FEBRUARY 2017

Symphony Plus Control & I/O
General Product Update & Roadmap

Wayne Stefancin
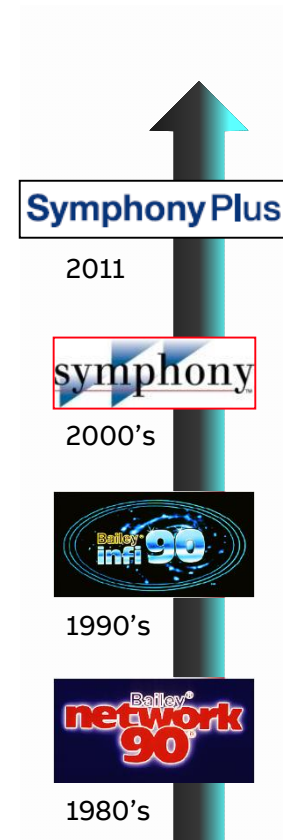
HR Series Control and I/O
Background: Rich history

Introduced in 1980, Network 90 was one of the leading DCS offerings on the market

INFI 90, INFI 90 OPEN, and Symphony Harmony are compatible technology upgrades from Network 90

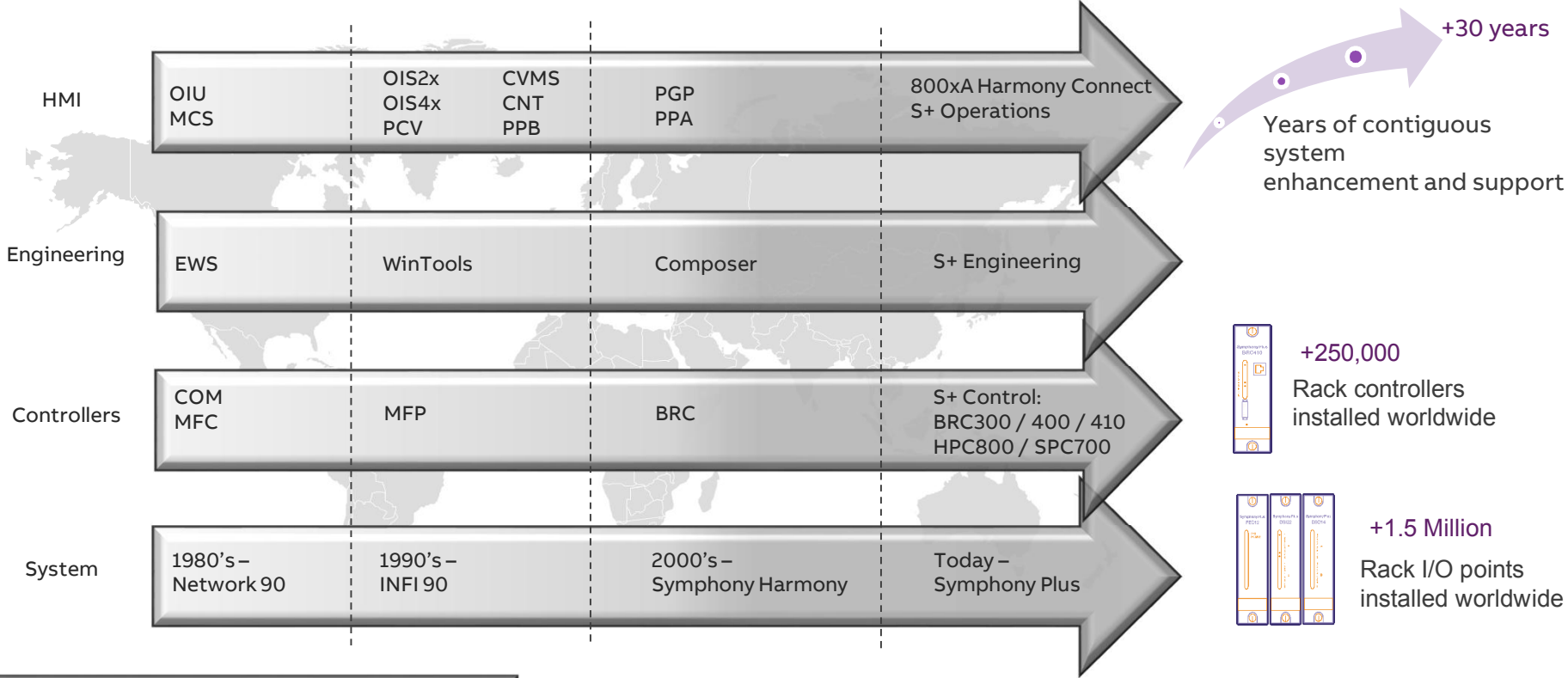Continued development and support on 30+ year commitment to our Customers

Now on the next step in its evolutionary path…**Symphony** Plus – Total plant automation

Evolution without obsolescence

Symphony Plus
2011

symphony
2000's

Bailey infi 90
1990's

Bailey network 90
1980's

HR Series Control and I/O
Background: Contiguous life cycle management

HMI	OIU MCS	OIS2x OIS4x PCV	CVMS CNT PPB	PGP PPA	800xA Harmony Connect S+ Operations
Engineering	EWS	WinTools	Composer	S+ Engineering
Controllers	COM MFC	MFP	BRC	S+ Control: BRC300 / 400 / 410 HPC800 / SPC700
System	1980's – Network 90	1990's – INFI 90	2000's – Symphony Harmony	Today – Symphony Plus

+30 years

Years of contiguous system enhancement and support

+250,000
Rack controllers installed worldwide

+1.5 Million
Rack I/O points installed worldwide

Evolution without obsolescence

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ABB Solution: system lifecycle management
Formal system lifecycle policy
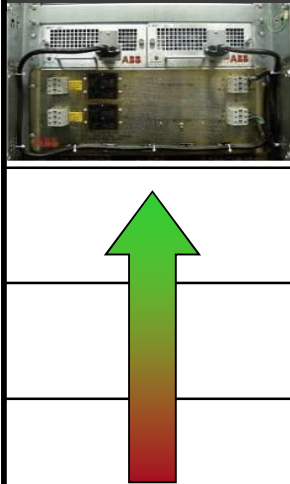
Phase	Description
Active (green)	Product Marketed/Sold/Supported
Classic (yellow)	Functional Replacement Available/Still Sold/Supported
Limited (red)	Product No Longer Sold; Repair/Refurbishment/Support Available
Obsolete (black)	Repair/Refurbishment not Available; Best Effort Support

- Your ABB automation system is designed for continuous evolution
- Always a path forward
- Protection of intellectual assets
- Underlying products are sustained by defined and documented lifecycle phases
- Active until functional equivalent available
- Defines minimum 10 years of support after removal from "Active" sales
- Lifecycle changes documented 12 – 18 months in advance
- Network 90/Infi-90/Symphony has been in service since 1980, 35 yrs with indefinite evolution
- No other automation supplier has made as bold a commitment for **all system products**, to **all system customers!**

Product life cycle status
Power supplies

Active		
Classic		
Limited		
Obsolete		

| Class: Power supplies	Product Family	Remarks
	MPS III	MPSIII is in the **"Active"** phase of its product lifecycle and is the power supply solution for Harmony Rack systems.
	MPS II	Recommend evolution to MPSIII.
	MPS I	Recommend evolution to MPSIII.
	Network 90 Power System	Based on vendor component availability, some Network 90 power components are **"Obsolete."** Recommend evolution to MPSIII.

Symphony Plus-Power Supplies
MPSIII

- Multi-Voltage DC Power System
  - System and Field Power
- 2N and N+1 Configuration
- System Monitoring
- "Slide-in" Design
- Evolution for Network 90,
  MPS I (PMU), and MPS II Supplies

HR Series: MPS 3 Modular Power System Status
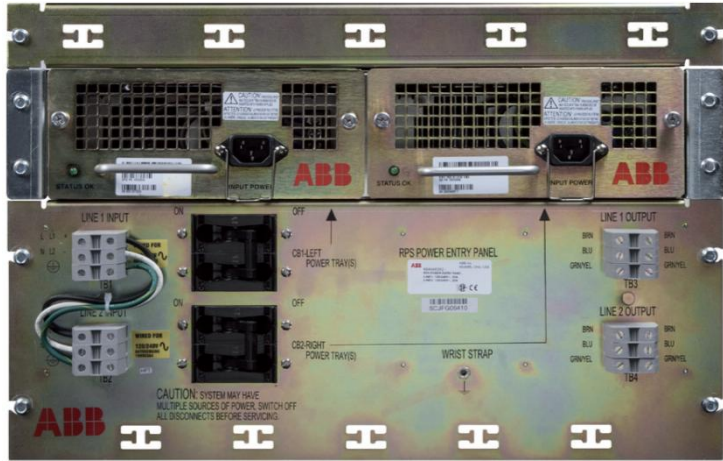
3 Power Supplies:

PHARPS02010000, PHARPS11000000, PHARPS21000000 and

6 Power Entry Panels:

PHARPSPEP11012, PHARPSPEP11022, PHARPSPEP12002, PHARPSPEP21012,

PHARPSPEP21022, PHARPSPEP22002

Moved to Limited Life Cycle in Dec 2015

Active Power System Components

Article No		Description
PHARPSCH100000	Accessories	Power Supply Chassis
PHARPSFAN03000		System Monitoring & Cooling Fan
1949790A1		Fan Filter Assembly
PHARPS03000000		24V @ 17A, 24V @ 17A
PHARPS32000000	Power Supplies	5V @ 60A, +15V @ 3A, -15V @ 3A, 24V @ 17A
PHARPS32010000		5V @ 60A, +15V @ 3A, -15V @ 3A, 24V @ 17A, 125V @ 2 A
PHARPS32200000		5V @ 60A, +15V @ 3A, -15V @ 3A, 24V @ 17A, 48V @ 8.5A
PHARPS40000000		5V @ 100A, +15V @ 8A, -15V @ 8A
PHARPSPEP11013	SINGLE CHASSIS	120/240VAC MAIN, 120/240VAC AUX, CATEGORY III
PHARPSPEP11023		120/240 VAC MAIN, 125 VDC AUX, CATEGORY III
PHARPSPEP12003		125 VDC MAIN, 125 VDC AUX, CATEGORY III
PHARPSPEP21013	DUAL CHASSIS	120/240 VAC MAIN, 120/240 VAC AUX, CATEGORY III
PHARPSPEP21023		120/240 VAC MAIN, 125 VDC AUX, CATEGORY III
PHARPSPEP22003		125 VDC MAIN, 125 VDC AUX, CATEGORY III

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HR Series: MPS 4 Modular Power System in Progress
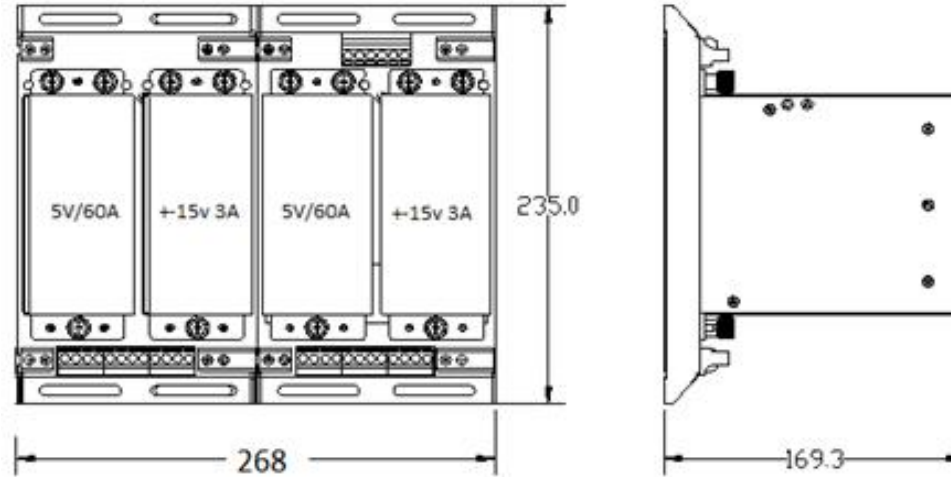
Target Release Date: 4Q-2017

| Part No.	Description
SPS03-5V	Power module, output +5VDC@60A
SPS03-15V	Power module, output +-15VDC@3A
BP03	Base plate for above power modules, with integrated DC bus monitoring PFI assembly

Product life cycle status
Communications

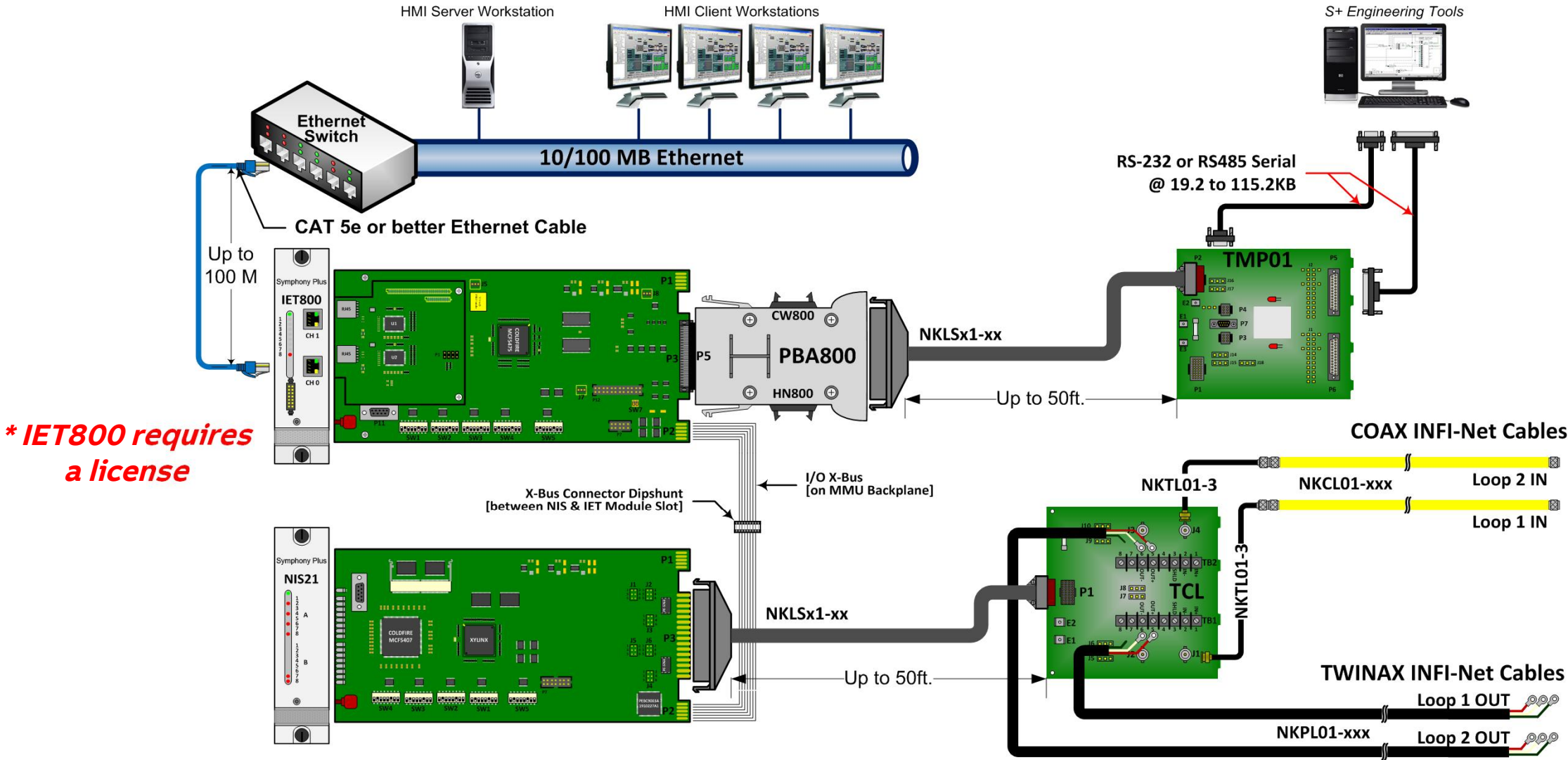|	Class: Communications	Product Family	Remarks
Active (green)		INFINET HR Series	Current active family components include: SPNPM22, SPNIS21, SPIET800, SPIIT13, SPIIT12, SPIPT800, SPCPM02, SPSEM11, and SPTKM01. *Harmony Rack (Grey) alternatives of these modules (INxxxxx) moved to **"Limited"** in Jan 2015 per the life cycle policy (form / fit / function replacement). SPICT13A moved to "Classic" in 2013 and should be evolved to SPIET800 (Ethernet CIU).
Classic (yellow)			
Limited (red)		Plant Loop (Nxxxxx)	Recommend evolution of system network to INFINET communications (HR Series). If Plant Loop / Super Loop installed, PCU communications (controller to controller communications) should be inspected as well. Where Module Bus is used, Controlway communication evolution is recommended.
Obsolete (grey)			

