System 800xA PLC HMI
Embedded connectivity in 800xA for PLC-type controllers

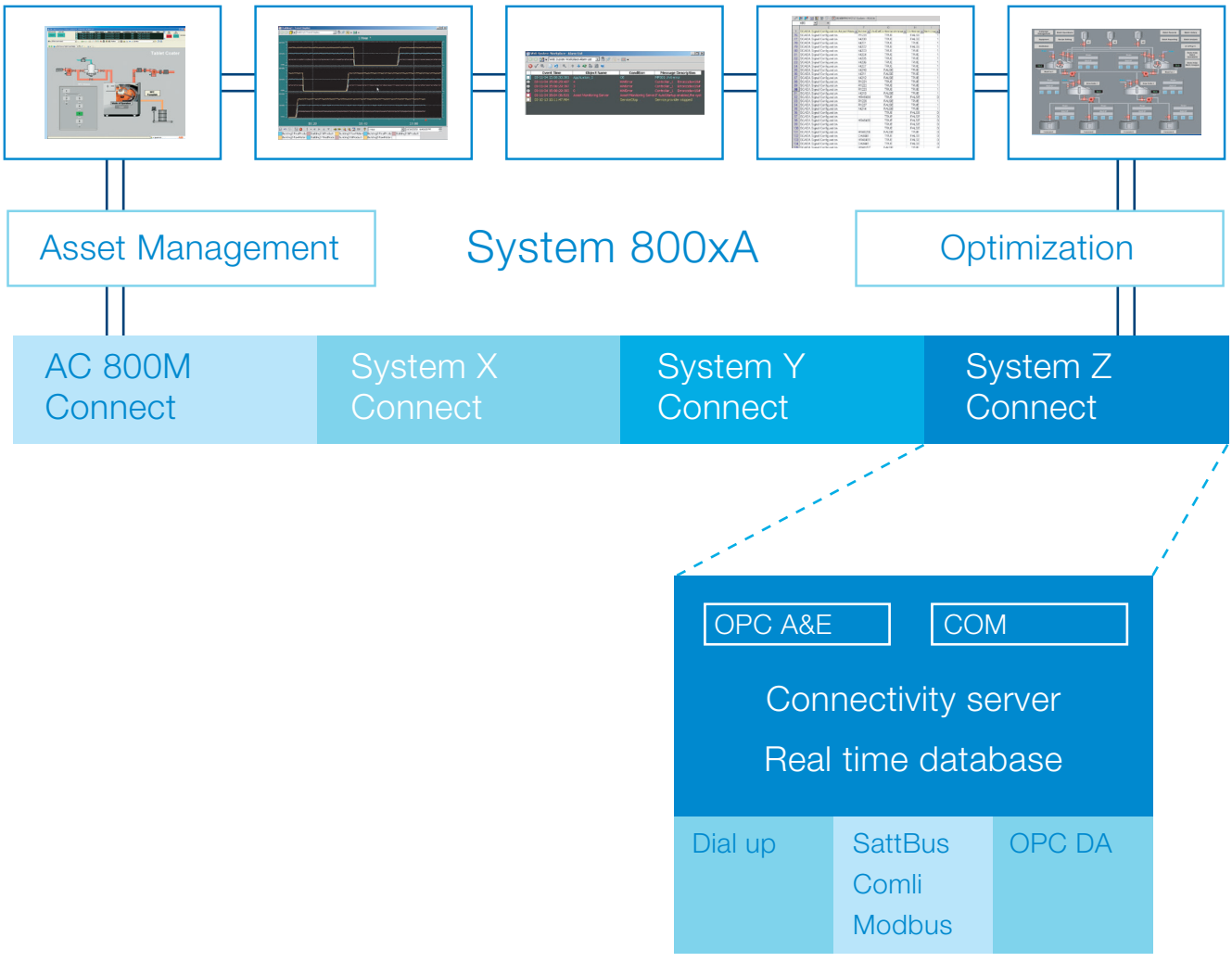
Power and productivity
for a better world™

System 800xA PLC HMI -embedded connectivity in 800xA for PLC-type controllers

System 800xA provides seamless supervision, control, operation and maintenance of all equipment and systems used in plant operation. This is provided by PLC Connect. PLC Connect is the functionality used to operate and control PLC-based control functions.

