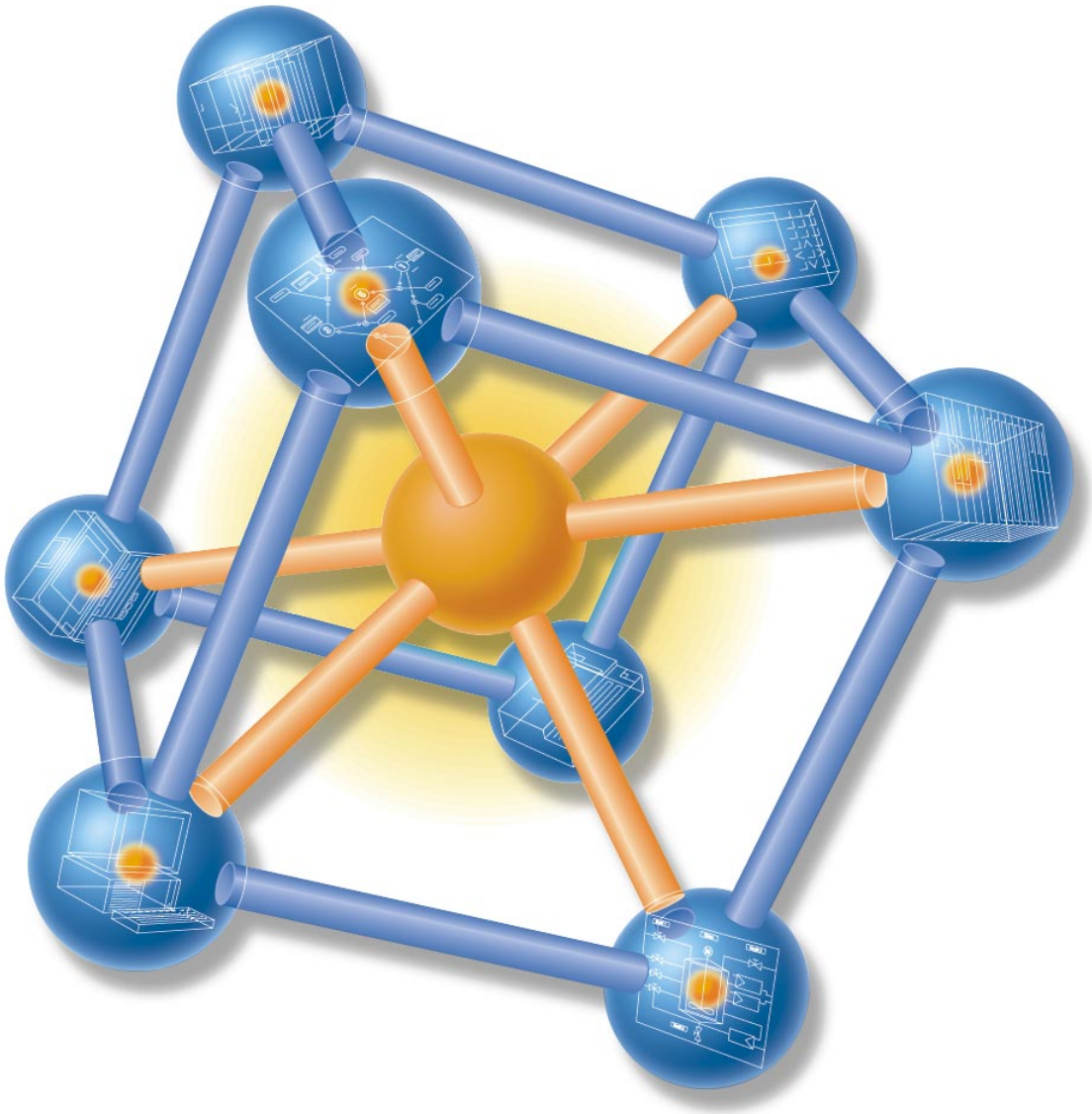
SIMATIC

FM 355-2 C

Getting Started Version 04/2002

Getting started with commissioning



Using a practical example, this Getting Started is a step-by-step guide showing you how to create a fully functional application for the temperature controller FM 355-2 C. You will learn how to use the basic software and hardware functions of your FM 355-2 C.

You will require approximately one to two hours for wiring and controller tuning, depending on your experience.