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Symphony Plus
Upgrading PCU Communications to NIS21 & NPM22
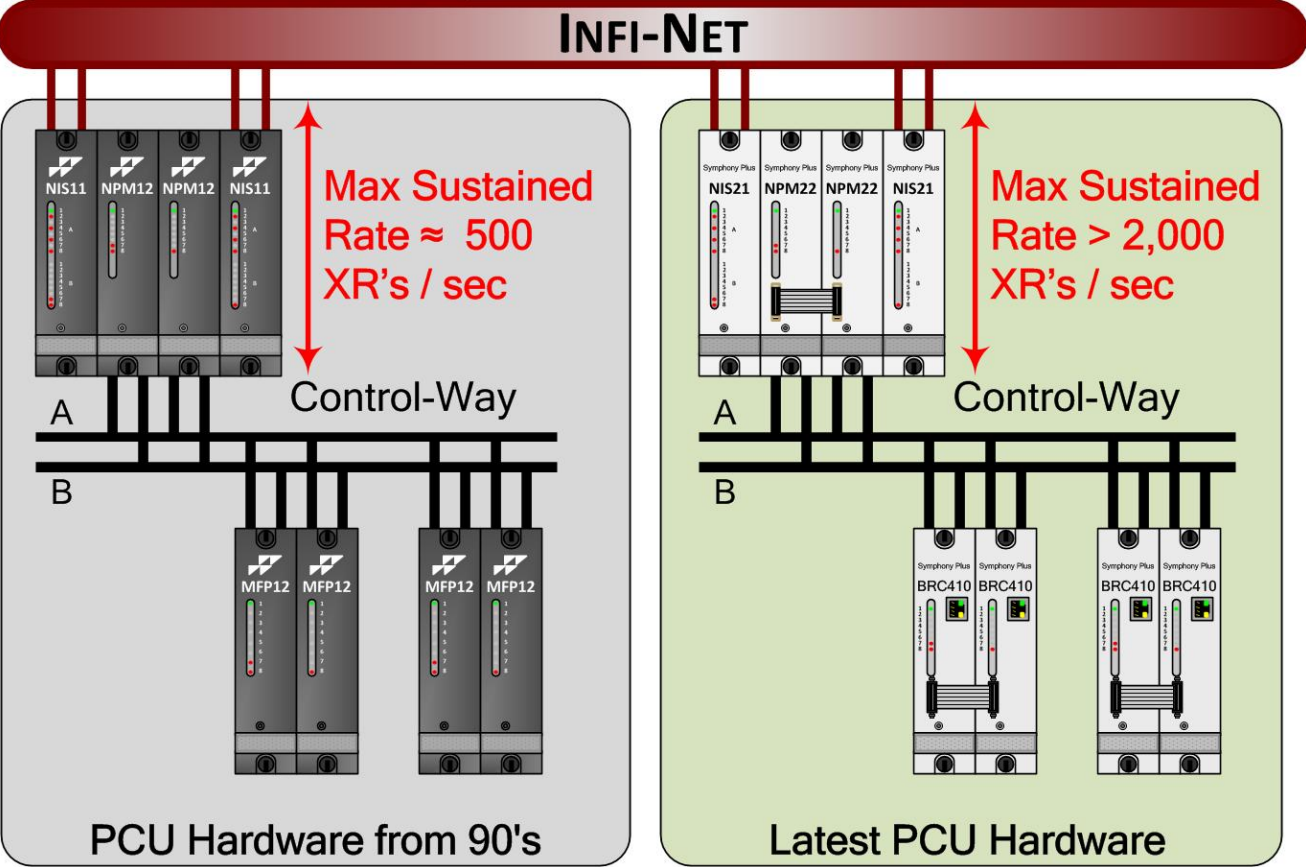
- Replacement NIS01/11 & NPM02/12
- Form / Fit / Function replacement *
- Increased Capacity (8x)
- Increased Performance (> 4x)
- **No longer supports Plantloop**
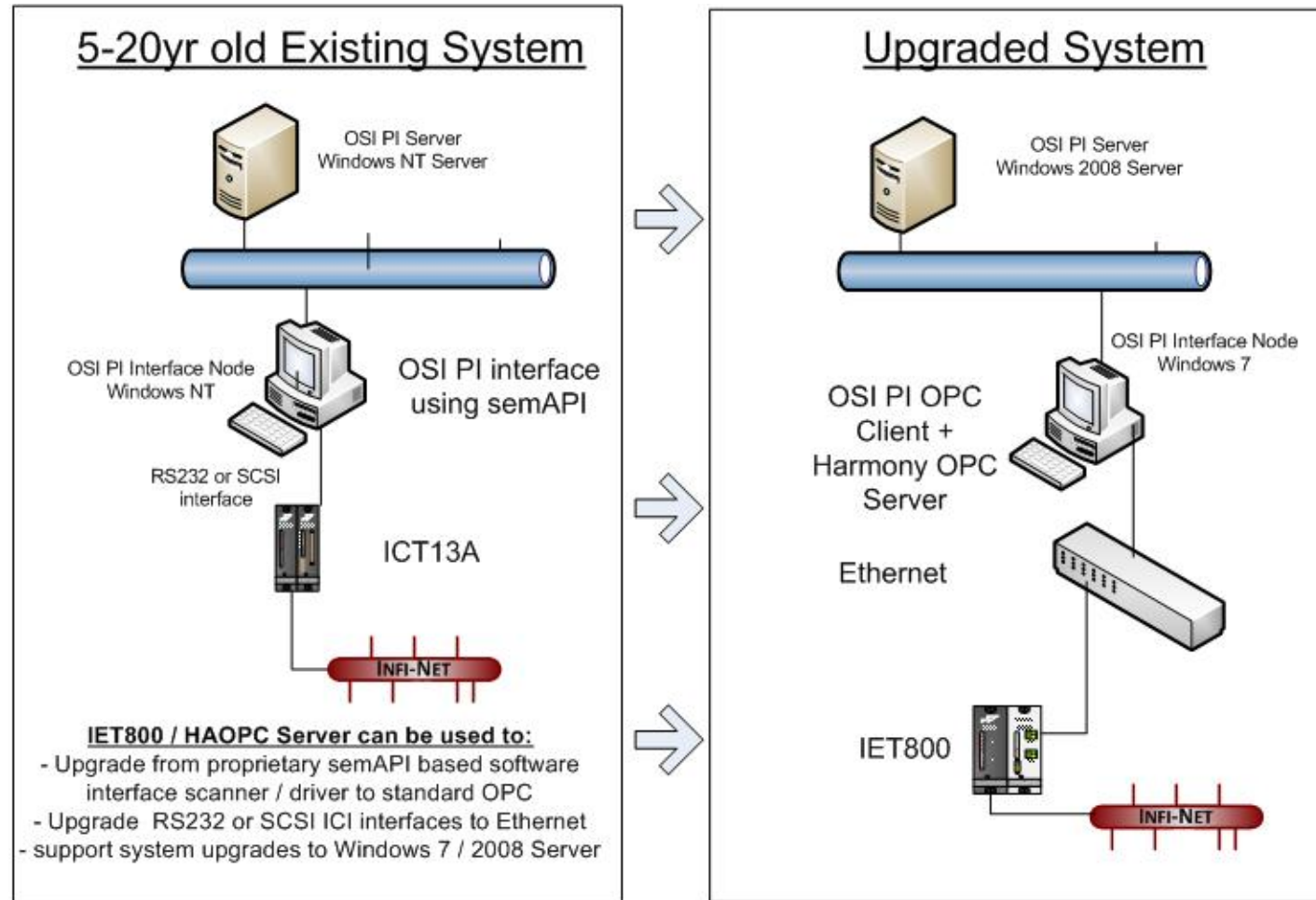
HR Series: ICI800 Ethernet CIU

HMI Server Workstation

HMI Client Workstations

S+ Engineering Tools

Ethernet Switch

10/100 MB Ethernet

CAT 5e or better Ethernet Cable

RS-232 or RS485 Serial @ 19.2 to 115.2KB

Up to 100 M

Symphony Plus IET800

CH 1

CH 0

* IET800 requires a license

P1

P3

P5

P2

P11

SW1 SW2 SW3 SW4 SW5

PBA800

CW800

HN800

NKLSx1-xx

TMP01

P2

P5

P4

P7

P3

P1

P6

Up to 50ft.

COAX INFI-Net Cables

NKTL01-3

NKCL01-xxx

Loop 2 IN

Loop 1 IN

I/O X-Bus [on MMU Backplane]

X-Bus Connector Dipshunt [between NIS & IET Module Slot]

Symphony Plus NIS21

A

B

COLDFIRE MCF5407

XYLINX

SW4 SW3 SW2 SW1 SW3

P1

P3

P2

NKLSx1-xx

TCL

P1

TB2

TB1

NKTL01-3

Up to 50ft.

TWINAX INFI-Net Cables

Loop 1 OUT

NKPL01-xxx

Loop 2 OUT

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Harmony OPC Server version 6

- Windows 7 and Server 2008, 32 and 64 bit

- Support for the PNI800 module.

- 4 OPC applications per computer

- Use with Ethernet CIU to connect to OSI PI and IP.21.

- Harmony OPC Server is in the **ACTIVE** lifecycle phase and is included in the ABB's Automation Sentinel Program.
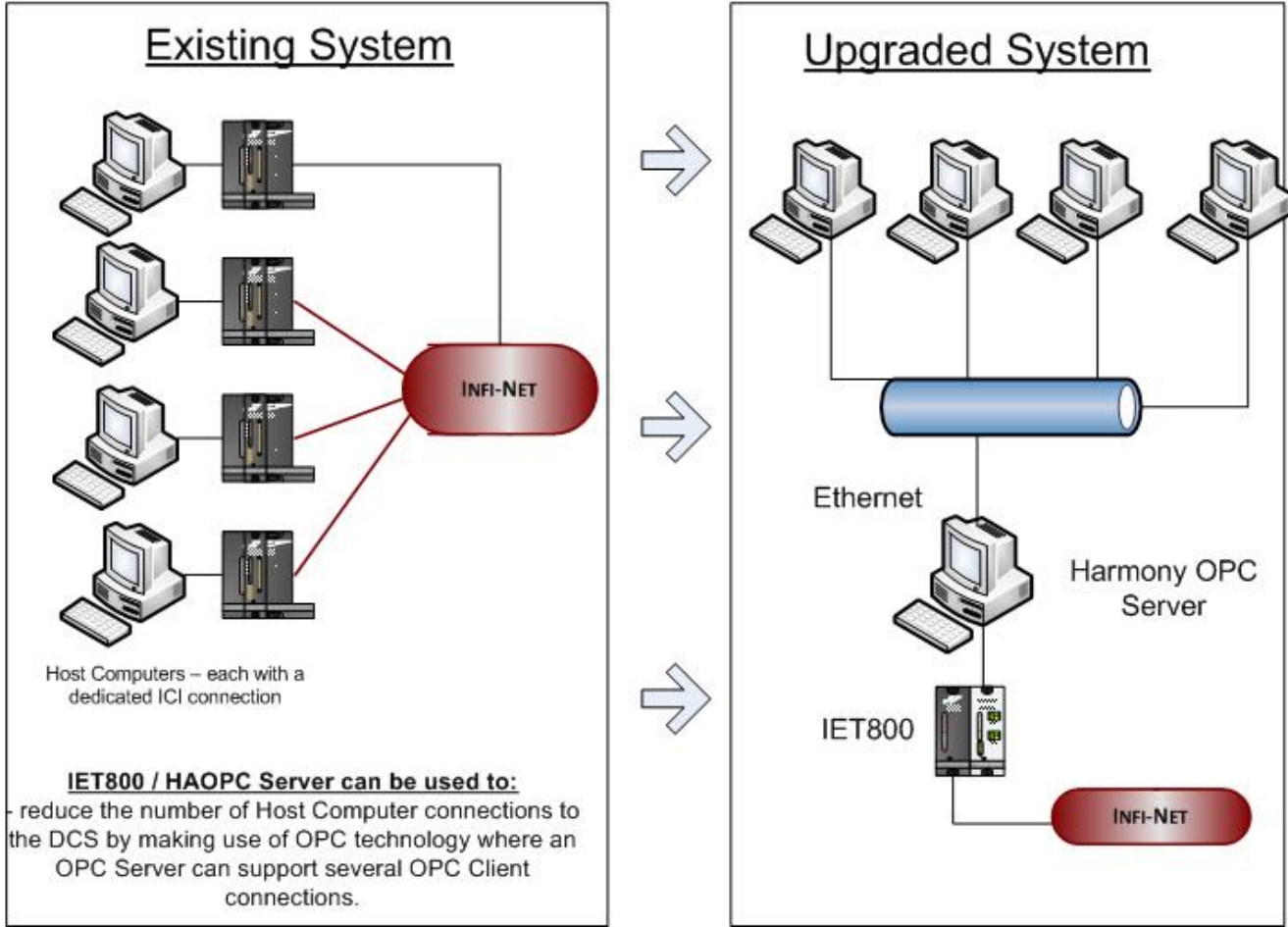
Harmony OPC Server
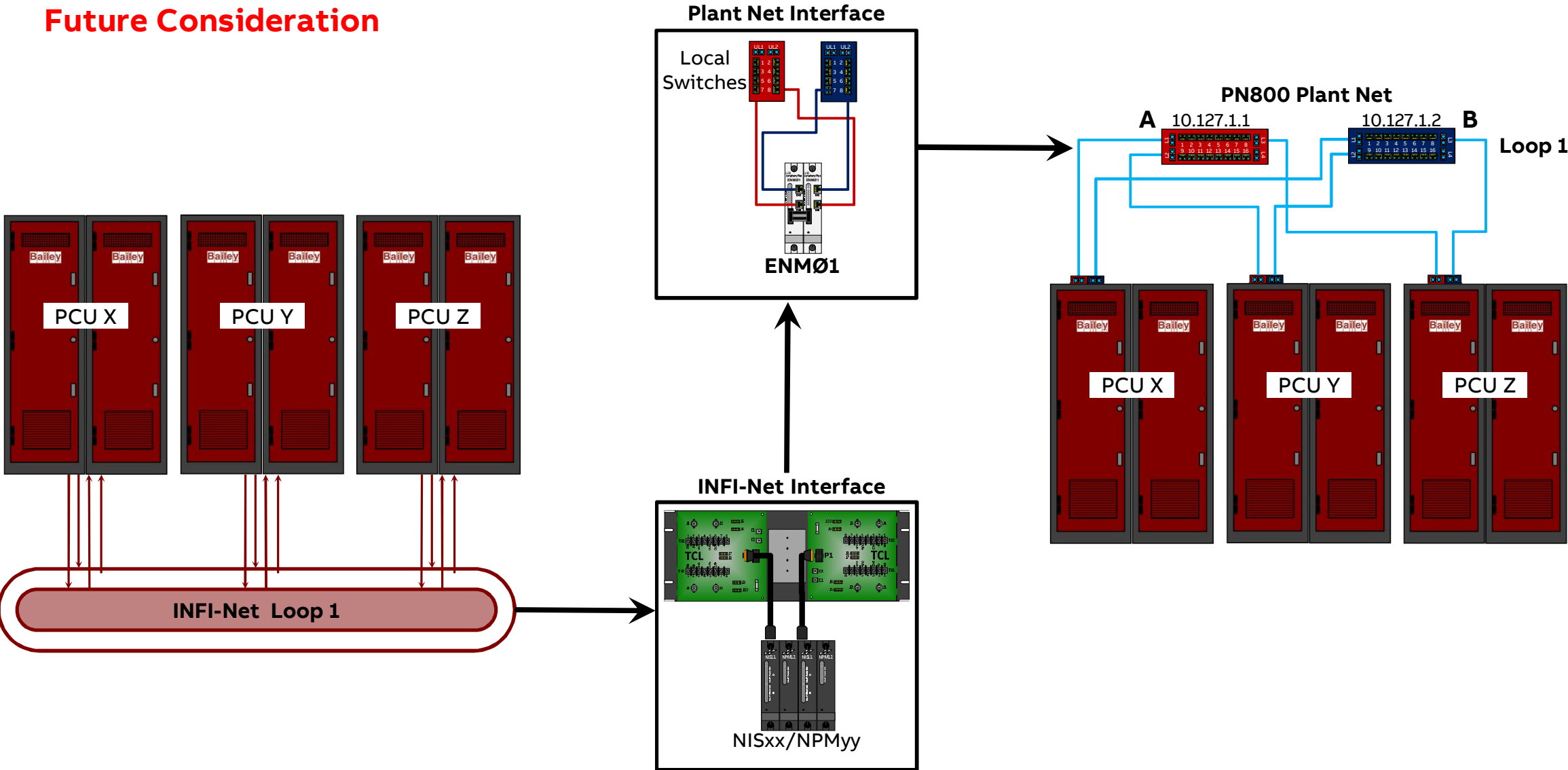# 3rd Party: process historian evolution example

Harmony OPC Server
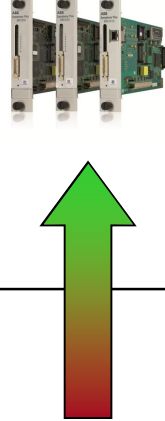# 3rd Party multiple Host Computer example

Existing System

Host Computers – each with a dedicated ICI connection

IET800 / HAOPC Server can be used to:
- reduce the number of Host Computer connections to the DCS by making use of OPC technology where an OPC Server can support several OPC Client connections.

INFI-NET

Upgraded System

Ethernet

Harmony OPC Server

IET800

INFI-NET

S+ Evolution Use Case: Upgrade INFI-Net to PN8ØØ using ENMØ1

Future Consideration

Plant Net Interface

Local Switches

ENMØ1

PN800 Plant Net

A 10.127.1.1   10.127.1.2 B

Loop 1

PCU X

PCU Y

PCU Z

PCU X   PCU Y   PCU Z

INFI-Net Interface

TCL   P1   TCL

NISxx/NPMyy

INFI-Net Loop 1

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Product life cycle status
Controllers

	Active
	Classic
	Limited
	Obsolete

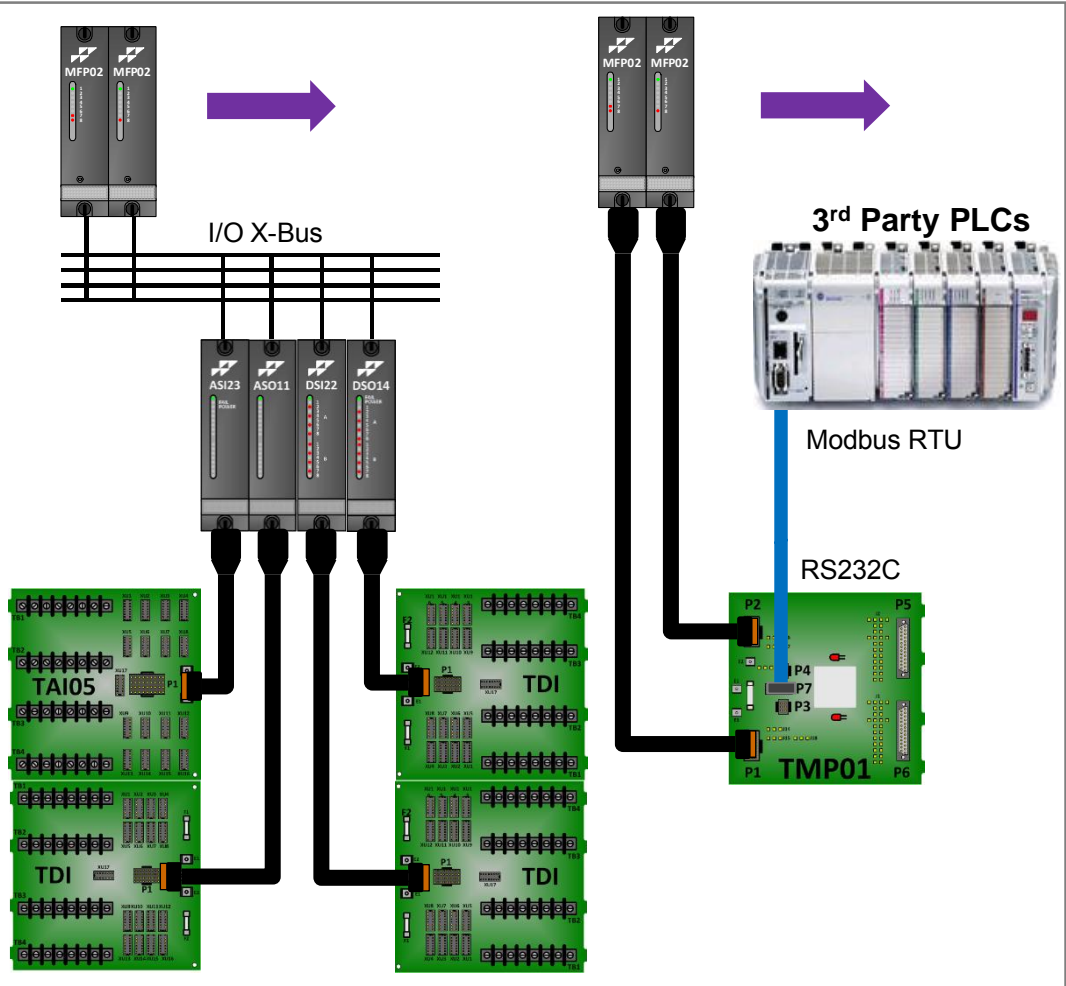| Class: Controller	Product Family	Remarks
	HR Series (Harmony Rack) BRC	Represents the latest version of Harmony Rack controllers and includes: SPBRC300, SPBRC400, and SPBRC410. These controllers provide simultaneous support for HR Series I/O (and previous rack generations), SD Series I/O (including support of PROFIBUS, HART I/O), block, and S800 I/O. MODBUS TCP devices are supported via the BRC410 only. *Harmony Rack (Grey) alternatives of the BRC300 and BRC400 (P-HC-BRCxxx) moved to **"Limited"** in Jan 2015 per the life cycle policy (form / fit / function replacement). Additionally, the HPG800 is replaced by the BRC410 and moved to **"Limited"** in 2014 (form / fit / function replacement).
	HAC	Recommend evolution to SD Series controller HPC800. HPC800 has 30,000 Function Block capacity and preserves existing HAC control logic configurations including support for all existing function code executions, custom user programs, and foreign device interfaces.
	MFP, MFC, AMM, LMM & COM	Recommend evolution to HR Series controllers (BRC300 / 400 / 410). For AMM, AOM, COM, and LMM, controllers can be replaced by BRC controllers with appropriate I/O processing modules and consolidation of logic into the BRC. *MFP12 moved to **"Limited"** in 2011.

