

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS SIMATIC S7

6ES7650-8AK60-0AA0

16-CHANNEL ANALOG INPUT MODULE

Used with the applicable SIMATIC ET 200PA SMART configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens official product documentation

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10.1 Module overview

The following I/O modules are available in the ET 200PA SMART system:

Module	Article no.	Article no. (with conformal coating)
Digital input module DI16xDC24V	6ES7650-8DK70-0AA0	6ES7650-8DK70-1AA0
Digital input module DI32xDC24V	6ES7650-8DK80-0AA0	6ES7650-8DK80-1AA0
Digital output module DO16xDC24V/0.5A	6ES7650-8EK70-0AA0	6ES7650-8EK70-1AA0
Digital output module DO32xDC24V/0.5A	6ES7650-8EK80-0AA0	6ES7650-8EK80-1AA0
Analog input module AI8x13Bit	6ES7650-8AE60-0AA0	6ES7650-8AE60-1AA0
Analog input module AI8x16Bit	6ES7650-8AK60-0AA0	6ES7650-8AK60-1AA0
Analog input module AI16x16Bit	6ES7650-8AK70-0AA0	6ES7650-8AK70-1AA0
Analog input module AI8xTC/4xRTD	6ES7650-8AR60-0AA0	6ES7650-8AR60-1AA0
Analog input module AI 8 x 16-bit HART ¹	6ES7650-8AT60-0AA0	6ES7650-8AT60-1AA0
Analog output module AO8x12Bit	6ES7650-8BK60-0AA0	6ES7650-8BK60-1AA0
Analog output module AO 8 x 16-bit HART ¹	6ES7650-8BT60-0AA0	6ES7650-8BT60-1AA0

¹ Available as of PCS 7 V9.0 SP2 and the corresponding update collection

In addition to the ET 200PA SMART I/O modules specified in this table, the following modules can also be used in an ET 200PA SMART system.

- Numerous S7-300 standard I/O modules and HART analog modules that are also approved for use in an ET 200PA SMART in the list of released modules PCS 7 (as of V8.1).
- Numerous counter modules and point-to-point couplings which are also approved for use in an ET 200PA SMART in the list of released modules PCS 7 (as of V8.1).

If you are using modules from the S7-300 series of modules, you can find information for them in the following manuals:

- Automation System S7-300, Module Data (<http://support.automation.siemens.com/WW/view/en/8859629>)
- ET 200M, Signal Modules for Process Automation (<http://support.automation.siemens.com/WW/view/en/7215812>)
- ET 200M Distributed I/O Device HART Analog Modules (<http://support.automation.siemens.com/WW/view/en/22063748>)

10.4.2 Analog input module AI 8 x 16 Bit

Article numbers

Standard module: 6ES7 650-8AK60-0AA0

Module with conformal coating: 6ES7 650-8AK60-1AA0

Properties

The analog input module AI 8 x 16 Bit is characterized by the following properties:

- 8 inputs and 8 outputs (for supplying of 2-wire transducers)
- HART conforming
In non-redundant operation, connection of a resistance of approximately 100 in series with the transducer is recommended.
- Resolution of 15 bits + sign (regardless of integration time)
- Setting of the transducer for each module (via a jumper at terminals 10 and 11):
 - 2-wire transducer current, only in measuring range 4 ... 20 mA
 - 4-wire transducer current
- Configurable measuring range for each channel
 - 0 ... 20 mA
 - ± 20 mA
 - 4 ... 20 mA
- Configurable smoothing for each channel
- Configurable integration time/interference frequency suppression for each channel
- Configurable diagnostics
- Configurable diagnostic interrupt
- Electrical isolation
 - Channels electrically isolated for 4-wire transducer to load voltage L+
 - Channels electrically isolated from IM 650
- Group error display (SF LED)
- Configuration in Run (CiR) supported

Wiring and block diagrams of the AI 8 x 16 Bit with 2-wire transducer operation

If the module is used for 2-wire transducer operation, a jumper must be inserted between terminals 10 and 11. This activates the short-circuit-protected transducer supply of the module and implements the jumpering at the analog input.

All channels of the module operate in 2-wire transducer mode in this case. This is shown in the figure below using channel 0 as an example.

The parameter assignment is made via HW Config as "2WMT current"