Prerequisites

Prerequisite is:

- You have installed and wired an S7-300 station, consisting of a power supply module and a CPU.
- You have installed STEP 7 (≥ V5.1 SP4) on your PG.
- You have created a project for your S7-300 station.
- The PG is connected to the CPU.
- You have an FM 355-2 C module, the corresponding configuration package and the other accessories required, e.g. bus connector (supplied with FM 355-2 C), front connectors and wiring material.

FM 355-2 C installation and wiring

Plug the bus connector supplied with your FM 355-2 C into the bus connector on the CPU. Hang the FM 355-2 C onto the profile rail, swing it down and then screw-tighten it (Refer to the manual “Temperature controller FM 355-2, Chapter 3).

Warning

Special rules and regulations must be observed for the operation of an S7-300 in plants or systems, depending on the area of use.

Please observe current regulation on safety and accident prevention, e.g. IEC 204 (EMERGENCY-OFF devices).

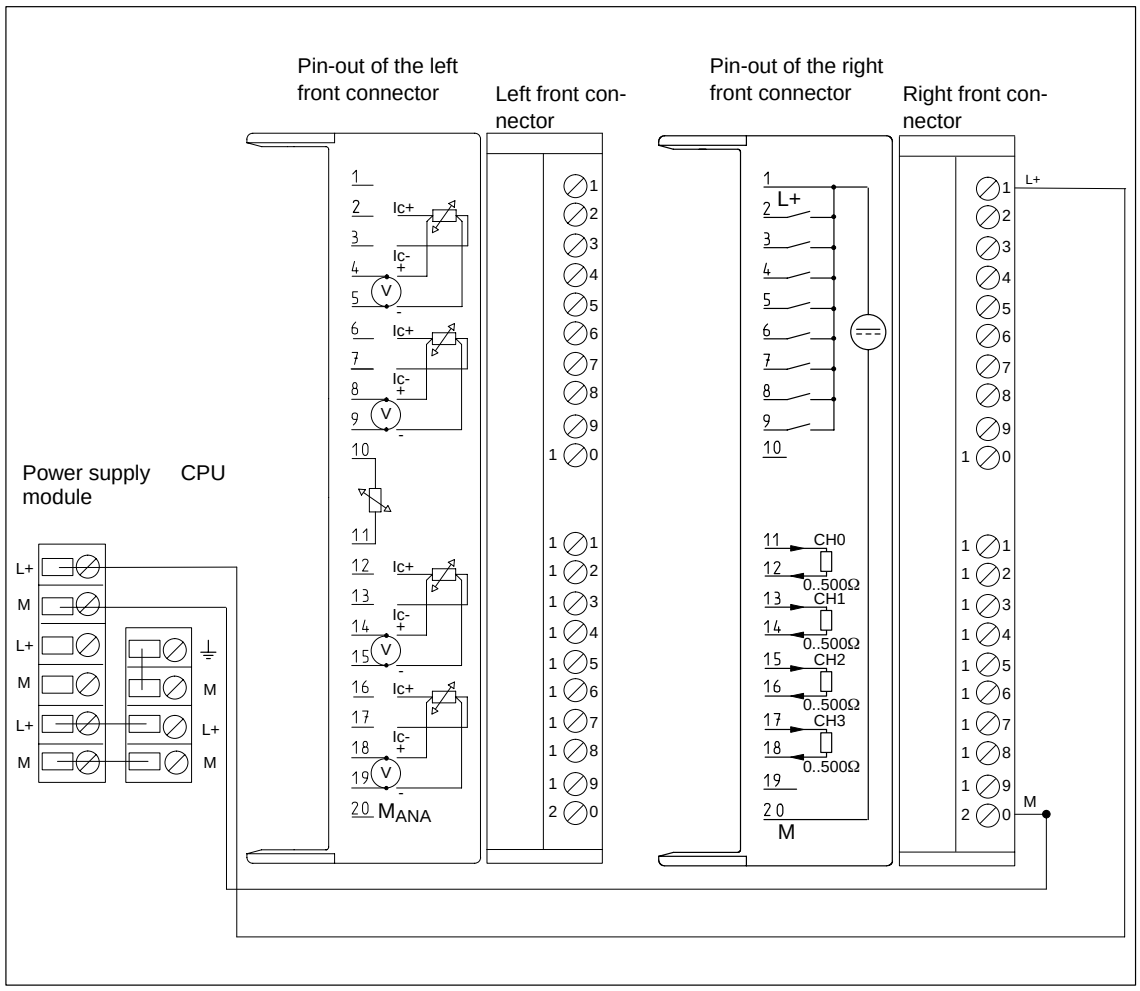
Serious injury and damage to machines and equipment is to be expected if these regulations are neglected.