PLC Connect gives operators the same user experience for devices controlled by a PLC as for embedded System 800xA DCS controllers. This experience is based on patented Aspect Object technology, which brings real-time data, live video streams and any other type of asset information to the fingertips of personnel involved in plant operation.

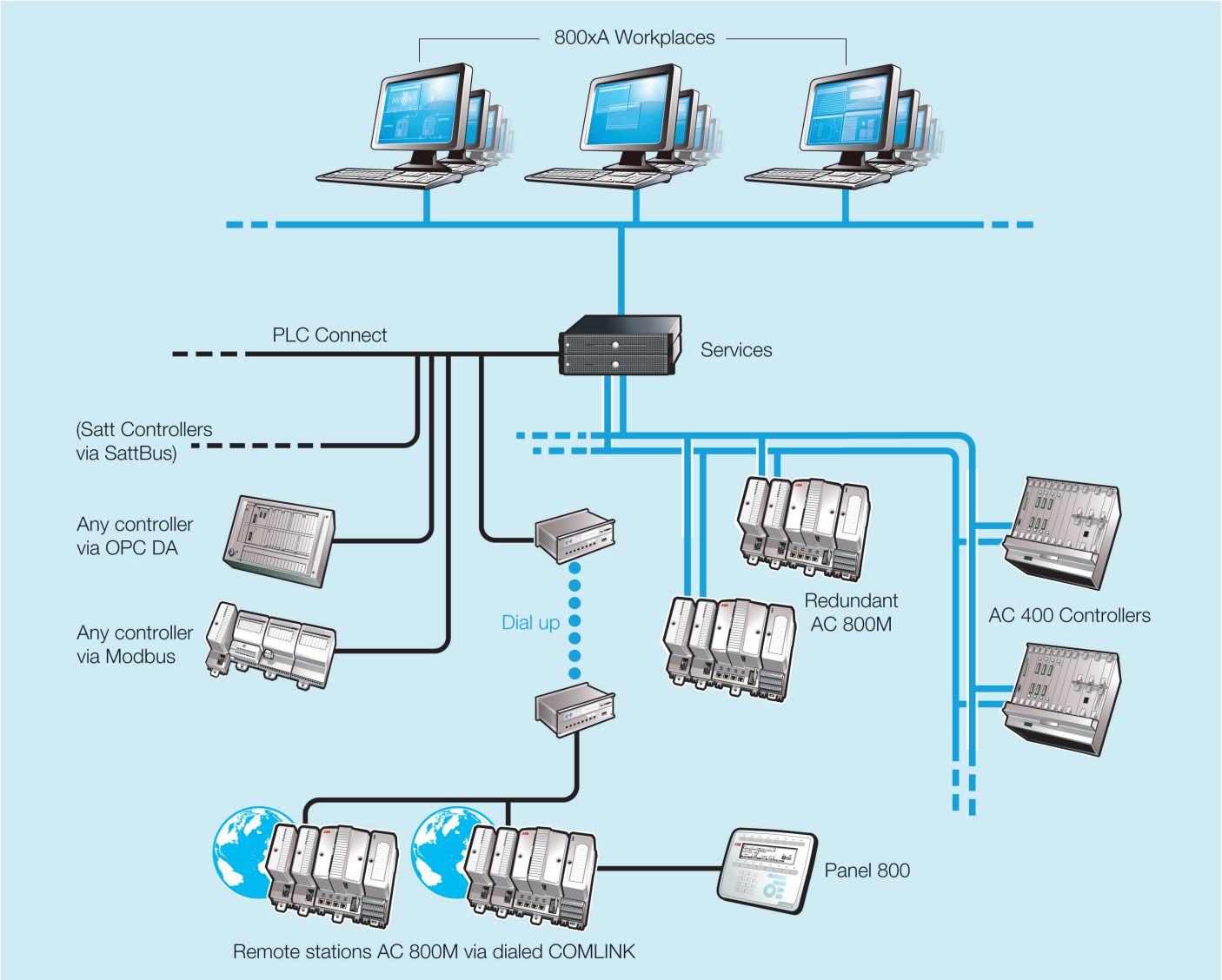
System 800xA offers a functional building-block approach to system design for all sizes and types of process application. It enables customers to add new functions and migrate to larger configurations as their needs grow, without compromising existing investments. The PLC Connect option provides integrated connectivity to 800xA for ABB and third-party PLC-type controllers.