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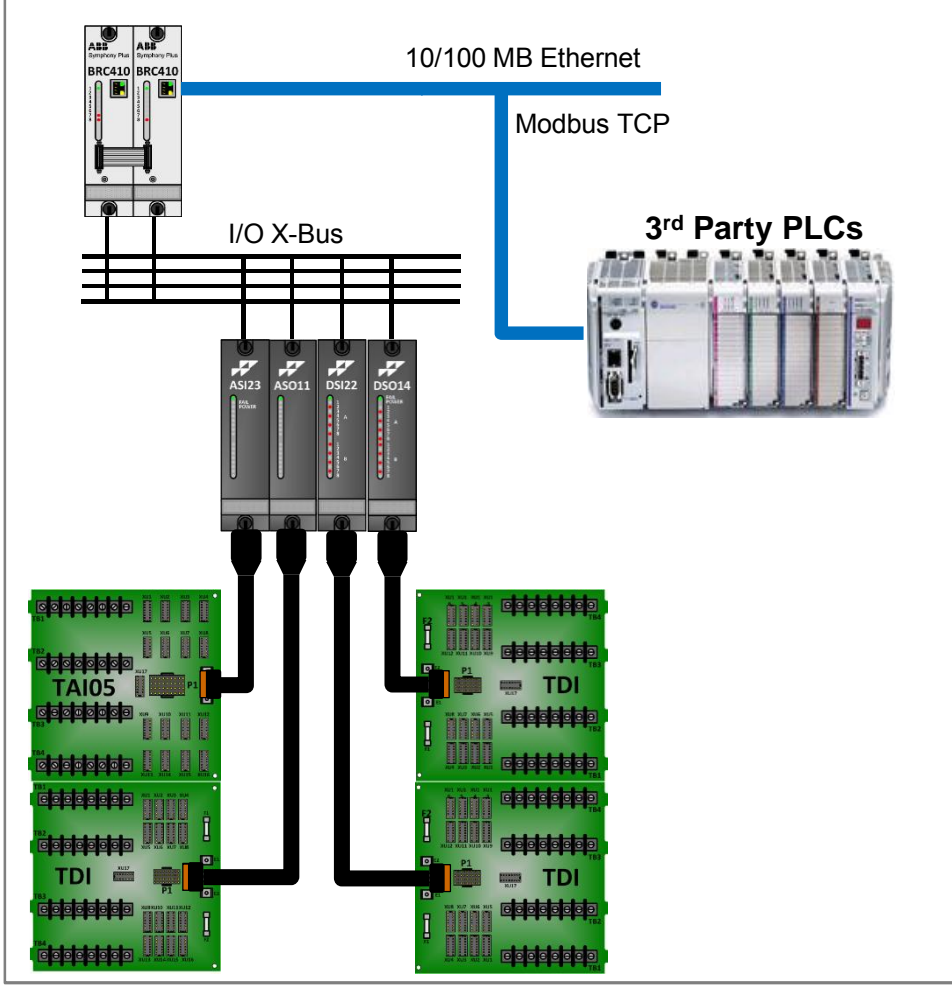# Symphony Plus Control & I/O
BRC410

- Performance increase depends on specific function blocks used, but in general performance of latest module (BRC410) compared with older modules:

- ~ 10x vs. MFP01/02/11/12

- ~ 4x vs. BRC100/200

- Enhanced On-Line Configuration provided by BRC410

- BRC410 also provides ModBus TCP

- BRC410 support 30,000 block addresses and 4,000 Modbus TCP/IP points

- Infi90 Modulebus support*

- Downloadable firmware

HR Series: Merge multiple MFP's BRC41Ø Bridge Controller

Existing System ~ 20+ years old

Upgraded System

MFP02 **MFP02**

MFP02 **MFP02**

I/O X-Bus

ASI23 **ASO11** **DSI22** **DSO14**

TAI05

TDI

TDI

TDI

3rd Party PLCs

Modbus RTU

RS232C

TMP01

BRC410 **BRC410**

10/100 MB Ethernet

Modbus TCP

I/O X-Bus

ASI23 **ASO11** **DSI22** **DSO14**

TAI05

TDI

TDI

TDI

3rd Party PLCs

*BRC410 ≈ 10x performance of MFPxx

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HR Series: BRC41Ø Bridge Controller

INFI-Net

NIS21 | NPM22 | NPM22 | NIS21

BRC300 | BRC300

ControlWay

I/O X-Bus

ABB Symphony Plus **BRC410** | ABB Symphony Plus **BRC410**

Harmony Rack I/O

ASI23 | ASO11 | CIS22 | FEC12 | DSI13 | DSI14 | DSI22 | DSM04 | DSO14 | DSO15

ASI23 | ASO11 | CIS22 | FEC12 | DSI13 | DSI14 | DSI22 | DSM04 | DSO14 | DSO15

Ethernet Switch

MODBUS TCP

CW800 **PBA800** HN800 | P5

RFO810 | **PDP800** | **IOR810** | **TB840** | **S800 I/O Modules**

DP to PA

PROFI BUS

PROFIBUS PA Field Devices

Remote SD Series I/O

AC800M

AC500

3rd Party PLCs

IED's

ABB

Symphony Plus
S+ Control & I/O Rack: New Faceplates

- **S+ Rack Modules**
  - White Front Plates
  - Module Nomenclatures: SPxxxx

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S+ Control & I/O Update
Upgrading to Latest Rack Hardware

Upgrade Power System to MPS3

Upgrade PCU Communications modules to NIS21 / NPM22

Upgrade Serial or SCSI CIU's to ICI800 Ethernet CIU's

Merge & upgrade multiple MFP's into 1 (pair) of BRC410's

Replace outdated I/O Modules

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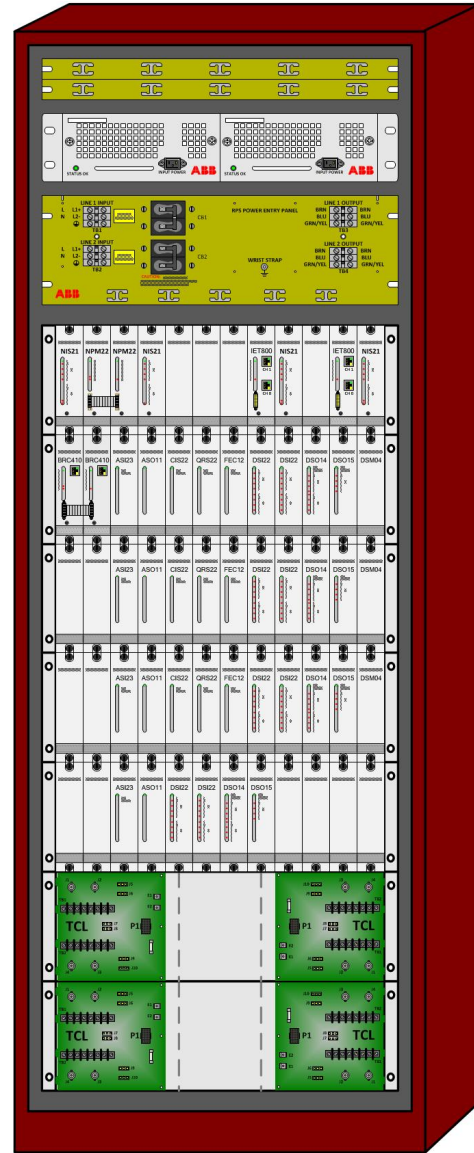
HR Series: IEB800 INFI-Net to Ethernet Bridge Functional Overview

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HR Series: IEB8ØØ INFI-Net to Ethernet Bridge Connection Details
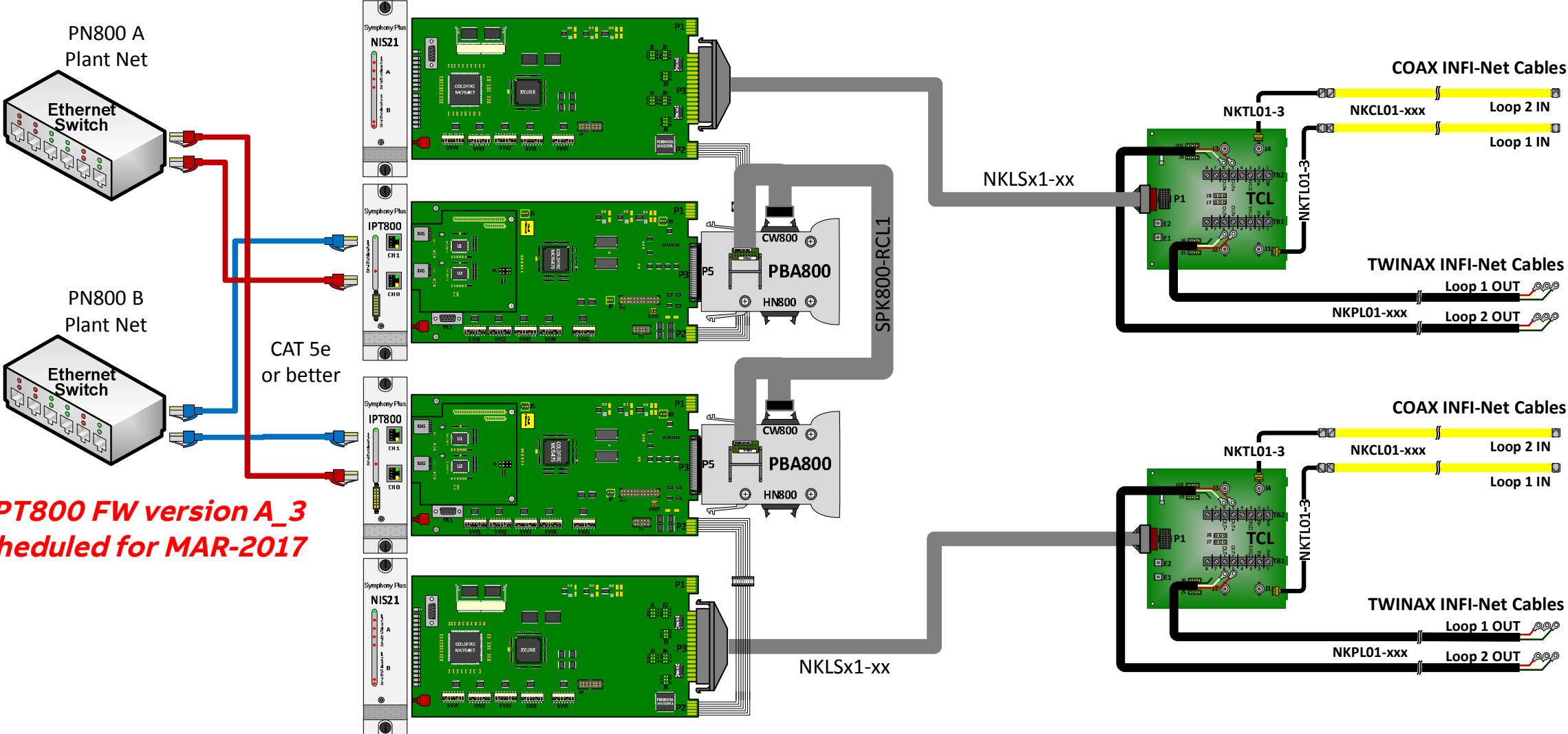
HR Series New Product: IEB800
Use case #1: Adding PN800 as Satellite Ring
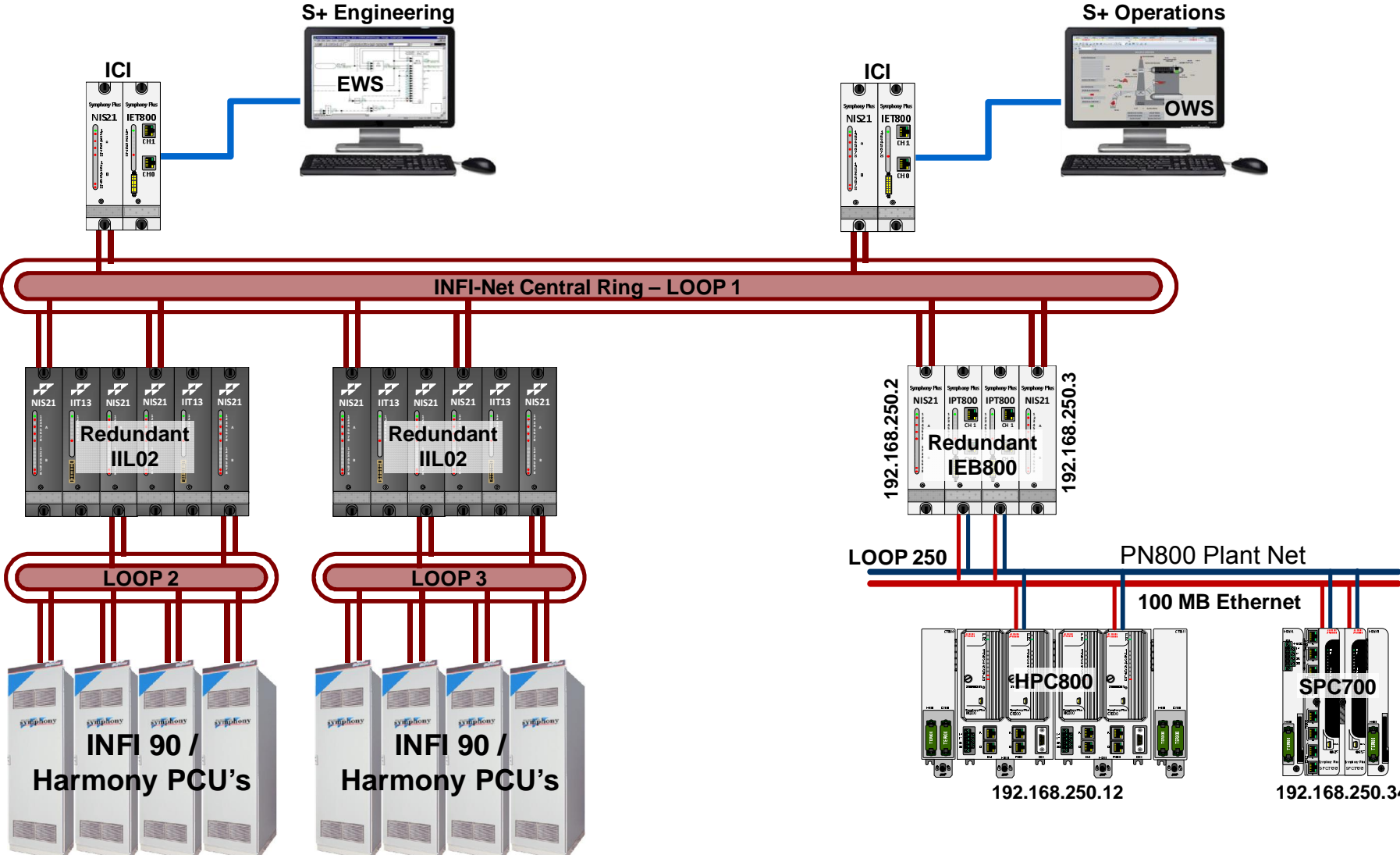
S+ Evolution Use Case: Upgrade Central Ring using IEB8ØØ
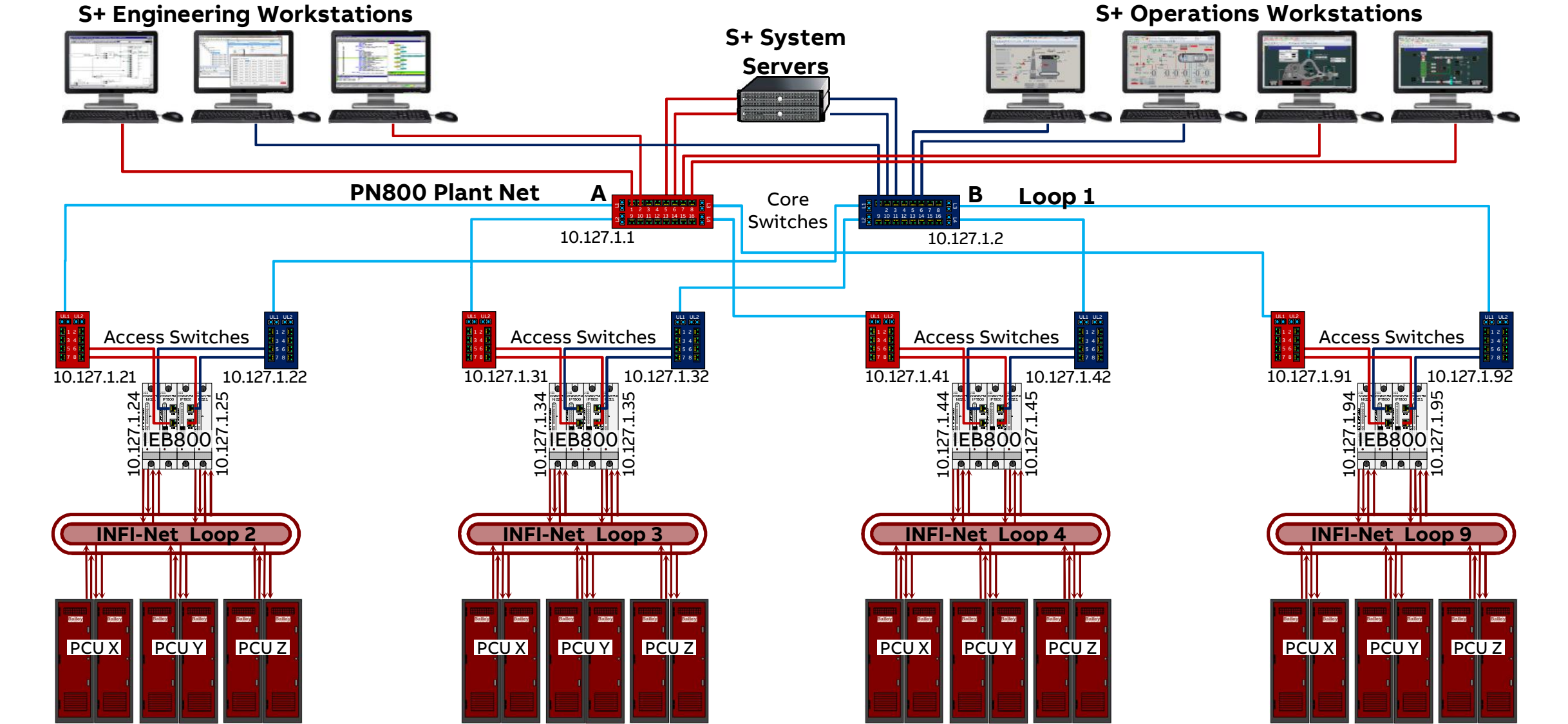
SD Series Overview
Key product features

- New ergonomic enclosure design
  - Standard DIN-Rail mounting
  - Only requires 24 VDC power
  - More than three times as dense as rack I/O
- HN800 I/O bus:
  - Redundant RS-485 differential, @4.0 MBps
- Extreme operating conditions:
  - Operating temperature range: **-20 to +70 Deg C**
  - Corrosion protection: optional **G3 conformal coating**
- Reduce overall system cost
  - Ideal for remote I/O applications