Warning

You could come into contact with live lines if the power supply module PS 307 is switched on or if the PS is connected to power.

Always wire the S7-300 in power off state!

As we shall only simulate the process in this example, you merely need to wire the power supply to the front connector as shown in the Figure.



Insert the front connector into the FM 355-2 C and interlock it.

1st step: Installing the sample project and the configuration software

In the following	Task	Result:
1	Open the SETUP directory on your CD. Double-click on SETUP.EXE to start program installation.	Program installation starts.
2	Follow the setup instructions.	

2nd step: Implementation in the user program

In the following	Task	Result:
1	In SIMATIC-Manager, select File > Open... > Sample projects to open the project “zEn28_01FMTemp” from the catalog \Siemens\STEP7\Examples.	A split window appears, showing the project title.
2	Copy the station “Closed-loop controller FM 355-2 C” to your user project.	The right window displays the “Hardware” and “CPU 315-2DP” folders.
3	If you have another CPU: • Double-click on the “Hardware” folder and replace the 315-2DP CPU with your CPU type. Be careful not to delete the assigned program while doing this. • Open HW Config and execute Station > Save and compile . • In HW Config, execute PLC > Download to module . • In the SIMATIC Manager, move the “S7 program” to your CPU (cut and paste with the right mouse button). • In HW Config, once again execute Station > Save and compile . • Close HW Config.	
4	In the SIMATIC Manager, click on the station “Closed-loop controller FM 355-2 C” and download it to your CPU under PLC > Download to CPU (CPU in STOP mode).	Your program and the configuration data are downloaded from the PG to the CPU.
5	Switch the CPU to RUN-P mode.	

3rd step: Controller tuning

In the following	Task	Result:
1	Click on the station “Closed-loop controller FM355-2 C” in your project.	The right window displays the “Hardware” and “CPU 315-2DP” folders.
2	Double-click on “Hardware”.	HW Config opens
3	Double-click on the FM 355-2 C.	The FM 355-2 C configuration software opens.
4	Go to Test > Controller tuning > Open instance DB... and double-click on instance DB 52 to open the temperature control wizard	The curve recorder and the step (1/5) “Getting ready for tuning” are opened in the wizard.
5	Using the curve recorder, verify transient state of the manipulated/actual value and then click on “Continue”.	Step (2/5) “Define controller type” is opened.
6	Configure the “PID Parameters” and click on “Continue”.	Step (3/5) “Type of process excitation” is opened.
7	Set “Tuning with approach to the operating point by means of setpoint jump” and click on “Continue”.	Step (4/5) “Start process excitation” is opened.

In the following	Task	Result:
8	Set the operating point to 90 and the manipulated value difference to 80. Click on “Continue”.	Step (5/5) “Tuning status and result” is opened. You can monitor the effect on the actual value on the curve recorder.
9	Monitor the process on the curve recorder.	
10	Press the “Close” button to close controller tuning.	The wizard is closed.

4th step: Testing the controller by means of loop monitor and curve recorder

In the following	Task	Result:
1	Open the loop monitor under Test > Loop monitor > 1 DB52 CHANNEL=0 FMT_PID	The loop monitor is opened.
2	• Move the loop monitor next to the curve recorder. • Enter the value 40 in the “Setpoint” box. • Press the “Send” button.	You can monitor the control process on the curve recorder and in the loop monitor.

Diagnostics

Errors can occur due to wrong parameter assignment, faulty wiring or disturbances on the measurement transducer. The FM 355-2 C displays these errors on a group error message LED.

Refer to Chapter 12 of the manual “Temperature controller FM 355-2” for information on error diagnostics.

Examples

The zEn28_01FMTemp project contains more examples that you can use for orientation and that you can adapt to your application (refer to the manual “Temperature controller FM 355-2”, Chapter 13).

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