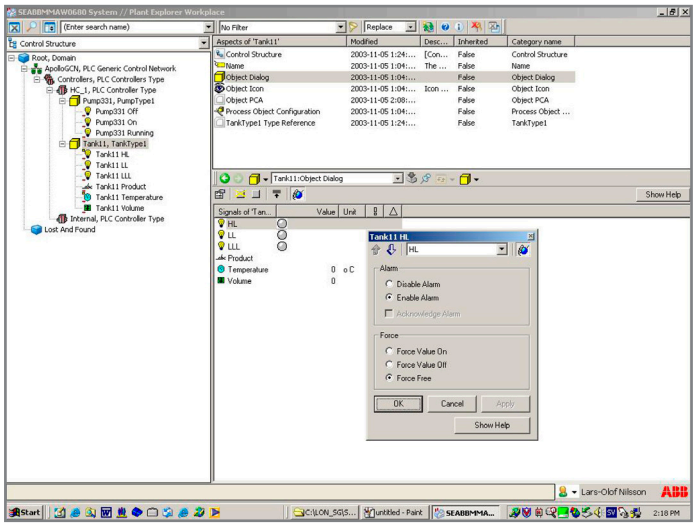
System 800xA PLC HMI is ABB´s connect for third-party controllerswith 800xA.

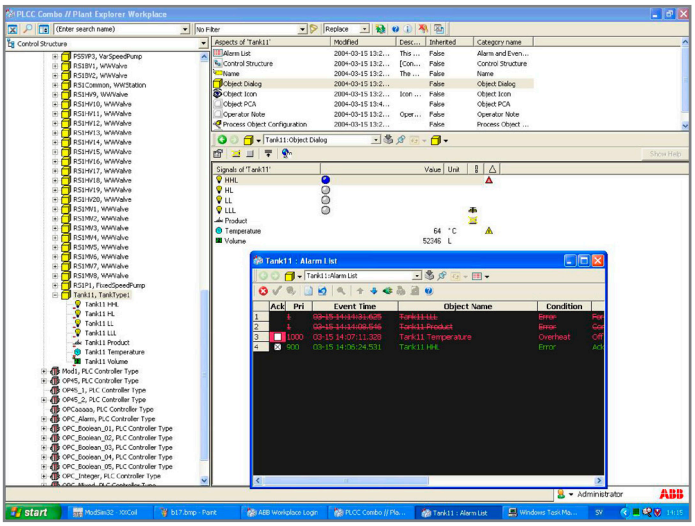
PLC Connect is a connectivity option for ABB's System 800xA. It tightly connects all ABB and third-party controllers, PLCs and RTUs with 800xA, providing typical DCS and PLC functionality in the same integrated system.

PLC Connect enables the remote connection of controllers and PLCs in single as well as redundant systems.



Uniform integration of different PLCs





PLC Connect integrates individual signals in any connected controller, PLC or RTU with 800xA system. Operators receive process data in the same graphics regardless of the type of controller or communication protocol used.

Objects and object types

PLC Connect provides a set of basic object types for PLC signals, as well as configuration tools for creating and editing your own PLC based plant objects.

Real-time database (RTDB)

All dynamic process data from connected controllers, PLCs and RTUs is stored in a real-time database. Current values and status are always available and constantly updated. Values are available directly, so you don't need to wait for the OPC server to set up subscriptions. Nor do you need a browser interface in third-party OPC servers.

Communication

PLC Connect has a built-in communication server for traditional PLC and RTU protocols, the built-in OPC DA client and Modbus RTU. It also includes a dial manager for remote communication with PLCs. Dialed communication with controllers supports Modbus RTU or Comli protocols and includes scheduled dialing and local time-stamping of dial-ins, as well as local storage of historical data.

Alarm handling

Alarms are generated in PLC Connect when a polled boolean variable from the controller changes state or when a polled analog value passes an alarm limit. The alarms can be time-stamped in the connected PLC.

Time-stamp functionality on alarms from the PLC is only supported for Comli and SattBus. (It applies for OPC only if the OPC server supports it, but is not configurable from PLC Connect).