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SD Series: Control & I/O System Architecture Overview
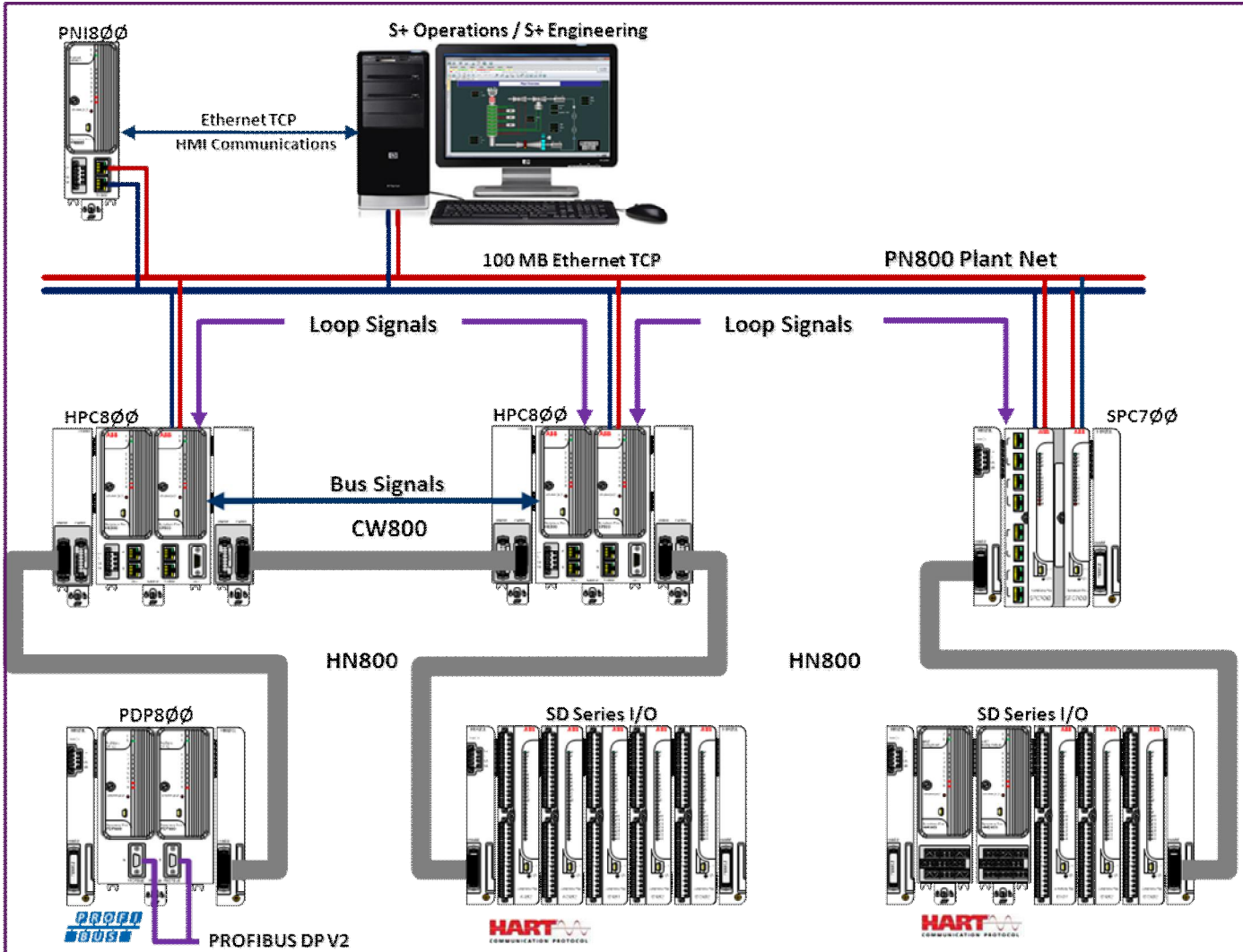
PN800 Plant Net

- Flexible bi-directional, high-speed, high-throughput, and secure; redundant 100 Mbps Fast Ethernet communications

- Connects operator consoles, engineering tools and 3rd party applications to SD Series controllers

- Protocol is "INFI-Net over Ethernet" XR (exception report) based where data is only sent on change in value or status
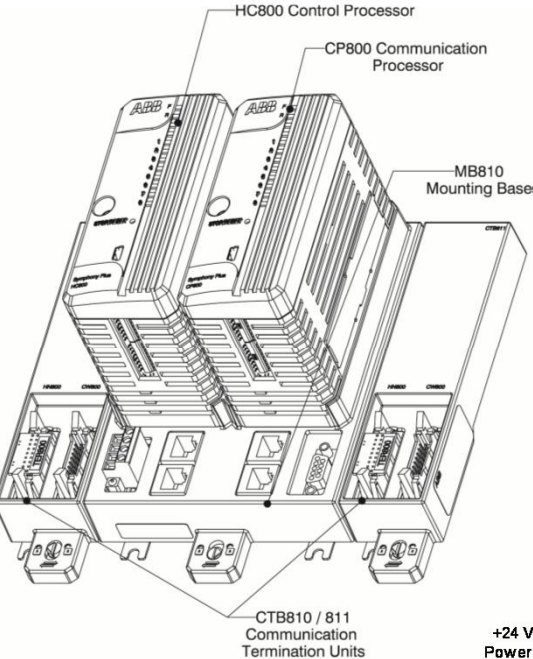
HN800 I/O bus

- SD Series I/O connect directly to controllers via redundant, high performance HN800 I/O bus

- Redundant RS-485 differential, @ 4.0 MBps

- Flexible: Local electrical bus (64 I/O modules up to 30 meters) and FO remote links (4 remote star links up to 3 km each)
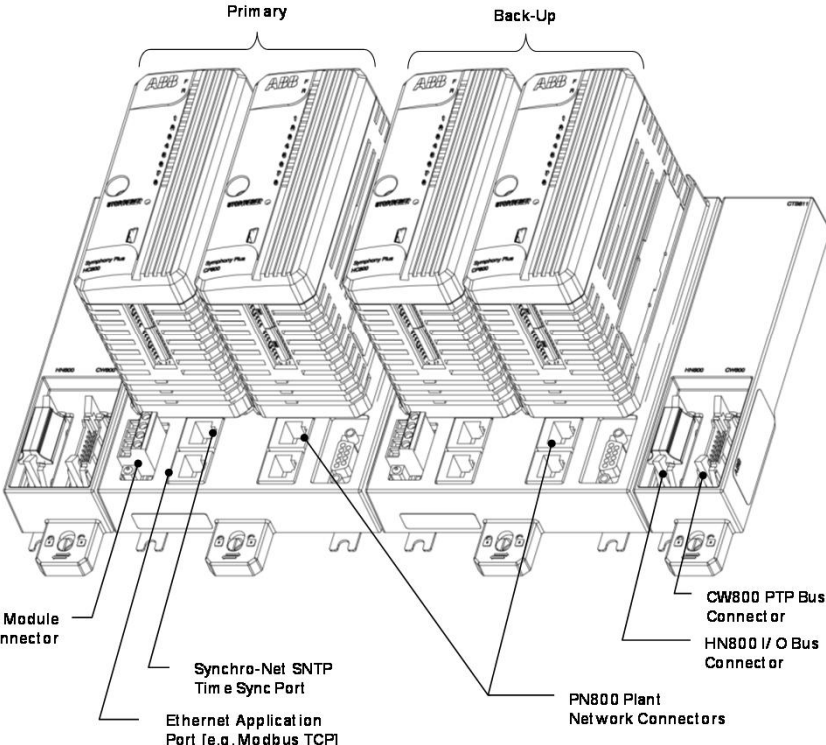
CW800 PTP bus

- Dedicated redundant peer-to-peer controller communication bus support update rates less than 100 msec (HPC800 only)

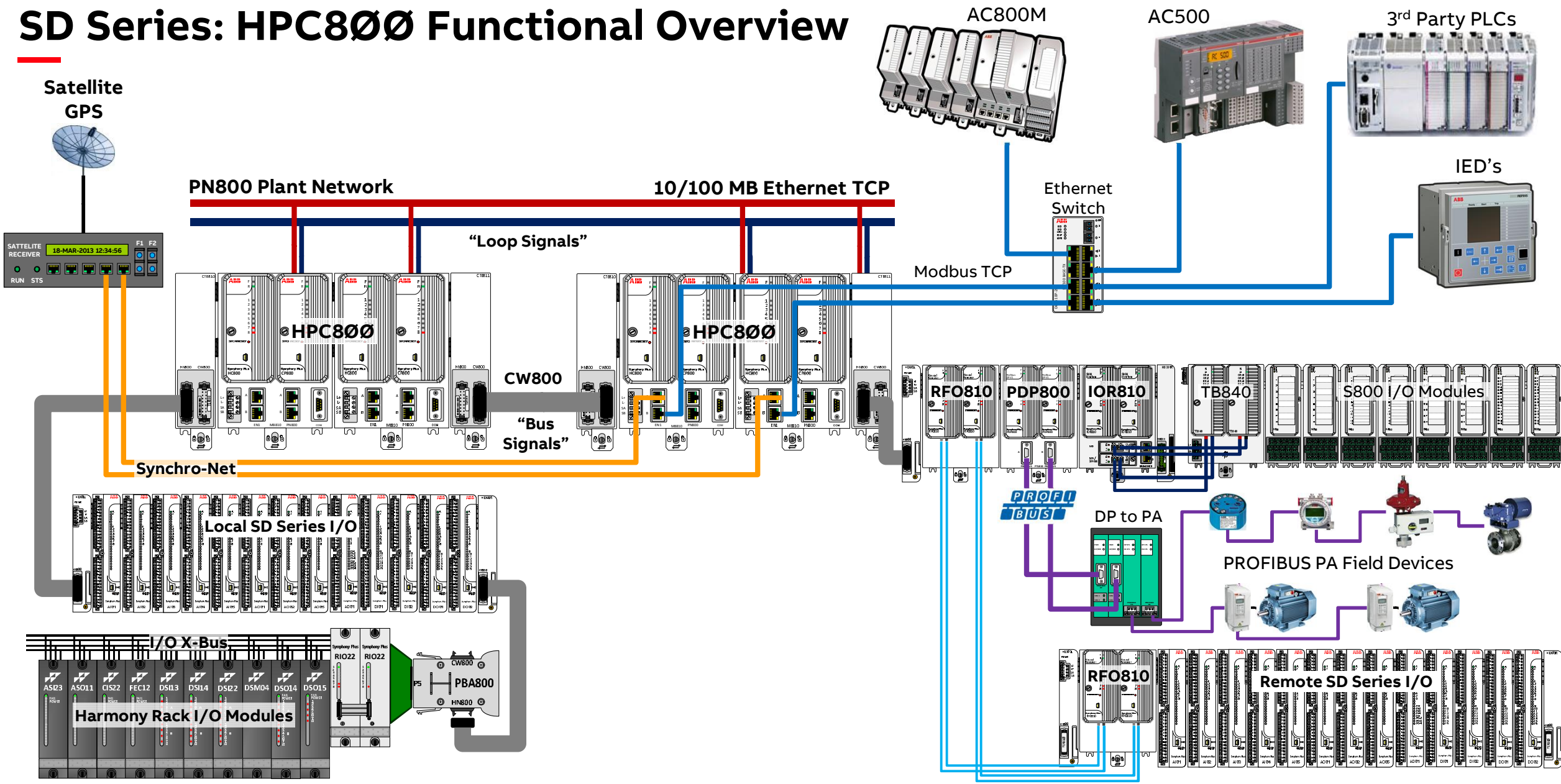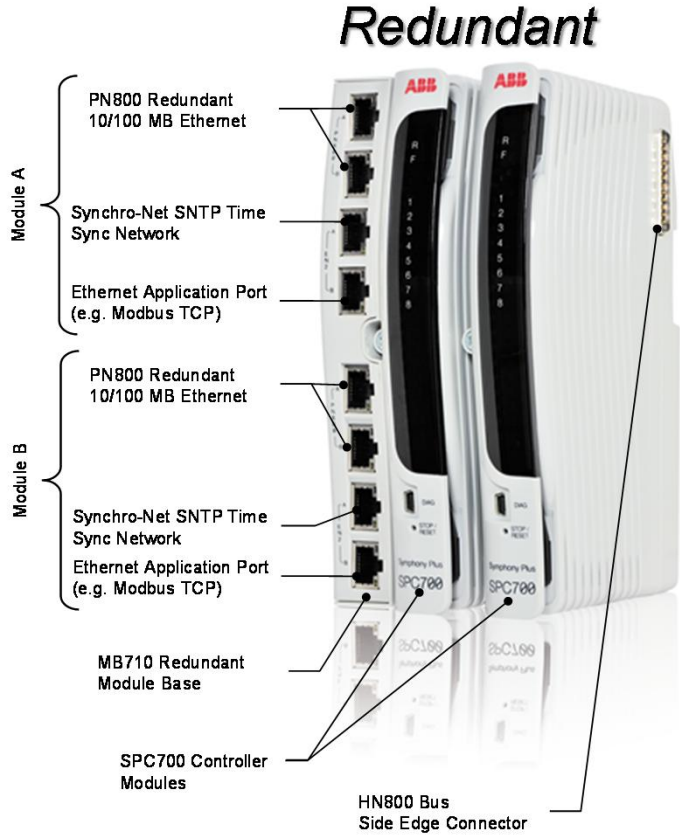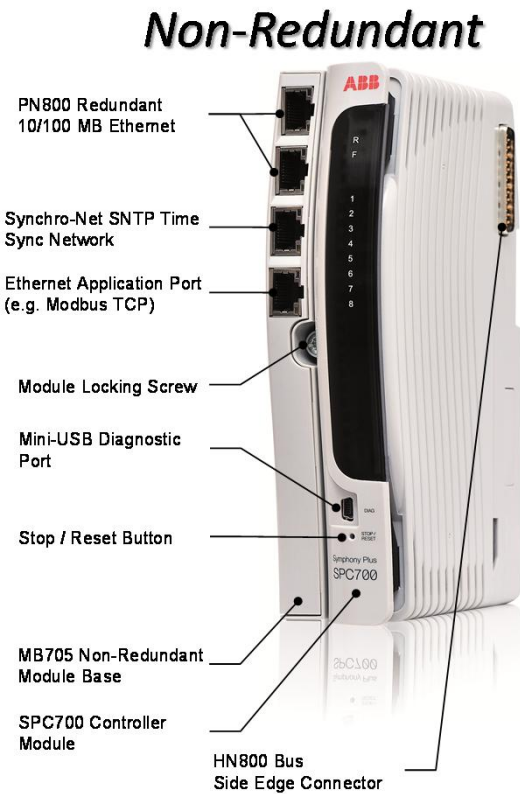# SD Series: HPC8ØØ Harmony Process Controller

Non-Redundant

- HC800 Control Processor
- CP800 Communication Processor
- MB810 Mounting Base
- CTB810 / 811 Communication Termination Units

Redundant

- Primary
- Back-Up
- +24 VDC Module Power Connector
- Ethernet Application Port [e.g. Modbus TCP]
- Synchro-Net SNTP Time Sync Port
- PN800 Plant Network Connectors
- CW800 PTP Bus Connector
- HN800 I/O Bus Connector

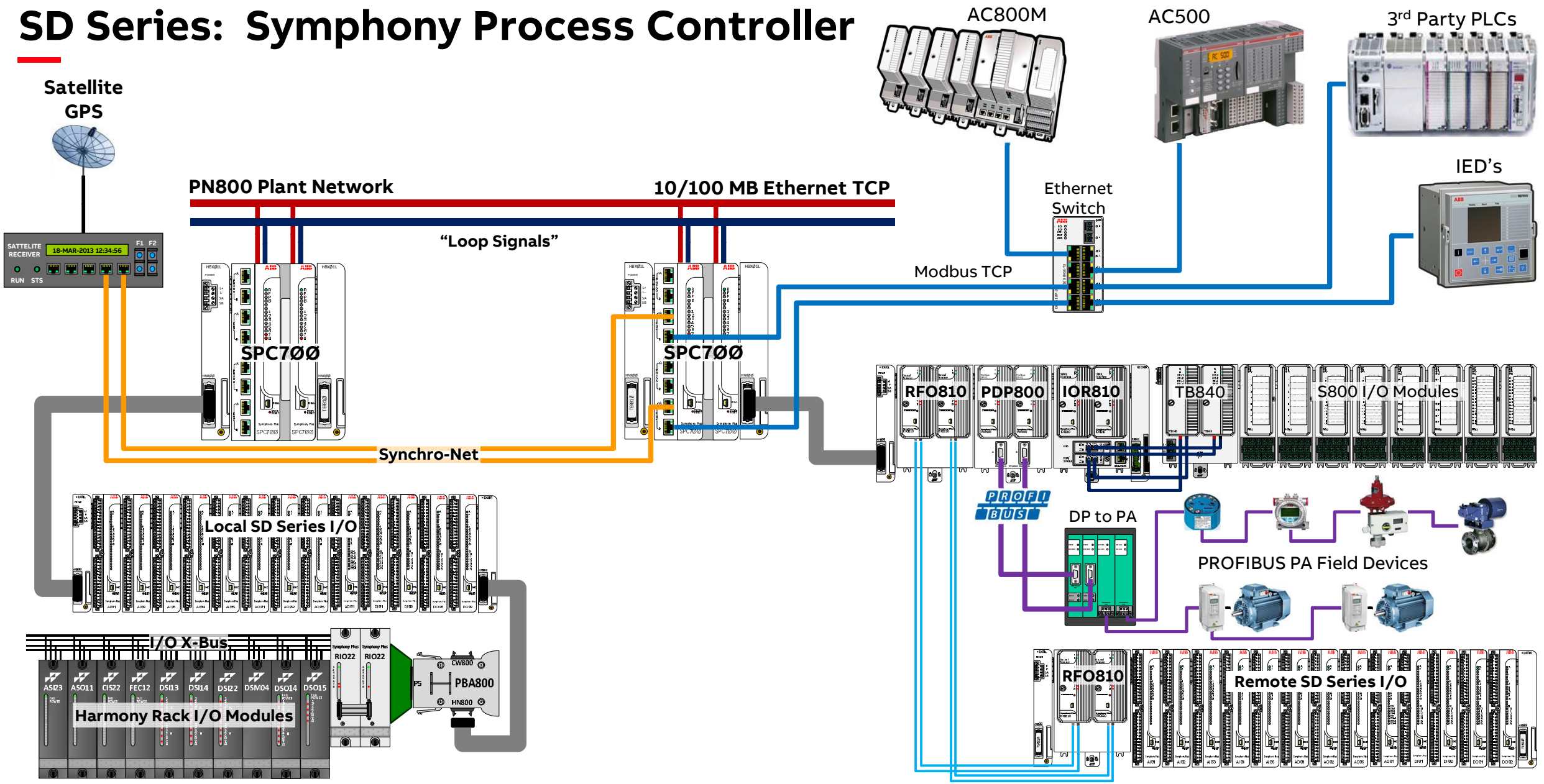| Property	Characteristic / Value	
Microprocessor / MIPS	MCF5475 @ 256 MHz = 410 MIPS (1 CPU per module)	
Memory	CP800: 64 MB DRAM, 4 MB ROM HC800: 64 MB DRAM, 4 MB ROM, 2MB NVRAM	
Power Requirements	200 mA @ 24 VDC +/- 10%, 5 W (per module)	
Dimensions	HPC800	W = 124 mm, H = 186 mm, D = 127 mm
	CTB810 or CTB811	W = 43 mm, H = 186 mm, D = 31 mm
Temperature Range	Operating: Storage:	0 to +55 deg C -40 to +85 deg C
Relative Humidity (Non-Condensing)	20% to 95% from 0 deg C to 55 deg C	
Air Quality	Standard: Optional:	ISA S71.04 G1 ISA S71.04 G3
Control Programming	30,000 INFI 90 Function Blocks, up to 8 segments (tasks) Batch 90, UDF and 'C' programs	
Closed Loop Control Performance	Up to 5000 I/O ≤ 250 msec	
Ethernet Ports (EN 2A & 2B)	PN800 2x 10/100MB TCP [PRP redundancy] EN2 A SNTP Time Sync, EN2 B Aux. Network ModBus/TCP	
ModBus TCP Interface *	Up to 8 Servers & 128 Clients, 500 to 10,000 ModBus Points	

