431 794 414