Open interfaces

A number of open interfaces are available in PLC Connect for access by external applications. Real-time access for reading and writing process values is available through COM Methods. Application-specific pre-treatment calculations can be added for received process values as well as detected alarms and events.

We recommend using the messenger system extension. The OLE DB provider for alarm & event access is no longer part of PLC Connect due to changes in PPA.

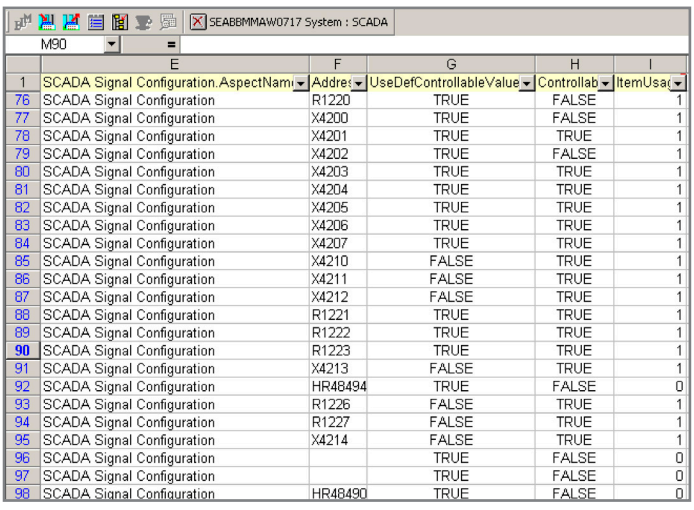
Engineering

The PLC Connect configuration aspect is used from the 800xA system Plant Explorer to create, organize and edit PLC-type objects in the Aspect Object directory. Bulk Data Manager in Engineering Workplace will efficiently create these objects for large applications. Engineering can be performed online or offline.

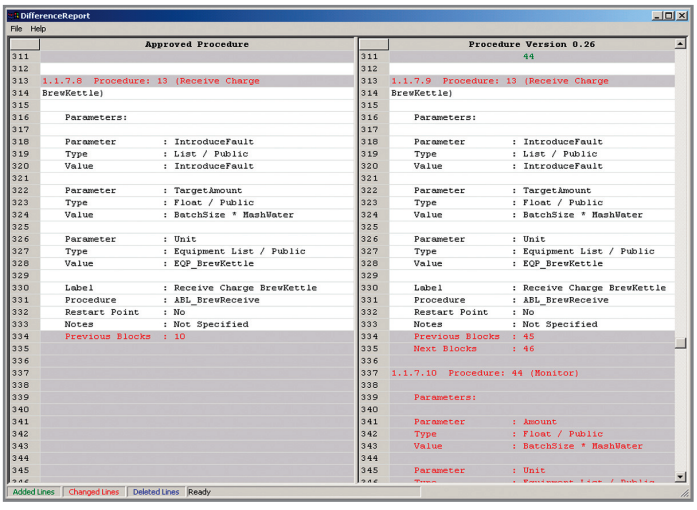
Data and performance	
Max. No. of connectivity servers	6
Redundancy for Aspect Server covering PLC Connect configuration data alarms & events	1 out of 2 and 2 out of 3 are supported
Max. No. of PLC Connect signal objects (large or medium-size system)	25,000
PLC Connect signal types	Boolean, integer, long integer, real, double, string
Max. No. of serial communication channels per connectivity server	32
Max. No. of DIALED serial communication channels per connectivity server (Option)	10
Time from changing a value in communication server until indication on screen (9.6 Kb)	Typical < 2 sec
Manual control: time from operator action to signal change in connected PLC (9.6 Kb)	Typical < 1 sec
Number of alarms/events that can be handled continuously	25 per sec
Built-in drivers (acting as Masters only)	Modbus RTU, Comli, SattBus TCP/IP, Modbus TCP/IP
OPC Client	Data Access 2.0
COM Interface	Read and write process values

Glossary

I/O	Input/Output
COM	Component Object Model
OLE	Object Linking and Embedding
OLE DB	OLE Database
OPC	OLE for Process Control
OPC A&E	OPC Alarm and Event
OPC DA	OPC Data Access
PLC	Programmable Logic Controller
RTU	Remote Terminal Unit
TCP/IP	Terminal Communication Protocol/Internet Protocol