SD Series: HPC800 Functional Overview

Satellite GPS

AC800M

AC500

3rd Party PLCs

IED's

PN800 Plant Network

10/100 MB Ethernet TCP

Ethernet Switch

"Loop Signals"

Modbus TCP

HPC800

HPC800

CW800

"Bus Signals"

RFO810 PDP800 IOR810 TB840 S800 I/O Modules

Synchro-Net

Local SD Series I/O

PROFI BUS

DP to PA

PROFIBUS PA Field Devices

I/O X-Bus

RIO22 RIO22

CW800

P5 PBA800

HN800

Harmony Rack I/O Modules

ASI23 ASO11 CIS22 FEC12 DSI13 DSI14 DSI22 DSM04 DSO14 DSO15

RFO810 Remote SD Series I/O

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SD Series: SPC7ØØ Symphony Process Controller

Non-Redundant

- PN800 Redundant 10/100 MB Ethernet
- Synchro-Net SNTP Time Sync Network
- Ethernet Application Port (e.g. Modbus TCP)
- Module Locking Screw
- Mini-USB Diagnostic Port
- Stop / Reset Button
- MB705 Non-Redundant Module Base
- SPC700 Controller Module
- HN800 Bus Side Edge Connector

Redundant

Module A
- PN800 Redundant 10/100 MB Ethernet
- Synchro-Net SNTP Time Sync Network
- Ethernet Application Port (e.g. Modbus TCP)

Module B
- PN800 Redundant 10/100 MB Ethernet
- Synchro-Net SNTP Time Sync Network
- Ethernet Application Port (e.g. Modbus TCP)

- SPC700 Controller Modules
- MB710 Redundant Module Base
- HN800 Bus Side Edge Connector

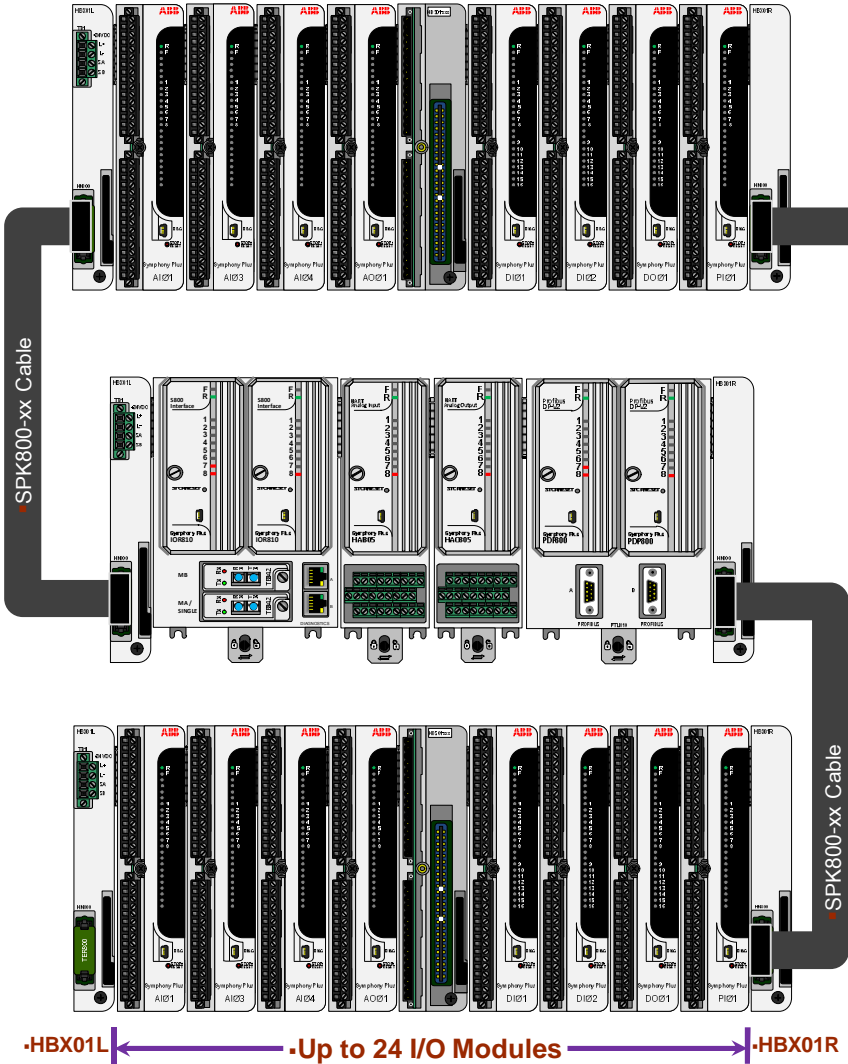| Property	Characteristic / Value	
Microprocessor / MIPS	MCF54418 @ 250 MHz = 385 MIPS	
Memory	128 MB DRAM, 512 kB NVRAM, 4 MB Flash	
Power Requirements	150 mA @ 24 VDC +/- 10%, 3.6 W (per module)	
Dimensions: [Module(s) mounted in Base]	MB705 Single: MB710 Redundant:	W = 51 mm, H = 190 mm, D = 127 mm W = 96 mm, H = 190 mm, D = 127 mm
Temperature Range	Operating: Storage:	-20 to +70 deg C -40 to +85 deg C
Relative Humidity (Non-Condensing)	20% to 95% from 0 deg C to 55 deg C, 20% to 45% from 55 deg C to 70 deg C	
Air Quality	Standard: Optional:	ISA S71.04 G1 ISA S71.04 G3
Control Programming	10,000 INFI 90 Function Blocks, [1Q-2016] Batch 90, UDF and 'C' programs)	
Closed Loop Control Performance	Up to 1000 I/O ≤ 250 msec	
Ethernet Ports (EN 2A & 2B enabled in B_0 FW)	PN800 2x 10/100MB TCP [PRP redundancy] EN2 A SNTP Time Sync, EN2 B Aux. Network ModBus/TCP	
ModBus TCP Interface [*Target Release 1Q-2017*]	Up to 2 Servers & 32 Clients, 500 to 1,500 ModBus Points	

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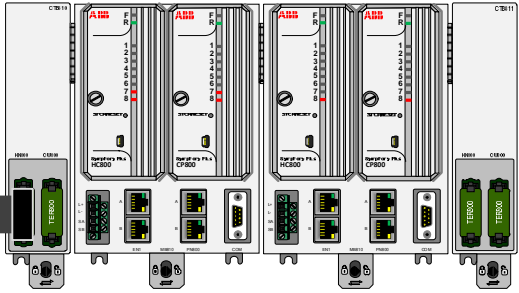# SD Series: Symphony Process Controller

Satellite GPS

AC800M

AC500

3rd Party PLCs

IED's

PN800 Plant Network

10/100 MB Ethernet TCP

Ethernet Switch

"Loop Signals"

Modbus TCP

SATELLITE RECEIVER   18-MAR-2013 12:34:56   F1 F2

RUN   STS

SPC7ØØ

SPC7ØØ

RFO810   PDP800   IOR810   TB840   S800 I/O Modules

Synchro-Net

PROFI BUS

DP to PA

PROFIBUS PA Field Devices

Local SD Series I/O

I/O X-Bus

Symphony Plus   Symphony Plus
RIO22   RIO22

CW800

PBA800

ASO23   ASO11   CIS22   FEC12   DSI13   DSI14   DSI22   DSM04   DSO14   DSO15

HN800

Harmony Rack I/O Modules

RFO810   Remote SD Series I/O

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** MODBUS TCP & Synchro-Net EN2 Ports are enabled in B_0 FW 1Q-2017

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SD Series Control & I/O Overview
HN800 I/O & Communications Bus

S+ Controller

- ❑ S+ Controllers: HPC800, BRC300/400/410, & SPC700

- ❑ SPK800-xx cables connect electrical HN800 I/O bus

- ❑ SD Series I/O compatible with IOR810, PDP800, etc.

- ❑ Maximum 64 "Nodes" per HN800 electrical bus

- ❑ HBX01L Bus Extender Maximum 3.0 A, @ 24VDC

HBX01L ←—— **Up to 24 I/O Modules** ——→ **HBX01R**

SD Series Control & I/O Overview
HN800 I/O & Communications Bus

S+ Controller

Local SD Series
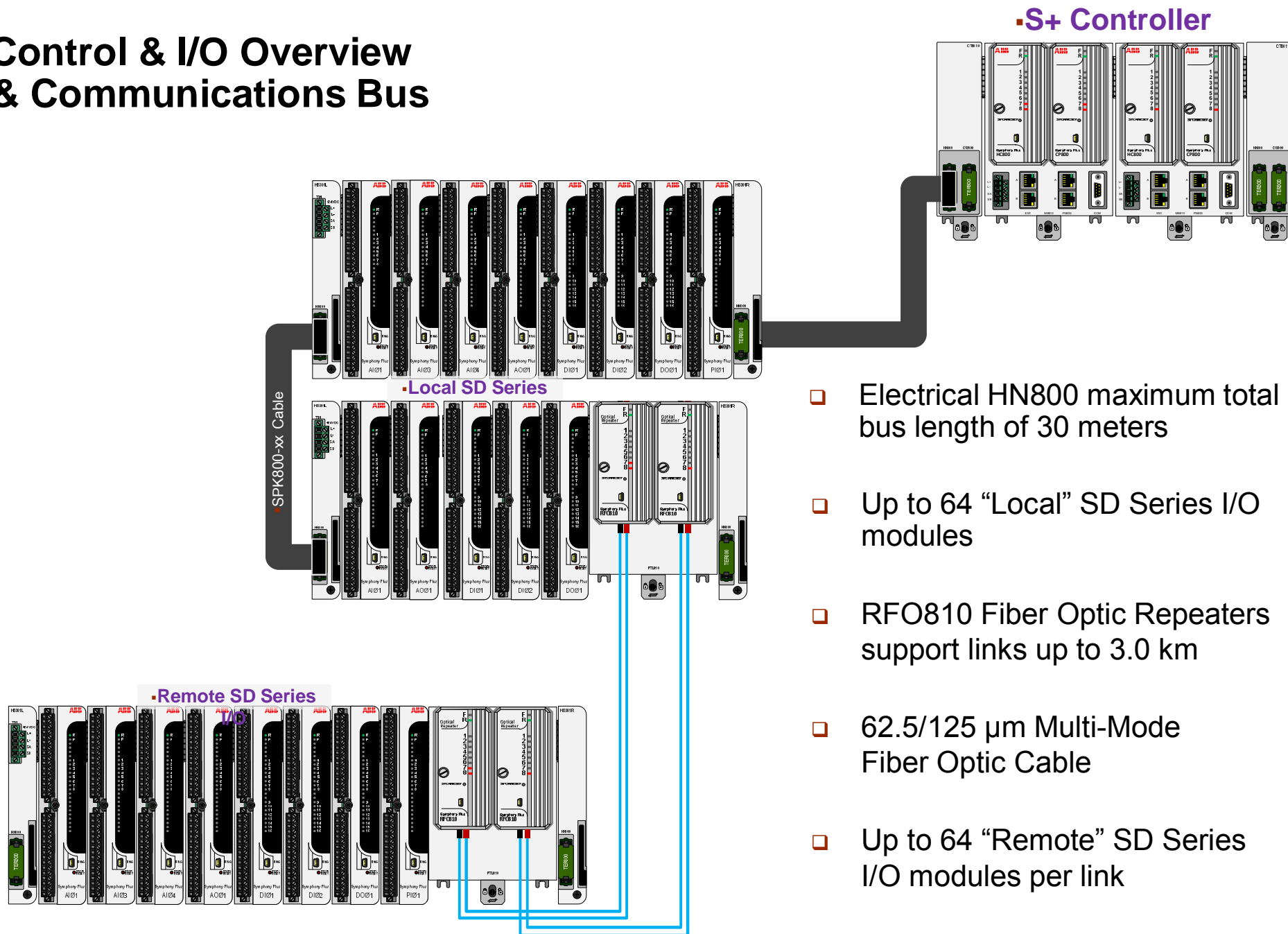
Remote SD Series I/O

- ❑ Electrical HN800 maximum total bus length of 30 meters

- ❑ Up to 64 "Local" SD Series I/O modules

- ❑ RFO810 Fiber Optic Repeaters support links up to 3.0 km

- ❑ 62.5/125 µm Multi-Mode Fiber Optic Cable

- ❑ Up to 64 "Remote" SD Series I/O modules per link

SD Series Control & I/O Overview
Fiber Optic HN800 Bus Architecture

- ▪ **S+ Controller**

- ❑ Fiber Optic HN800 supports "STAR" Network Topology

- ❑ HPC800 supports up to 8 remote I/O links

▪ **Remote Location #1**

▪ **Remote Location #2**

▪ **Remote Location #3**

▪ **Remote Location #4**

ABB
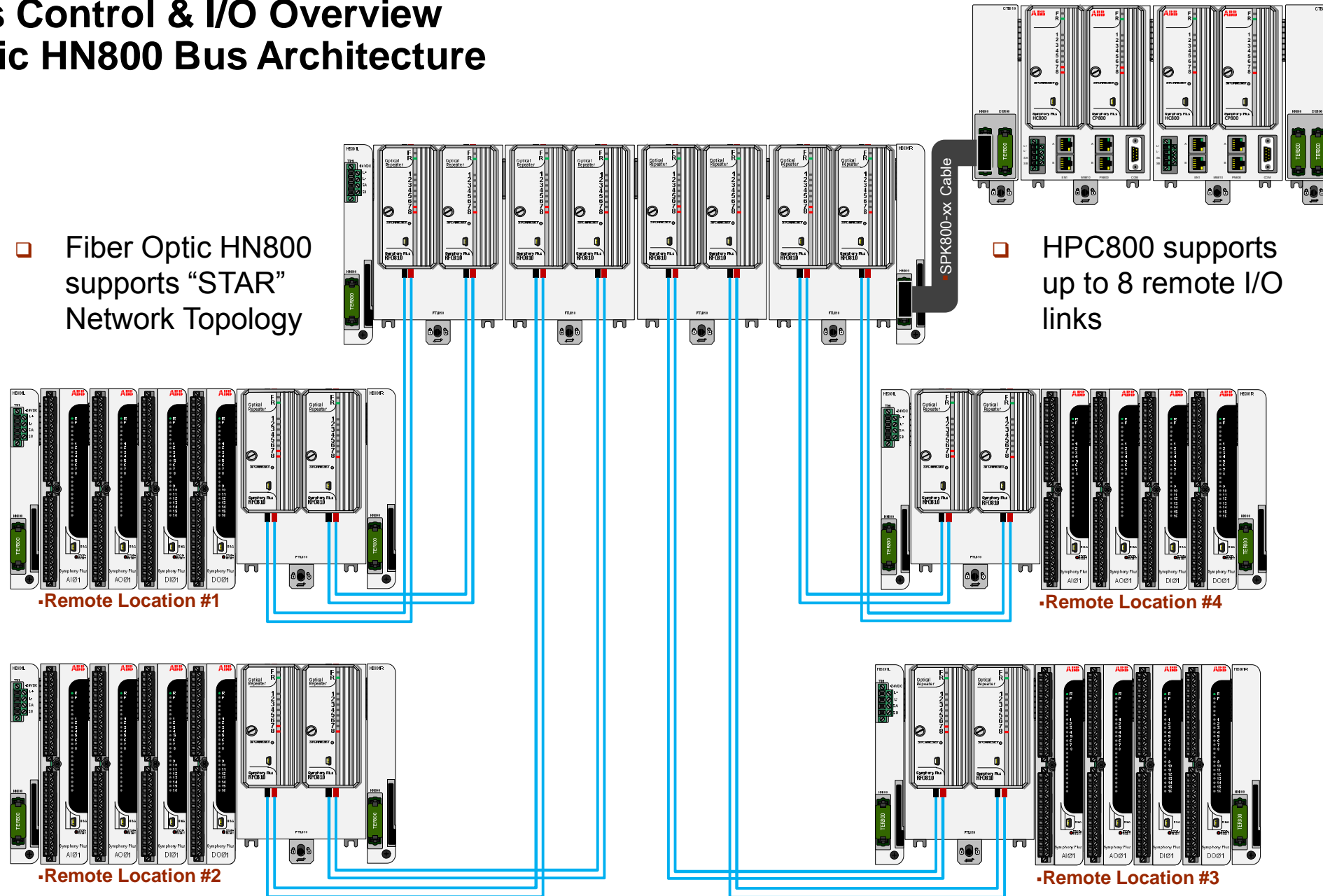
Extend existing systems with SD Series I/O Products

