

Overview



The modules with HART (Highway Addressable Remote Transducer) which can be used in ET 200M remote I/O stations (with IM 153-2 High Feature interface module) permit connection of HART devices to SIMATIC PCS 7 automation systems.

All transmitters or HART actuators certified for digital communication using the HART protocol can be connected via these modules.

Conventional transmitters with 4 to 20 mA technology without HART protocol can also be connected.

All modules with HART come with diagnostics capability (channel and module diagnostics). The diagnostics and monitoring functions are directly available in SIMATIC PCS 7. They require no additional engineering. Plain text messages output on the operator station provide information on faults or changes in the HART parameter settings.

Homogenous integration in the SIMATIC Process Device Manager (PDM) and the PCS 7 Asset Management permit intuitive online diagnostics and parameterization of all connected field devices from a central position.

Function

HART is a serial transmission procedure with which additional parameter data such as measuring ranges, attenuation etc. can be sent to transmitters and actuators over a 4 to 20-mA current loop. The HART jobs for each channel can be remotely initiated over the PROFIBUS DP. This usually takes place from the central engineering system of the SIMATIC PCS 7 process control system per SIMATIC PDM.

The modules with HART have the following features:

- Connections compatible with the conventional analog modules of the ET 200M
- Additional communications possibility over the current loop
- 8 analog channels per module (2 analog channels with Ex modules)
- Each channel is a primary master of the HART protocol
- Selectable input range per channel (AI):
 - 0 to 20 mA (without HART function)
 - \pm 20 mA (without HART function, not with Ex module)
 - 4 to 20 mA (with/without HART function)
- Selectable output range per channel (AO):
 - 0 to 20 mA (with/without HART function; in the case of Ex module, only without HART function)
 - 4 to 20 mA (with/without HART function)

Additional functions of the HART analog modules 6ES7 331-7TF01-0AB0 and 6ES7 332-8TF01-0AB0:

- Supplementary HART variables (up to 4 per channel, up to 8 per module) allow the transmission of additional values from/to the HART devices
- Modules can be operated in redundant mode (module and channel redundancy)

Parameterization

- For the analog input modules (AI), it is possible to parameterize e.g. conversion time, input range, limits, alarms, smoothing of measured values
- For the analog output modules (AO), it is possible to parameterize e.g. output range, response on stoppage of AS (CPU), diagnostics
- Remote parameterization (per PROFIBUS DP) of the HART transmitters and actuators with SIMATIC PDM
- It is still possible to parameterize the HART devices using an operator terminal (handheld).

Process I/O

ET 200M distributed I/O

Modules with HART

Technical specifications

You can find the detailed technical data of the modules with HART at the following points:

- Catalog IK PI (Catalog Section "Distributed I/Os") or
- on the Mall/CA 01 under "Distributed I/Os / ET 200M"

Selection and Ordering Data

Order No.

SM 331 HART analog input module Redundant design possible (module and channel redundancy) 8 inputs, 0/4 to 20 mA or ± 20 mA <ul style="list-style-type: none"> • Resolution: 15 bit + sign • Connection of 2-wire or 4-wire transmitters possible • HART (2-wire or 4-wire) • Wire break monitoring • Short-circuit-proof • Front connector required: 20-contact 	6ES7 331-7TF01-0AB0 B)
SM 332 HART analog output module Redundant design possible (module and channel redundancy) 8 outputs, 0/4 to 20 mA <ul style="list-style-type: none"> • Resolution: 15 bit + sign • For 2-wire actuators • HART (2-wire) • Wire break monitoring • Front connector required: 20-contact 	6ES7 332-8TF01-0AB0 B)
Ex analog input module with HART [EEx ib] 2 inputs, 0/4 to 20 mA in 2 channel groups <ul style="list-style-type: none"> • Individually floating channels • Resolution: 15 bit + sign • Connection of 2-wire or 4-wire transmitters possible • Wire break monitoring • Short-circuit-proof • HART (2-wire or 4-wire) • Front connector required: 20-contact 	6ES7 331-7TB00-0AB0 B)
Ex analog output module with HART [EEx ib] 2 outputs, 0/4 to 20 mA in 2 channel groups <ul style="list-style-type: none"> • Individually floating channels • Resolution: 12 bit + sign • For 2-wire actuators • Wire break monitoring • HART • Front connector required: 20-contact 	6ES7 332-5TB00-0AB0 B)

B) Subject to export regulations: AL: N, ECCN: EAR99H