	E	F	G	H	I
1	SCADA Signal Configuration.AspectNam	Addre	UseDefControllableValue	Controllab	ItemUsa
76	SCADA Signal Configuration	R1220	TRUE	FALSE	1
77	SCADA Signal Configuration	X4200	TRUE	FALSE	1
78	SCADA Signal Configuration	X4201	TRUE	TRUE	1
79	SCADA Signal Configuration	X4202	TRUE	FALSE	1
80	SCADA Signal Configuration	X4203	TRUE	TRUE	1
81	SCADA Signal Configuration	X4204	TRUE	TRUE	1
82	SCADA Signal Configuration	X4205	TRUE	TRUE	1
83	SCADA Signal Configuration	X4206	TRUE	TRUE	1
84	SCADA Signal Configuration	X4207	TRUE	TRUE	1
85	SCADA Signal Configuration	X4210	FALSE	TRUE	1
86	SCADA Signal Configuration	X4211	FALSE	TRUE	1
87	SCADA Signal Configuration	X4212	FALSE	TRUE	1
88	SCADA Signal Configuration	R1221	TRUE	TRUE	1
89	SCADA Signal Configuration	R1222	TRUE	TRUE	1
90	SCADA Signal Configuration	R1223	TRUE	TRUE	1
91	SCADA Signal Configuration	X4213	FALSE	TRUE	1
92	SCADA Signal Configuration	HR48494	TRUE	FALSE	0
93	SCADA Signal Configuration	R1226	FALSE	TRUE	1
94	SCADA Signal Configuration	R1227	FALSE	TRUE	1
95	SCADA Signal Configuration	X4214	FALSE	TRUE	1
96	SCADA Signal Configuration		TRUE	FALSE	0
97	SCADA Signal Configuration		TRUE	FALSE	0
98	SCADA Signal Configuration	HR48490	TRUE	FALSE	0



PLC Connect summary

System option PLC Connect adds a PLC interface to System 800xA. Although primarily intended for connection to third-party PLCs and controllers, it also applies to ABB controllers that lack a dedicated connect package. PLC Connect thus makes it possible to configure System 800xA as a hybrid DCS/PLC system HMI.

PLC Connect stores all process information in a real-time database before it is presented to operators. This benefit is particularly useful for slow or fragile connections since the database always keeps an image of all connected signals on the hard drive of the computer. PLC Connect supports OPC, serial and dialed communication.

The basic idea of PLC Connect is to give engineers the ability to create a logic, object-based environment in Plant Explorer independently of how the actual PLC structure looks. Collecting variables from a PLC and organizing them into object types enhances the overview and understanding of the system. Instead of viewing a flat variable list, operators instead see an intuitive object with attached I/O signals, just as if the controller was an AC 800M. The engineered functionality is inherited from the types to the instances.

This means that traditional system capabilities, typically requiring a large number of process IOs to be connected through a range of controllers from different manufacturers, can now be realized with System 800xA PLC Connect.

Products and solutions for many systems

System 800xA option PLC Connect is used for ad-hoc PLC integration with PLCs like Siemens S7 and Allen Bradley.

PLC Connect integrates ABB and third-party controllers with System 800xA[1].

Today, ABB also has a portfolio of evolution products and solutions for upgrading / connecting the following systems:

- Advant Master
- Safeguard 400 series
- Contronic
- Freelance
- Harmony
- Melody
- Advant MOD
- DCI System 6

[1] Examples of ABB controllers: AC 800M, AC 500.

A world of new opportunities

In addition to the solutions outlined in this brochure, we can add further support to help you connect your process control environment to System 800xA and access a whole new world of increased operator and engineering efficiency. We'll always "go the extra mile" to ensure the success of your evolution project.

ABB has the following third-party DCS-Connect solutions available:

- Emerson Delta V
- Honeywell Experion
- Honeywell TDC 3000
- Yokogawa Centum VP
- Siemens PCS 7
- Siemens Teleperm M
- Emerson Provox

OPC® FOUNDATION MEMBER

Contact us

www.abb.com/800xA
www.abb.com/controlsystems

Note:
We reserve the right to make technical changes to the products or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not assume any responsibility for any errors or incomplete information in this document.

3BSE076931 en B

Power and productivity
for a better world™