▪**Existing Cabinet with Rack Controller**
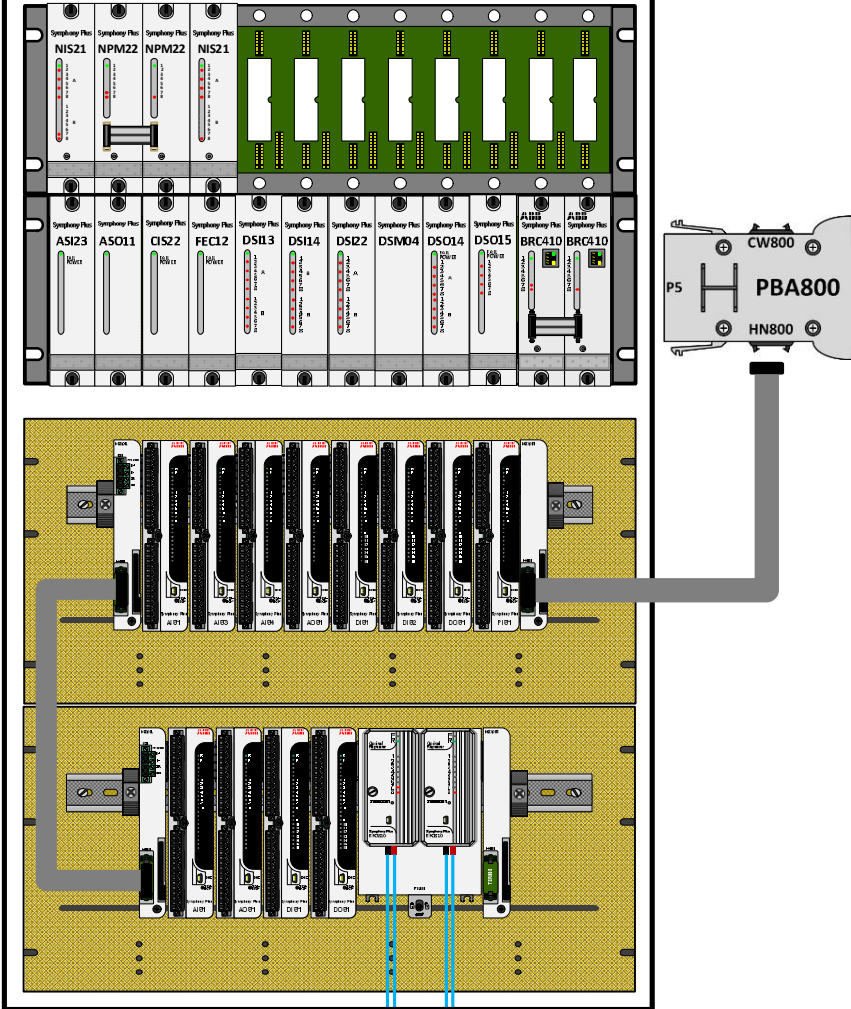
▪**Remote Cabinet with SD Series I/O**
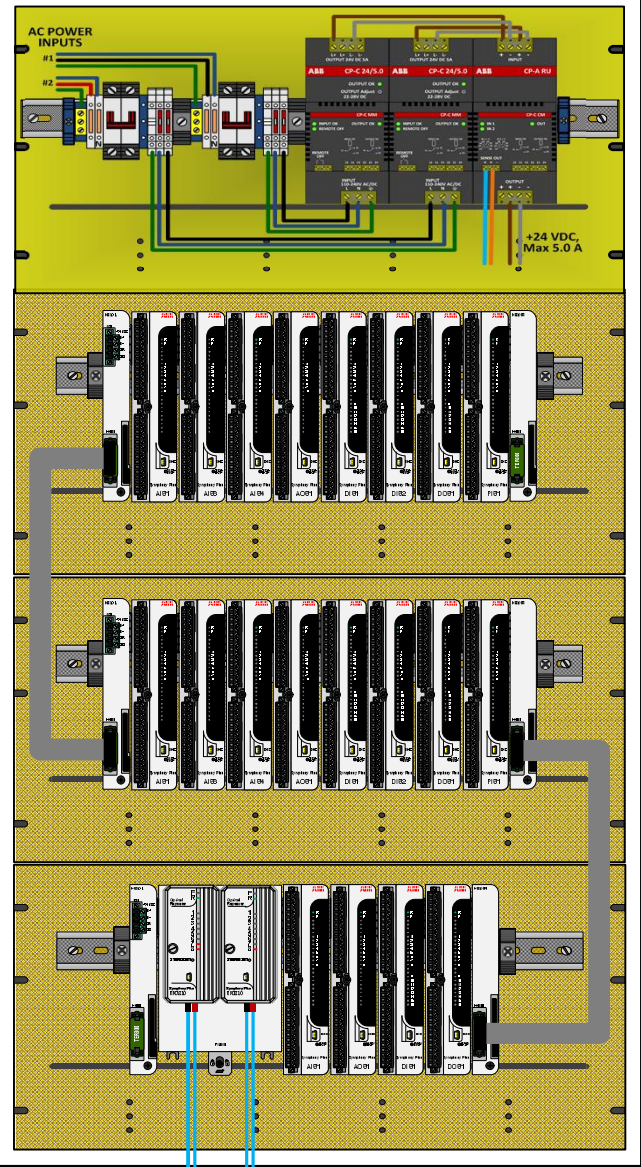
SD Series Control & I/O Overview
HN800 fully supported by Rack Controllers
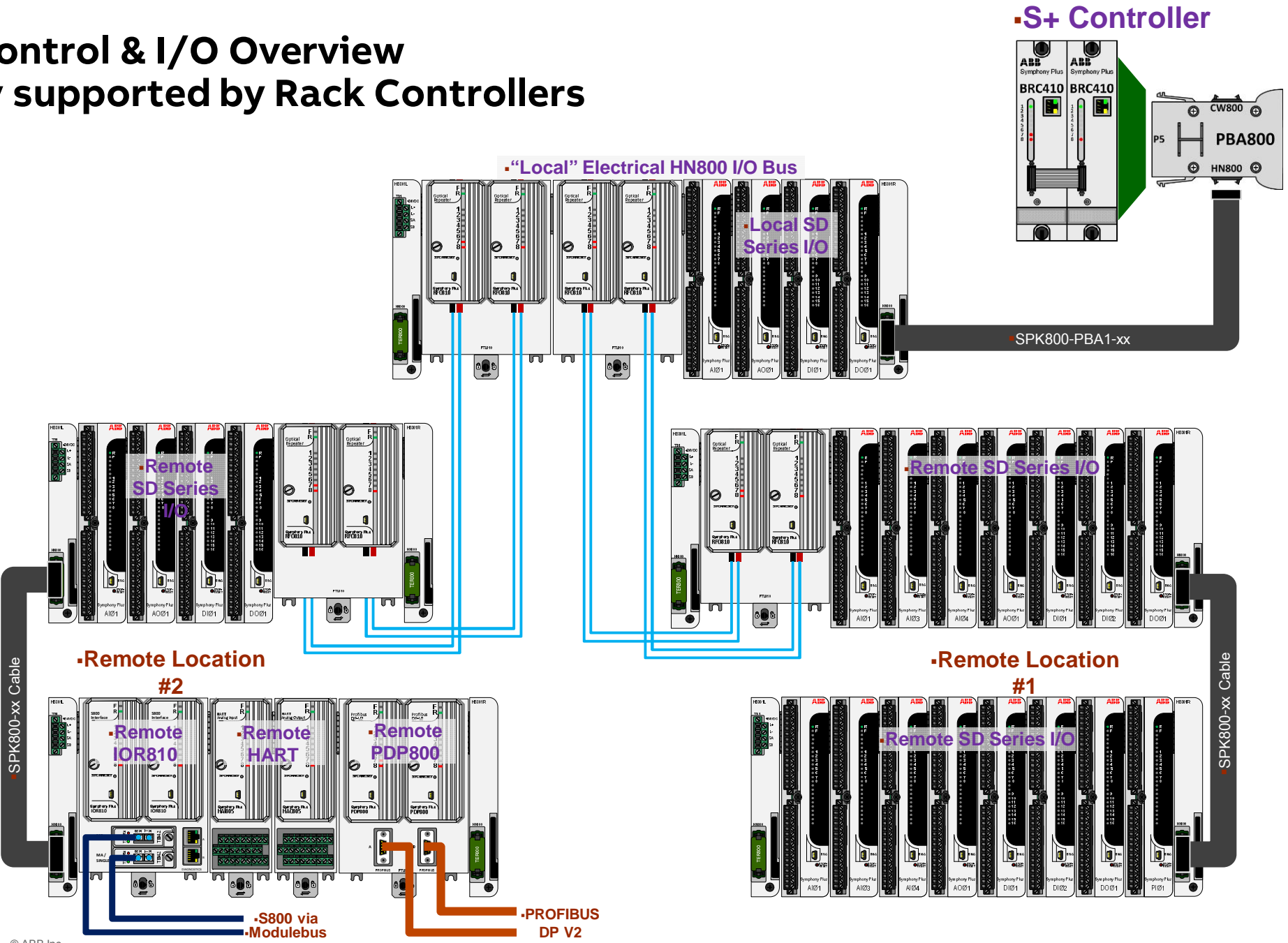
SD Series: Compact Fiber Optic Repeater cRBXØ1

Property	Characteristic / Value	
Power Requirements	100 mA @ 24 VDC +/- 10%, 2.4 W (per module)	
Standard 35mm wide DIN Rail Mounting	Horizontal Row: RMU610 Vertical Column: VMU610	
Dimensions	cRBX0Ø1 module	W = 27 mm, H = 127 mm, D = 107.5 mm
	RMU610	W = 90 mm, H = 127 mm, D = 127 mm
	VMU610	W = 101mm, H = 145mm, D = 100mm
Temperature Range	Operating: Storage:	*-20 to +70 deg C* -40 to +85 deg C
Relative Humidity (Non-Condensing)	20% to 95% from 0 deg C to 55 deg C	
Air Quality	Standard: Optional:	ISA S71.04 G1 ISA S71.04 G3
Fiber Optic Cable	Fiber Size	62.5/125 μm
	Fiber Attenuation	-3.5 dB / km
	Index	Graded
	Wavelength	840 nm
	Bandwidth	160 MHz / km
	Connector Type	ST, right angle strain relief
	Transmission Mode	Multi-Mode

Target Release Date: 2Q-2017

SD Series: Compact Fiber Optic Repeater cRBXØ1
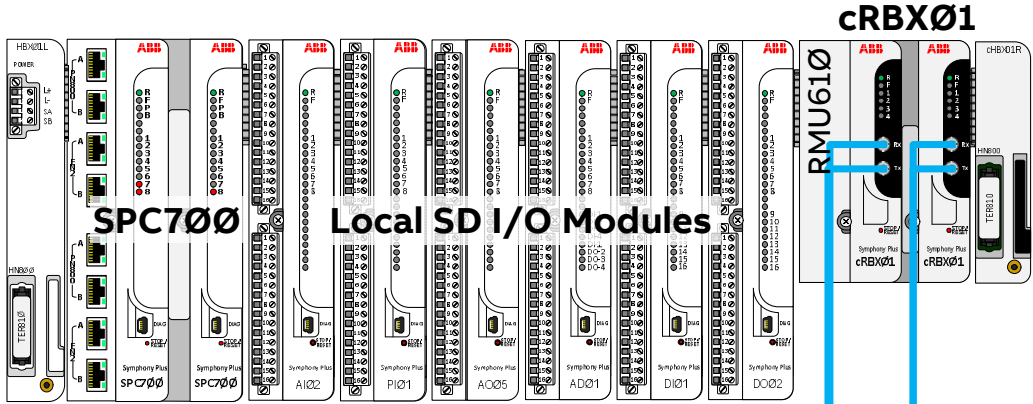
Horizontal Row Mounting
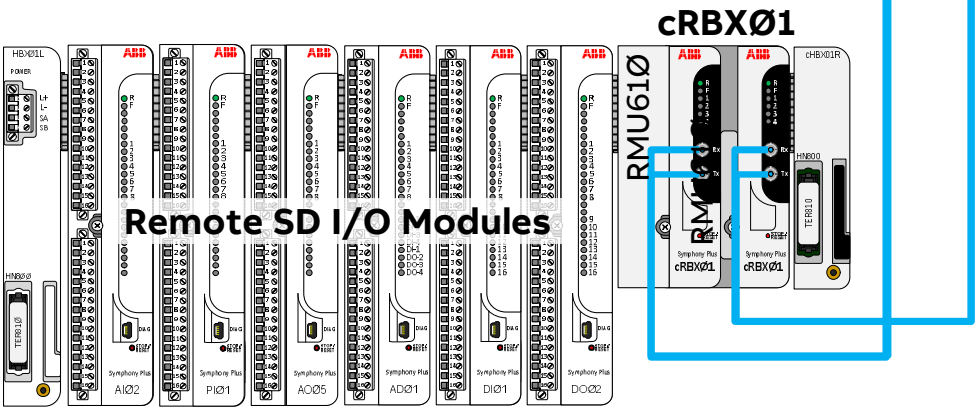
Vertical Column Mounting

cRBXØ1 Compact repeaters are Fully 100% compatible with all SD Series I/O

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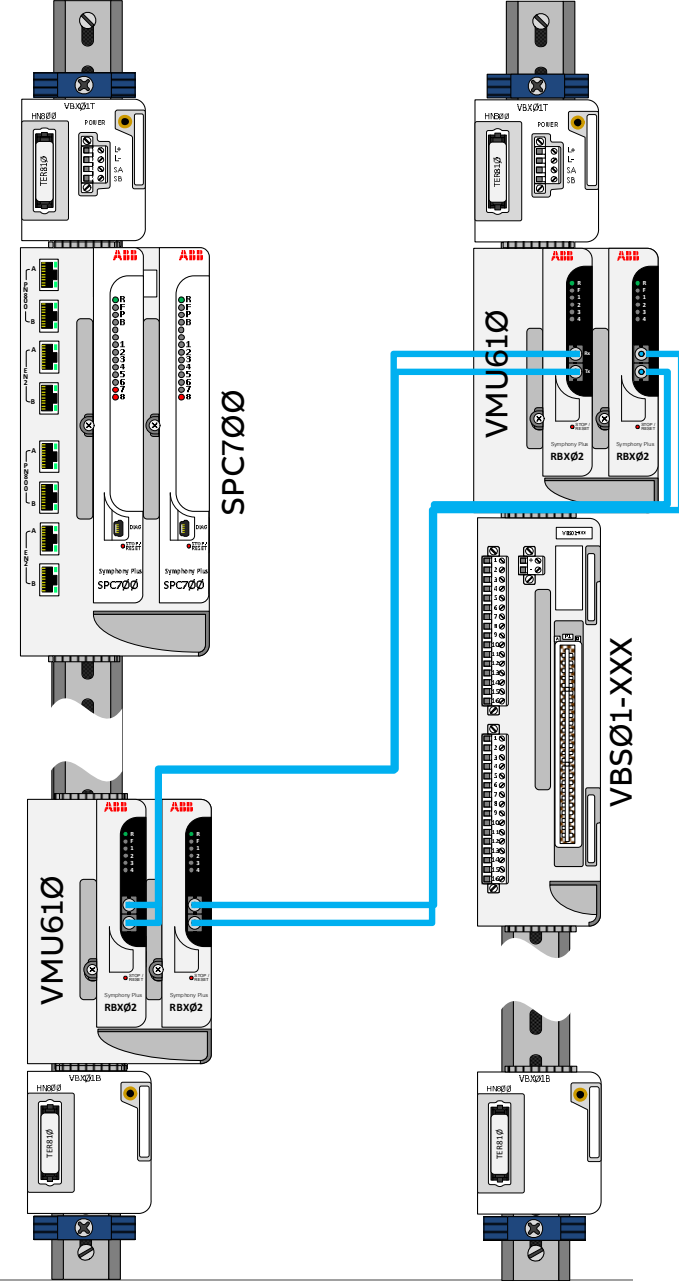
SD Series: Standard I/O

Type	Module	#CH / Signals	Description / Properties
Analog	AIØ1	16 AI	4-20 mADC / 1-5VDC, 2x8 Group Isolation, 16-bit ADC
	AIØ2	16 AI with HART	4-20 mADC, HART AI, 1x16 Group Isolation, 16-bit ADC
	AIØ3	8 RTD	2/3/4 Wire RTDs, 100 Ω Platinum U.S. & European Standards
	AIØ4	16 TC / mV	-100 to +100 mV, 0 to +100mV or Type: B/E/J/K/L/N/R/S/T/U TC's
	AIØ5	8 AI with HART	HART AI, Individual CH Isolation, Dedicated ADC, HART modem & 24V Field PS per CH
	AOØ1	16 AO	4-20 mADC / 1-5VDC, Group Isolation, 12-bit DAC
	AOØ2	16 AO with HART	HART AO, 1x16 Group Isolation, 4-20 mADC, 12-bit DAC
	AOØ5	8 AO with HART	HART AO, Individual CH Isolation, Dedicated DAC & HART modem per CH
Mixed	ADØ1	4x(AI,AO, DI,DO)	1x8 Group Isolated Analog I/O with HART, 24/48 VDC DI's, 24/48 VDC DO's
	ADØ2	4x(AI,AO, DI,DO)	1x8 Group Isolated Analog I/O with HART, 110VAC/125VDC DI's, 24/48 VDC DO's
Digital	DIØ1	16 DI	24 / 48 VDC Digital Inputs, SOE (1 msec resolution)
	DIØ2	16 DI	110 VAC / 125 VDC Digital Inputs, SOE (10/20 msec resolution)
	DIØ3	16 DI	24 VDC Digital Inputs [SOE not supported]
	DIØ4	16 DI	48 VDC Digital Inputs [SOE not supported]
	DOØ1	16 DO	24/48 VDC Open-Collector DO, max 250 mADC
	DOØ2	16 DO	24/48 VDC Open-Collector DO, Short-Circuit detection & protection
	PIØ1	8 PI	Modes: Freq.(5 Hz to 100 kHz), Period (1µs to 30sec), Count (0 to 1.073B)

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SD Series is designed for extremes

Property	Characteristic / Value
Density	Over 1,000 I/O in 19" Rack cabinet
Operating Temperature Range	From -20 to +70 $^\circ$ C
Corrosive Environments	G3 Conformal Coating, optionally available
Low Power Requirements	I/O Modules 1 to 2 W, SPC700 3.6W per module
Backward Compatibility	Supported by HPC800, SP700 & BRC300/400/410

ABB

HR: Harmony Rack Series
Evolution Mapping to SD Series I/O

Module	# CH	I/O	Signal Ranges	HR Harmony Rack Replacement		SD Symphony DIN Replacement	
				HR Module	Comment	SD Module	Comment
NASI01	15	AI	1-5VDC, 0-1VDC, 0-5VDC, 0-10VDC, -10VDC to 10VDC, 4-20mA	SPFEC12	FEC12 does not support Smart Transmitter communications. Uses FC132 and FC133.	AI01	AI01 does not support Smart Transmitter communications
NASI02	15	AI	1-5VDC, 0-1VDC, 0-5VDC, 0-10VDC, -10VDC to 10VDC, 4-20mA	SPFEC12	FEC12 does not support Smart Transmitter communications. Uses FC132 and FC133.	AI01	AI01 does not support Smart Transmitter communications
NASM01	16	AI	1-5VDC, 0-5VDC, 0-10VDC, -10 to 10VDC, 4-20mA	SPFEC12	Sixteen high-level inputs. System or field powered current, or single ended or differential voltage.	AI01	
NASM02	8	AI	-100 to 100mV, 0 to 100mV, Thermocouples	SPASI23	Supports types E, J, K, T, S, R, Chinese E, and Chinese S thermocouples. Also supports millivolt inputs.	AI04	AI04 provides 16 TC / mV inputs
NASM03	8	AI	100 Ohm Platinum RTD, 120 Ohm Nickel RTD, 53 Ohm Chinese Copper RTD	SPASI23	RTDs: 100 Ohm US Lab, 100 Ohm US Industrial, 100 Ohm Platinum European, 120 Ohm Nickel, 53 Ohm Chinese Copper	AI03	
NASM04	8	AI	10 Ohm Copper RTD	IMASM04	Limited Lifecycle Phase	None	
NASO01	14	AO	1-5VDC or 4-20mA	SPASO11	Maximum load 750 Ohms. Uses FC149.	AO01	
NCIS01	3 4 4 2	DI DO AI AO	24VDC, 125VDC, 120VAC 24VDC 1-5VDC, 4-20mA 1-5VDC, 4-20mA	SPCIS22	Interfaces to NDCS03 or IISAC01 manual/auto stations. Used with FC79.	AD01 AD02	AD01 provides 4x LV-DI (24 / 48 VDC) + 4x AO AD02 provides 4x HV-DI (120VAC / 125VDC) + 4x AO Both AD01 & AD02 support HART on Analog I/O *No solution or support for NDCS03 or IISAC01*
NCIS02	3 4 4 2	DI DO AI AO	24VDC, 125VDC, 120VAC 24VDC 1-5VDC, 4-20mA 1-5VDC, 4-20mA	SPCIS22	Interfaces to NDCS03 or IISAC01 manual/auto stations. Used with FC79.	AD01 AD02	AD01 provides 4x LV-DI (24 / 48 VDC) + 4x AO AD02 provides 4x HV-DI (120VAC / 125VDC) + 4x AO Both AD01 & AD02 support HART on Analog I/O *No solution or support for NDCS03 or IISAC01*

