

OFFICIAL MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

6ES7144-1JB31-0XB0

Siemens official documentation for the exact article number.

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7.21.1 Parameters of the analog inputs and outputs

Parameter assignment

You set the parameters of the analog inputs/outputs using either the *STEP 7* or *COM PROFIBUS* parameter assignment software.

Parameters

The tables below give an overview of the parameters that you can set for the analog inputs and analog outputs.

You can find the layout of the parameter assignment frame and the assignment of the bits including the parameters of the analog inputs and outputs in the **configuration and parameter assignment frame of the ET 200X** at <http://www.ad.siemens.de/simatic-cs>. In Section 5.4 you will find the parameterizable diagnostics and in Section 5.5 you will find an in-depth description of diagnostic and hardware interrupt handling.

Table 7-41 Parameters of analog inputs

Expansion modules with	Parameters	Range	Default	Area affected
All	Format	SIMATIC S7 format/ SIMATIC S5 format	SIMATIC S7 format	Expansion Module
All	Enable - Diagnostic interrupt - Hardware interrupt upon limit value violation	Yes/no Yes/no	No No	Expansion module
All	Diagnosis Group diagnosis	Yes/no	No	Channel
EM 144 AI 2 × I (6ES7 144-1GB31-0XB0 and 6ES7 144-1GB41-0XB0) EM 144 AI 2 × RTD (6ES7 144-1JB31-0XB0)	Diagnosis With wire break check	Yes/no	No	Channel
EM 144 AI 2 × I (6ES7 144-1GB31-0XB0)	Measuring range	20 mA/4 to 20 mA	4 to 20 mA	Channel
EM 145 AO 2 × I (6ES7 145-1GB31-0XB0)	Measuring range	20 mA/4 to 20 mA	4 to 20 mA	Channel
All	Reset time ¹	16.7 ms/20 ms	20 ms	Channel (module channels must be identically set)

Connecting Pt 100 resistance thermometers

The resistance thermometers are measured in a four-conductor connection. Constant current is fed to the resistance thermometers via connections I_{C+} and I_{C-} . The voltage generated at the resistance thermometer is measured via connections $M+$ and $M-$. This ensures highly accurate measurement results with the four-conductor connection. The figure below shows how resistance thermometers are connected to an EM 144 AI 2 × RTD expansion module.

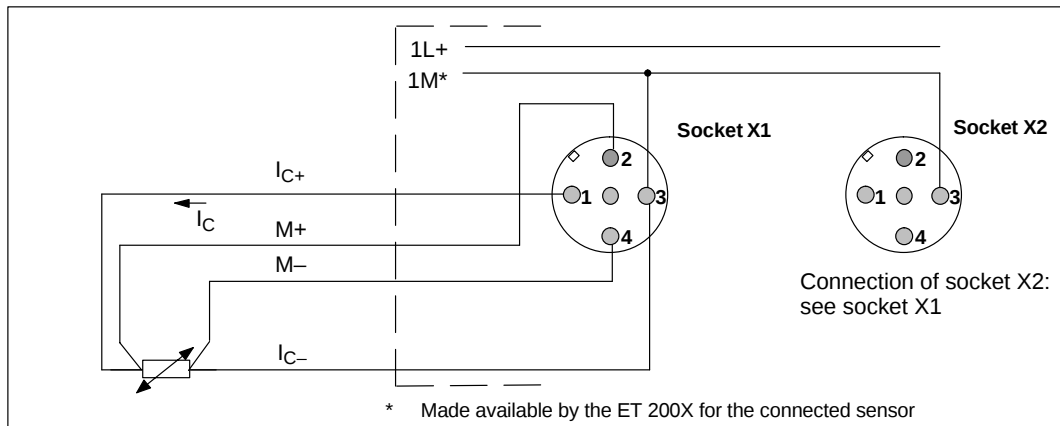


Figure 7-28 Connection of resistance thermometers to EM 144 AI 2 x RTD (EM with order number 6ES7 144-1JB31-0XB0)

In the case of a two- or three-wire connection, you have to create appropriate bridges in the connector to form connections between $M+$ and I_{C+} and $M-$ and I_{C-} on the expansion module. However, you must reckon with a loss of accuracy in the measurement results.

7.21.8 Connecting loads to the analog outputs

When you use expansion modules with analog outputs, you can supply loads/actuators with current or voltage.

Abbreviations used

The following abbreviations are used in the figures in this section:

Q_I :	Analog output current
Q_V :	Analog output voltage
1M:	Frame connection/reference potential of the analog circuit
R_L :	Load/actuator

Connecting loads to a voltage output

You have to connect loads to a current output at Q_V and the reference point of the analog circuit 1M (see Figure 7-29).