



Symphony Plus SD Series HART I/O: HAI805 and HAO805

Symphony Plus

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Symphony® Plus is the new generation of ABB's widely acclaimed Symphony family of distributed control systems – the world's most widely used DCS in the power generation and water industries. In all, there are more than 6,500 Symphony DCS installations in operation all over the world, more than 4,500 of which are in power and water applications.

1 SD Series HART I/O: HAI805 and HAO805



No other automation platform has such a long field record and large installed base in power and water applications as Symphony. For more than 30 years, ABB has evolved the Symphony family, ensuring that each new generation enhances its predecessors and is backwardly compatible with them - all in accordance with ABB's long-held policy of 'Evolution without obsolescence.'

Included in Symphony Plus is a comprehensive suite of standards-based control and I/O hardware and software that meets the requirements of total plant automation. SD Series HART I/O modules, HAI805 and HAO805 provide connection between the Symphony® Plus controllers and intelligent devices using the HART communication protocol.

SD Series HART I/O modules scan and update the 4-20 mA primary and digital secondary variables to the controller for use in control strategies and higher level applications. In addition to producing tighter and more reliable process control solutions, these HART I/O modules lower system installation costs by reducing instrumentation requirements. System costs are further reduced by using S+ Engineering to configure and maintain HART field devices and control strategies.

Seamless intelligent field device integration

Symphony Plus controllers seamlessly integrates HART field devices through S+ I/O HAI805 and HAO805 HART modules. This allows access to a wide range of intelligent field devices including transmitters and actuators from ABB and other vendors.

In general, HART devices superimpose digital signals on top of the standard 4-20 mA signal it communicates, providing the possibility to deliver much more device or process data to the control system than conventional 4-20 mA field devices. Whereas most HART I/O modules utilize a common HART modem or multiplexer for the entire module, thereby limiting use of the data to the HMI level only, HAI805 and HAO805 modules have dedicated HART modems for each I/O channel. This allows for better signal isolation and faster processing, and it makes the secondary, tertiary and quaternary digital variables available for use in real-time control applications.

HAI805 and HAO805 features include:

- HAI805 (8 analog input channels)
- HAO805 (8 analog output channels)
- Dedicated HART modem for each I/O channel
- Each channel's secondary/tertiary/quaternary variables are available for use in control applications
- Update rate of secondary/tertiary/quaternary variables is less than one second

Symphony Plus controllers connect to S+ HART I/O via HN800 redundant communications. HAI800 and HAO805 modules can be located up to 3 km away from the controller using fiber optic repeaters. Figure 2 shows the connection between the HAI805 and HAO805 HART modules and the HPC800 controller from S+ Control family.

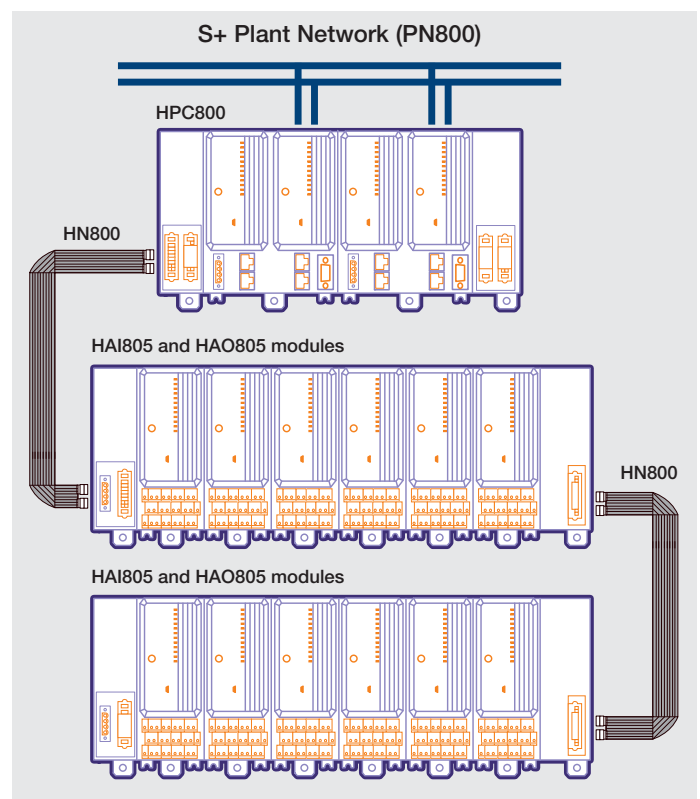
Data accessible by control application

Besides the 4-20 mA primary variable, all secondary, tertiary and quaternary variables in a HART device can be accessed by Function Code control applications in a Symphony Plus controller. Real-time use of this data is practical because of the modules' individual HART modem per channel design. Data can be calculated, used as part of a control strategy, or for display and alarming purposes at the S+ Operations console.

Field device management

HART devices are fully integrated with the Symphony Plus system, yielding benefits far beyond reduced footprint and cable costs. Within the S+ Engineering workbench, the Field Engineering tool supports configuration, commissioning and maintenance of HART devices using device type manager (DTM) technology. HART devices are integrated, configured and parameterized via standard HART protocol (and without the need for additional tools) by using a standard HART DTM. The individual device DTMs can be accessed from Composer's multiple data views, such as the system or location overview, and others.

2 Connection of HAI805 and HAO805 modules to HPC800 redundant controllers



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