ABB

HR: Harmony Rack Series
Evolution Mapping to SD Series I/O

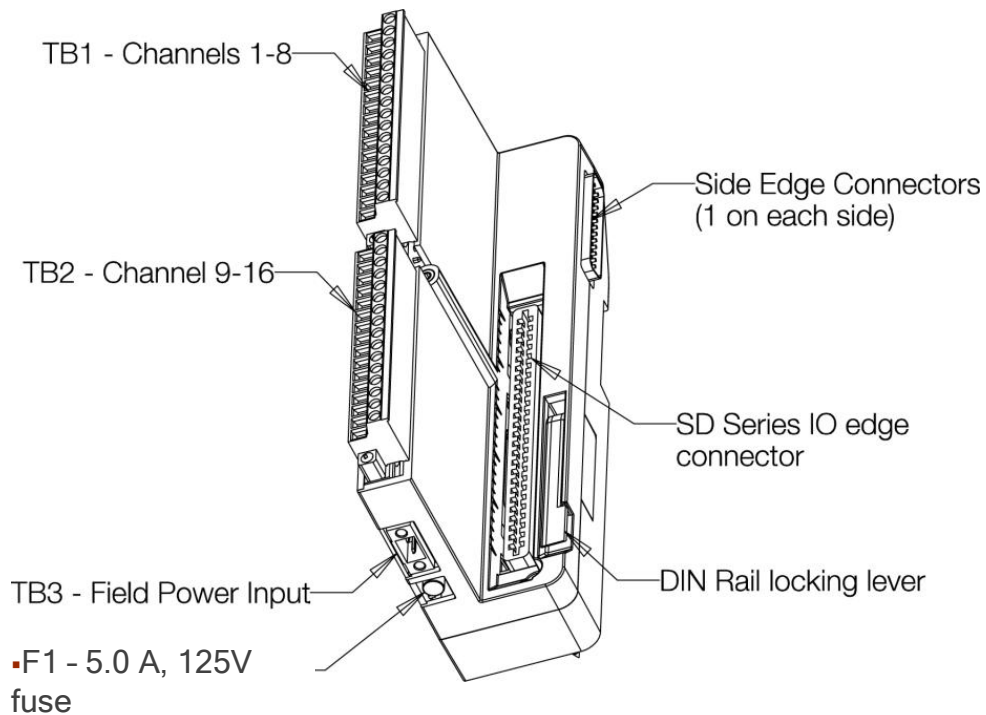| Module	# CH	I/O	Signal Ranges	HR Harmony Rack Replacement		SD Symphony DIN Replacement	
				HR Module	Comment	SD Module	Comment
NDSI01	16	DI	24VDC, 125VDC, 120VAC	SPDSI22	Inputs optically isolated, however, 2 pairs share a common on TU (inputs 7 and 8, and 15 and 16) and these pairs must use same voltage source. Used with FC84.	DI01 DI02 DI03 DI04	DI 24/48 VDC (supports 1 msec SOE) DI 120VAC / 125 VDC (supports 10msec SOE) DI 24 VDC (does not support SOE) DI 48VDC (does not support SOE)
NDSI02	16	DI	24VDC, 125VDC, 120VAC	SPDSI22	Inputs optically isolated, however, 2 pairs share a common on TU (inputs 7 and 8, and 15 and 16) and these pairs must use same voltage source. Used with FC84.	DI01 DI02 DI03 DI04	DI 24/48 VDC (supports 1 msec SOE) DI 120VAC / 125 VDC (supports 10msec SOE) DI 24 VDC (does not support SOE) DI 48VDC (does not support SOE)
NDSM01	16	DI/O	24VDC, selectable as inputs or outputs in groups of 8				
NDSM02	16	DI	24VDC, 125VDC	SPDSI22		DI01 DI02	DI 24/48 VDC (supports 1 msec SOE) DI 120VAC / 125 VDC (supports 10msec SOE)
NDSM03	16	DI	24VDC, 125VDC, 120VAC		24VDC use SPDSI13. 125VDC or 120VAC use SPDSI22	DI01 DI02 DI03	DI 24/48 VDC (supports 1 msec SOE) DI 120VAC / 125 VDC (supports 10msec SOE) DI 24 VDC (does not support SOE)
NDSM04	8	PI	0-50KHz, 4-6VDC, 21.627VDC	SPDSM04	Performs totalization (FC104), frequency count (FC103), or pulse count (FC102).	PI01	
NDSM05	16	DI/O	24VDC, selectable as inputs or outputs in groups of 8	INS: SPDSI22 OUTS: SPDSO14	Must change dip-shunt and reverse polarity of field wires when replacing NDSM05 with DSO14 for outputs or DSI for inputs.	INS: DI03 OUTS: DO01	DI03 provides 16 DI 24 VDC DO01 provides 16 DO 24/48VDC, max 250mA
NDSO01	8	DO	24-240VAC	IMDSO01	Limited Lifecycle Phase	None	
NDSO02	8	DO	4-50VDC	IMDSO02	Limited Lifecycle Phase	None	
NDSO03	8	DO	5-160VDC	IMDSO03	Limited Lifecycle Phase	None	
NDSO04	16	DO	24VDC	SPDSO14		DO01 DO02	DO01 provides 16 DO 24-48 VDC, max 250mA DO02 provides 16 DO 24/48VDC, max 250mA w/ SC protection

ABB

HR: Harmony Rack Series
Evolution Mapping to SD Series I/O

Module	# CH	I/O	Signal Ranges	HR Harmony Rack Replacement		SD Symphony DIN Replacement	
				HR Module	Comment	SD Module	Comment
IMASO01	14	AO	1-5VDC or 4-20mA	SPASO11	Maximum load 750 Ohms. Uses FC149.	AO01	AO01 provides 16 AO's
IMASO11	14	AO	1-5VDC or 4-20mA	SPAS011	Maximum load 750 Ohms. Uses FC149.	AO02	AO02 provides 16 AO's with HART
IMCIS02	3 4 4 2	DI DO AI AO	24VDC, 125VDC, 120VAC 24VDC 1-5VDC, 4-20mA 1-5VDC, 4-20mA	SPCIS22	Interfaces to NDCS03 or IISAC01 manual/auto stations. Uses FC79.	AD01, AD02	AD01 provides 4x LV-DI (24 / 48 VDC) + 4x AO AD02 provides 4x HV-DI (120VAC / 125VDC) + 4x AO Both AD01 & AD02 support HART on Analog I/O *No solution or support for NDCS03 or IISAC01*
IMCIS12	3 4 4 2	DI DO AI AO	24VDC, 125VDC, 120VAC 24VDC 1-5VDC, 4-20mA 1-5VDC, 4-20mA	SPCIS22	Interfaces to NDCS03 or IISAC01 manual/auto stations. Uses FC79.	AD01, AD02	AD01 provides 4x LV-DI (24 / 48 VDC) + 4x AO AD02 provides 4x HV-DI (120VAC / 125VDC) + 4x AO Both AD01 & AD02 support HART on Analog I/O *No solution or support for NDCS03 or IISAC01*
IMCIS22	3 4 4 2	DI DO AI AO	24VDC, 125VDC, 120VAC 24VDC 1-5VDC, 4-20mA 1-5VDC, 4-20mA	SPCIS22	Interfaces to NDCS03 or IISAC01 manual/auto stations. Uses FC79.	AD01, AD02	AD01 provides 4x LV-DI (24 / 48 VDC) + 4x AO AD02 provides 4x HV-DI (120VAC / 125VDC) + 4x AO Both AD01 & AD02 support HART on Analog I/O *No solution or support for NDCS03 or IISAC01*
IMDSI02	16	DI	24VDC, 125VDC, 120VAC	SPDSI22	Inputs optically isolated, however, 2 pairs share a common on TU (inputs 7 and 8, and 15 and 16) and these pairs must use same voltage source.	DI01/02/03/04	DI01 24/48 VDC (supports 1 msec SOE) DI02 120VAC / 125 VDC (supports 10msec SOE) DI03 24 VDC (does not support SOE) DI04 48VDC (does not support SOE) *No solution or support for high & low voltage inputs mixed on same module*
IMDSI12	16	DI	24VDC, 48VDC, 125VDC, 120VAC	SPDSI22	Uses FC84	DI01/02/03/04	
IMDSI13	16	DI	24VDC	SPDSI22	Uses FC84	DI03	
IMDSI14	16	DI	48VDC	SPDSI22	Uses FC84	DI04	
IMDSI15	16	DI	125VDC, 120 VAC	SPDSI22	Uses FC84	DI02	
IMDSI22	16	DI	24VDC, 48VDC, 125VDC, 120VAC	SPDSI22	Uses FC84	DI01/02/03/04	

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HR: Harmony Rack Series
Evolution Mapping to SD Series I/O

Module	# CH	I/O	Signal Ranges	HR Harmony Rack Replacement		SD Symphony DIN Replacement	
				HR Module	Comment	SD Module	Comment
IMDSI22	16	DI	24VDC, 48VDC, 125VDC, 120VAC	SPDSI22	Uses FC84	DI01 DI02 DI03 DI04	DI 24/48 VDC (supports 1 msec SOE) DI 120VAC / 125 VDC (supports 10msec SOE) DI 24 VDC (does not support SOE) DI 48VDC (does not support SOE)
IMDSM04	16	PI	0-50KHz, 4-6VDC, 21.627VDC	SPDSM04	Performs totalization (FC104), frequency count (FC103), or pulse count (FC102).	PI01	
IMDSM05	16	DI/O	24VDC, selectable as inputs or outputs in groups of 8	OUTS: SPDSO14 INS: SPDSI22	Must change dipshunt and reverse polarity of field wires when replacing IMDSM05 with IMDSO14 for outputs or IMDSI22 for inputs. No direct replacement when IMDSM05 is used for both inputs and outputs, or when used with digital logic station (DLS).	INS: DI01 OUTS: DO01	DI01 provides 16 DI 24/48 VDC (supports 1 msec SOE) DO01 provides 16 DO 24/48VDC, max 250mA
IMDSO01	8	DO	24-240VAC		Used with FC83.		
IMDSO02	8	DO	4-50VDC		Used with FC83.		
IMDSO03	8	DO	5-160VDC		Used with FC83.		
IMDSO04	16	DO	24VDC	SPDSO14	Must reverse polarity of output wires when replacing a DSM05 with a DSO04. Does not support DLS when replacing DSM05. Used with FC83.	DO01 DO02	DO01 provides 16 DO 24-48 VDC, max 250mA DO02 provides 16 DO 24/48VDC, max 250mA w/ SC protection
IMDSO14	16	DO	24VDC	SPDSO14	Must reverse polarity of output wires when replacing a DSM05 with a DSO14. Does not support DLS when replacing DSM05. Used with FC83.	DO01 DO02	DO01 provides 16 DO 24-48 VDC, max 250mA DO02 provides 16 DO 24/48VDC, max 250mA w/ SC protection
IMDSO15	8	DO	EMR outputs 48VDC, 120VAC	SPDSO15	Discrete electromechanical relays on-board. Used with FC83.		

SD Series Control & I/O Product Overview
List of new SD Series I/O Module Bases

TB1 - Channels 1-8

TB2 - Channel 9-16

TB3 - Field Power Input

- F1 - 5.0 A, 125V fuse

Side Edge Connectors (1 on each side)

SD Series IO edge connector

DIN Rail locking lever

#	Base	AI01	AI03	AI04	AO01	DI01	DI02	DO01	PI01	Horizontal, Base, Single module
1	HBS01-FPH	X				X	X	X	X	Field Power (switch) High
2	HBS01-FPN					X	X	X	X	Field Power (switch) Neutral
3	HBS01-EPD	X			X	X	X	X	X	External Power or Differential I/O
4	HBS01-CJC		X	X						Cold Junction Compensation

SD Series: Enhanced Horizontal Bases HBSØ1-xxx

45 [1.77]

86,5 [3.41]

EPD

190 [7.48]

Module Mounting Screw

Optional Panel Mounting Screw

11,15 [.439]

F1 5A I/O Power Fuse
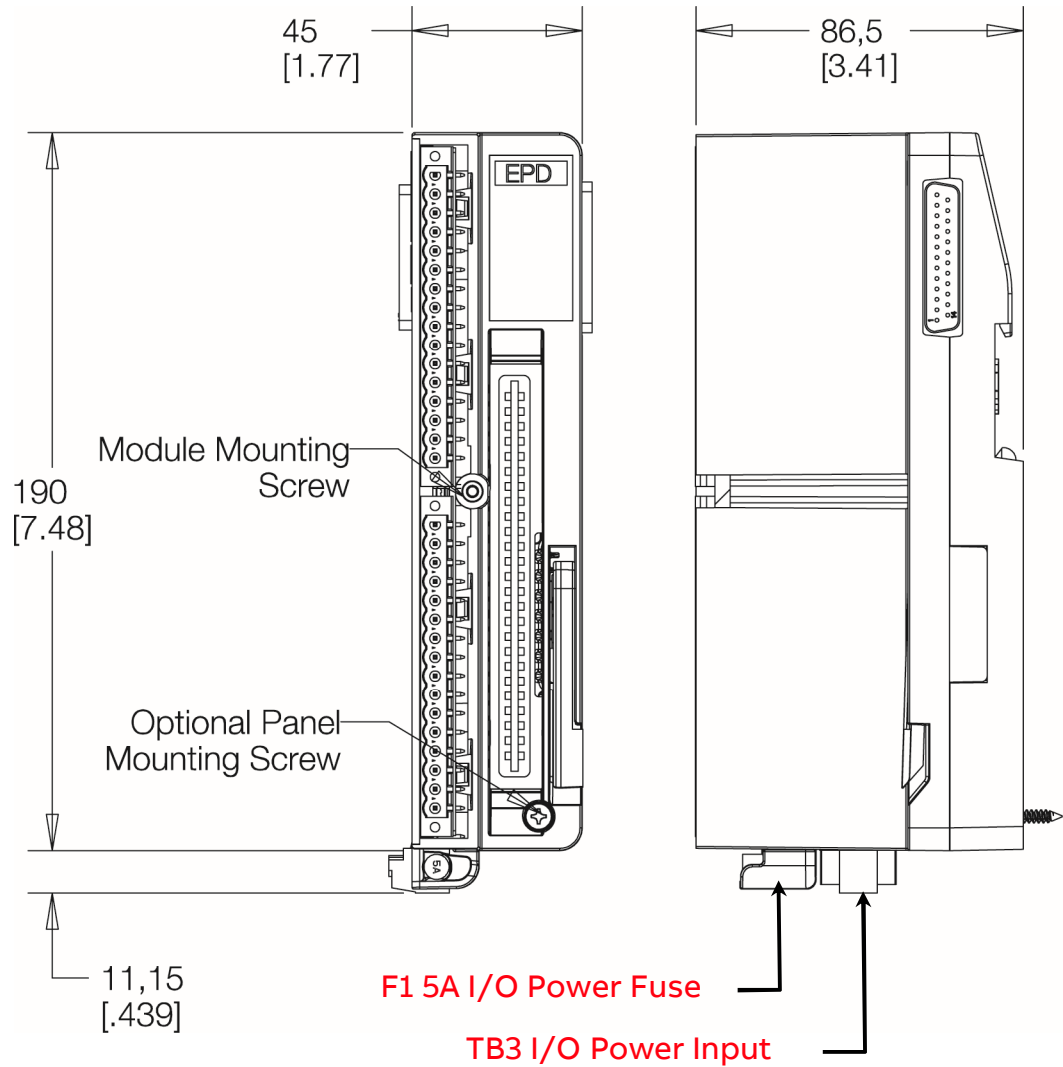
TB3 I/O Power Input

TB1 Header Plug

TB2 Header Plug

F1 5A I/O Power Fuse

TB3 I/O Power Input

Side Edge Connector (1 on each side)

SD Series I/O Module Edge Connector

DIN Rail Locking Lever

Enhanced HBSØ1-xxx bases to begin shipping 2Q-2017

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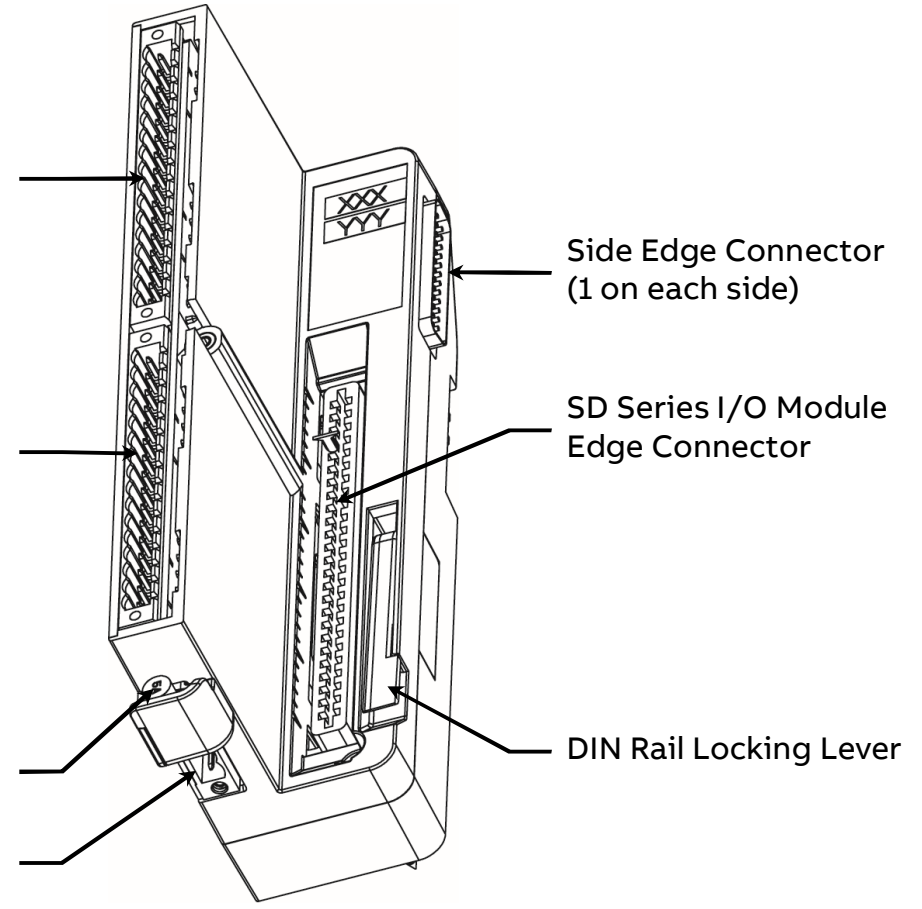
SD Series I/O
SPK01_ & SPK02_ Marshaling Cables

▪SPK01T-xx

▪SPK02T-xx

▪SPK01B-xx

▪SPK02B-xx

▪HBS01-xxx

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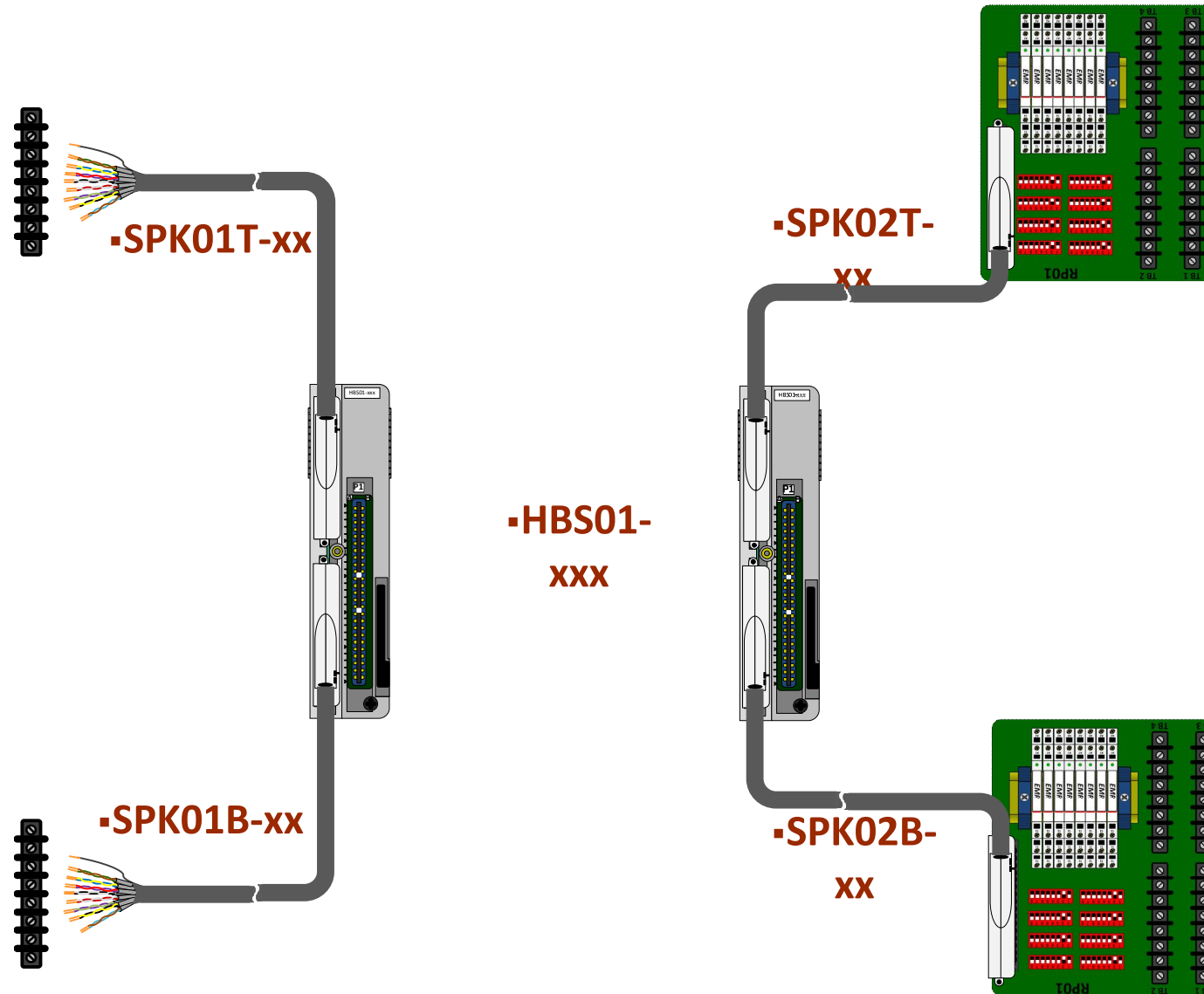
SD Series: Compact I/O

Compact Modules

cAIØ1   cAIØ4   cAOØ1
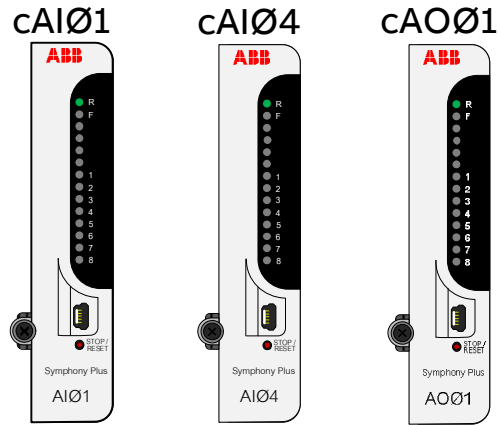
Compact Bus Extenders

cHBXØ1L   cHBXØ1R
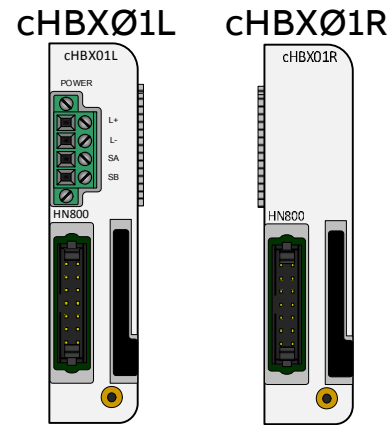
Compact Module Bases

cHBSØ1-xxx   cVBSØ1-xxx
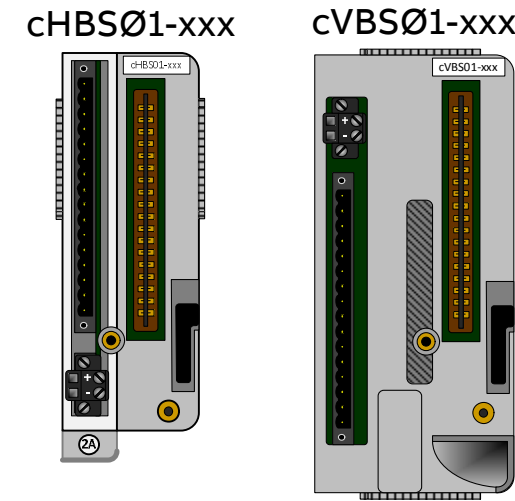
#	Module	#CH / Signals	Description / Properties
1	cAIØ1	8 AI	4-20 mADC / 1-5 VDC, AI, 1x8 Group Isolation, 16-bit ADC
2	cAIØ4	8 TC / mV	-100 to +100 mV, 0 to +100mV or Type: B/E/J/K/L/N/R/S/T/U TC's
3	cAOØ1	8 AO	4-20 mADC, HART AO, 1x8 Group Isolation, 12-bit DAC
4	cHBXØ1L / R	n/a	Compact Horizontal Bus Extenders
5	cHBSØ1-xxx	n/a	Compact Horizontal Base Single module – CJC, EPD, FPH, FPN
6	cVBSØ1-xxx	n/a	Compact Vertical Base Single module – CJC, EPD, FPH, FPN

** *Other Compact I/O Modules in Future based on Market Demand*

SD Series: Standard I/O

- Up to 10 horizontal rows (Bus Segments) can be connected in single HN8ØØ electrical bus

- Up to 10 vertical columns (Bus Segments) can be connected in single HN8ØØ electrical bus

- Rows & columns are connected using SPK8ØØ-xx cables

- SPK8ØØ-xx cables <u>must</u> remain within cabinet enclosure
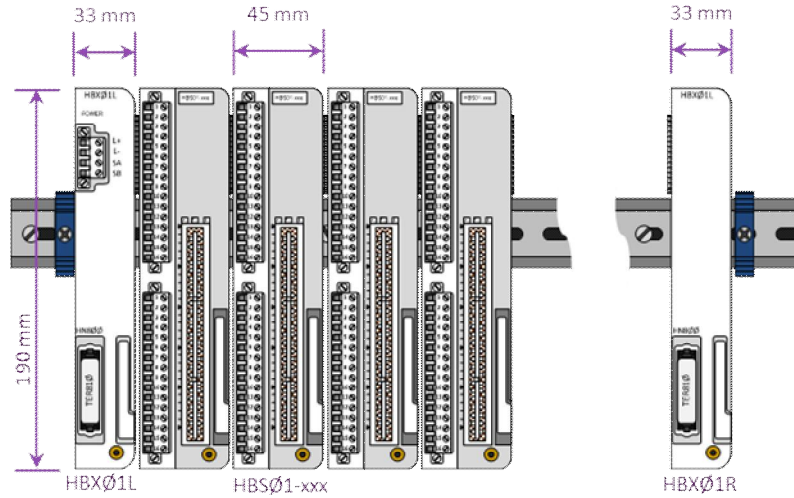
Horizontal Rows

# Mods	Total Width (mm)	# Mods	Total Width (mm)	# Mods	Total Width (mm)
1	117	9	501	17	885
2	165	10	549	18	933
3	213	11	597	19	981
4	261	12	645	20	1029
5	309	13	693	21	1077
6	357	14	741	22	1125
7	405	15	789	23	1173
8	453	16	837	24	1221
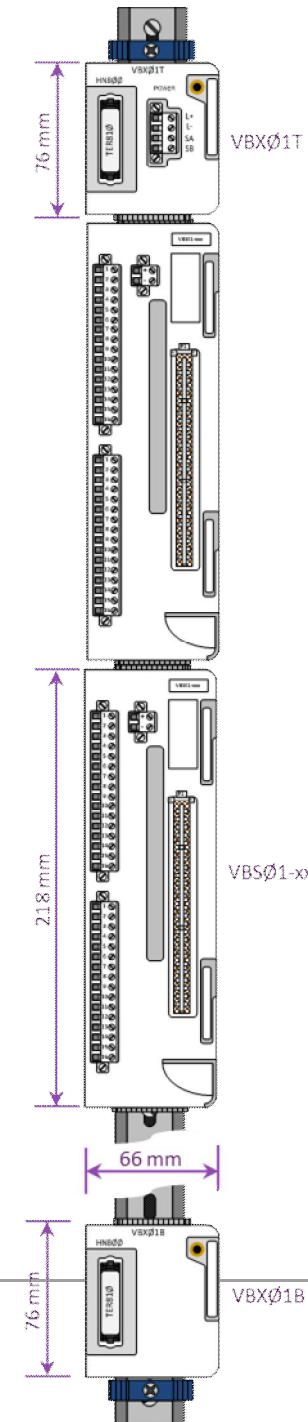
Vertical Columns

# Mods	Total Length (mm)
1	376
2	597
3	818
4	1039
5	1260
6	1481
7	1702
8	1923

ABB

SD Series: Redundant I/O
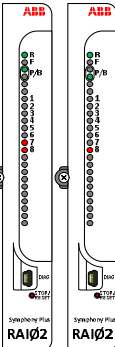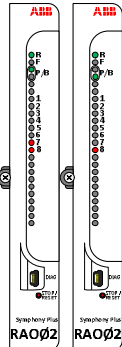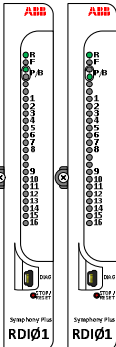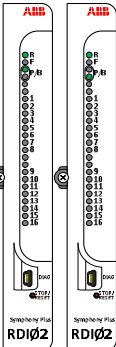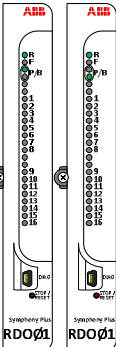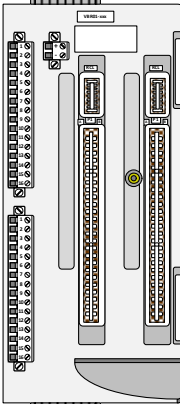
#	Module	I/O Type	Description / Properties
1	RAIØ2	16 AI	Group-Isolated (1-5 VDC, 4-20 mADC) HART AI
2	RAOØ2	16 AO	Group-Isolated (1-5 VDC, 4-20 mADC) HART AO
3	RDIØ1	16 DI	24 / 48 VDC Digital Input, 1 msec SOE
4	RDIØ2	16 DI	110 VAC / 125 VDC Digital Input, 10/20 msec SOE
5	RDOØ1	16 DO	24 – 48 VDC Digital Output, max 250 mADC
6	VBRØ1-xxx	16 CH	**V**ertical **B**ase **R**edundant Modules: [xxx = FPH, FPN, EPD]

Redundant LV DI

Redundant HV DI

Redundant 24/48V DO
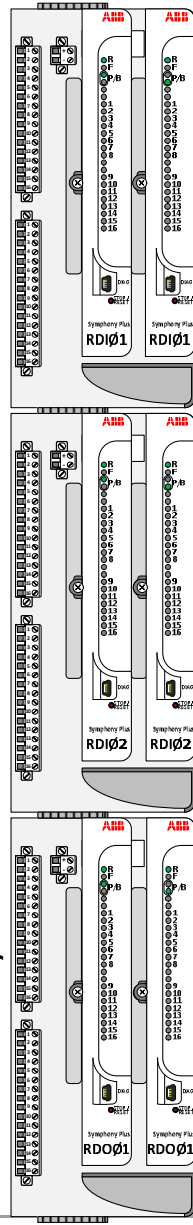
Redundant AI

Redundant AO

HBRØ1-xxx **H**orizontal **B**ases **R**edundant modules Target Release 4Q-2017

SD Series: Redundant I/O

VBRØ1-xxx

- 103 [4.06]
- 110,1 [4.33]
- Ø 3,35 [.132]
- EPD
- Optional Panel Mounting Screw (3mm)
- Module Mounting Screw Locations
- 218 [8.58]

VBSØ1-xxx

- 66 [2.60]
- 110,7 [4.36]
- EPD
- Optional 3mm Panel Mounting Screw located under Lever
- Module Mounting Screw
- 218 [8.58]
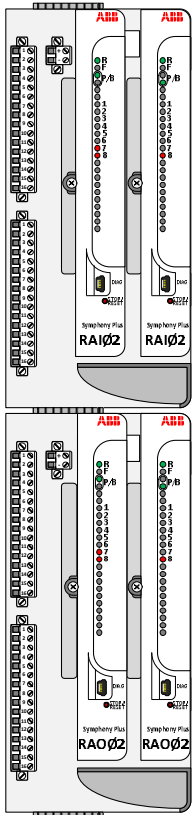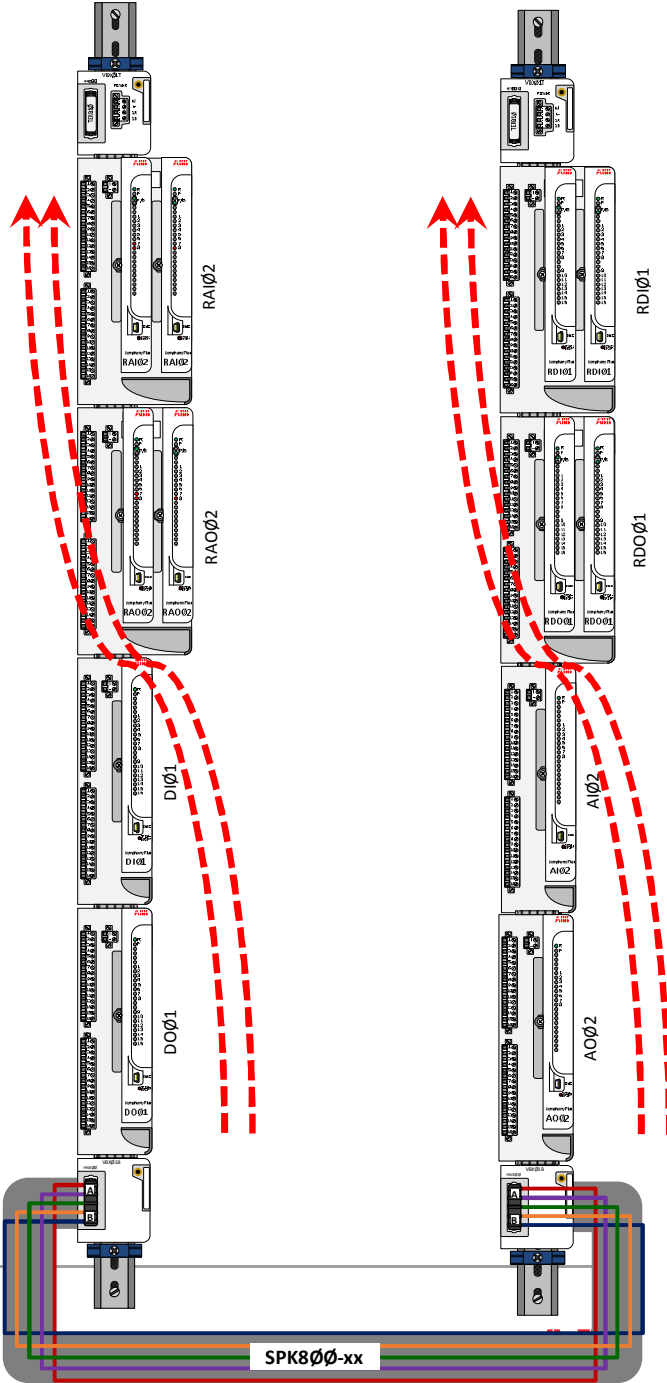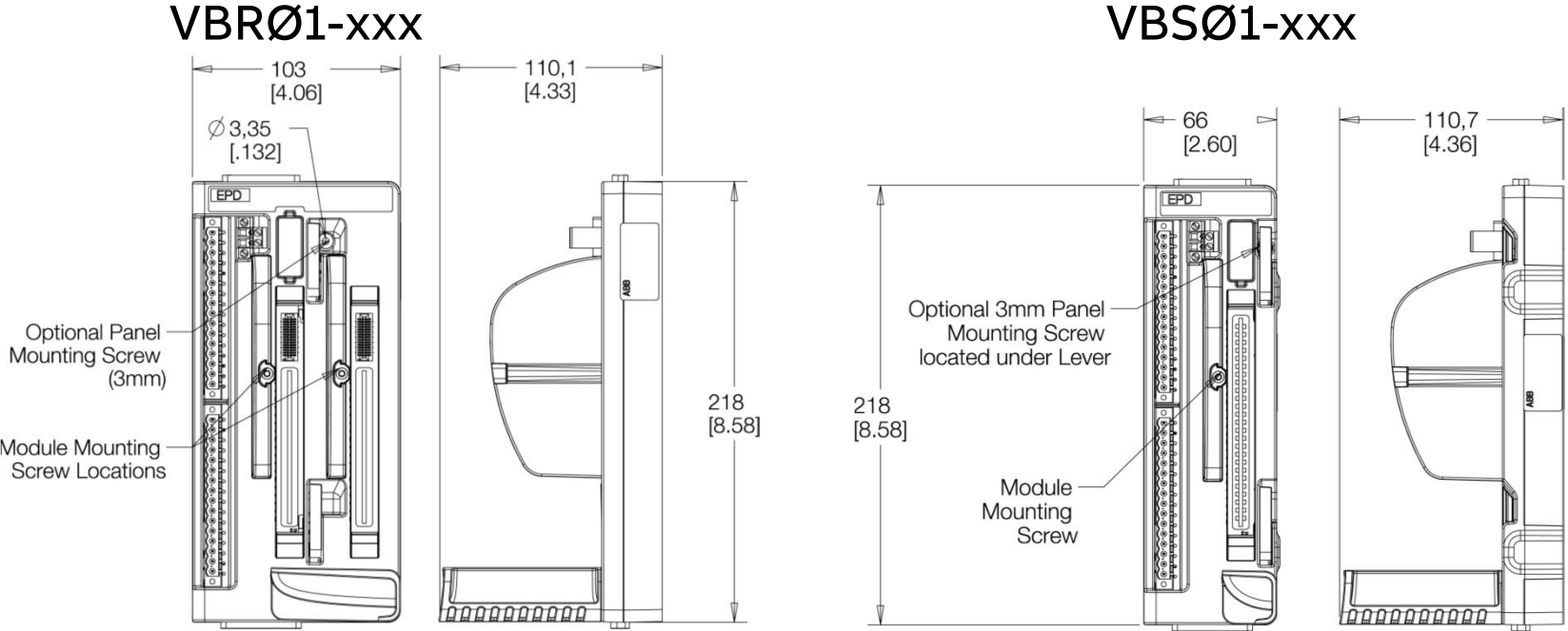
- ❑ Redundant & Non-Redundant I/O bases are 100% compatible
- ❑ Redundant & Non-Redundant I/O can be mounted in the same column
- ❑ Keep Redundant I/O at top of the column in order to minimize "Stove Pipe" effect
- ❑ Avoids need to de-rate operating temperature range: -20 to +70°C

SD Series Control and I/O
SD Series: Device integration via PROFIBUS DP

SD Series controller use of PDP800 PROFIBUS Interface allows for easy integration of intelligent devices such as smart transmitters, actuators and intelligent electronic devices (IEDs).
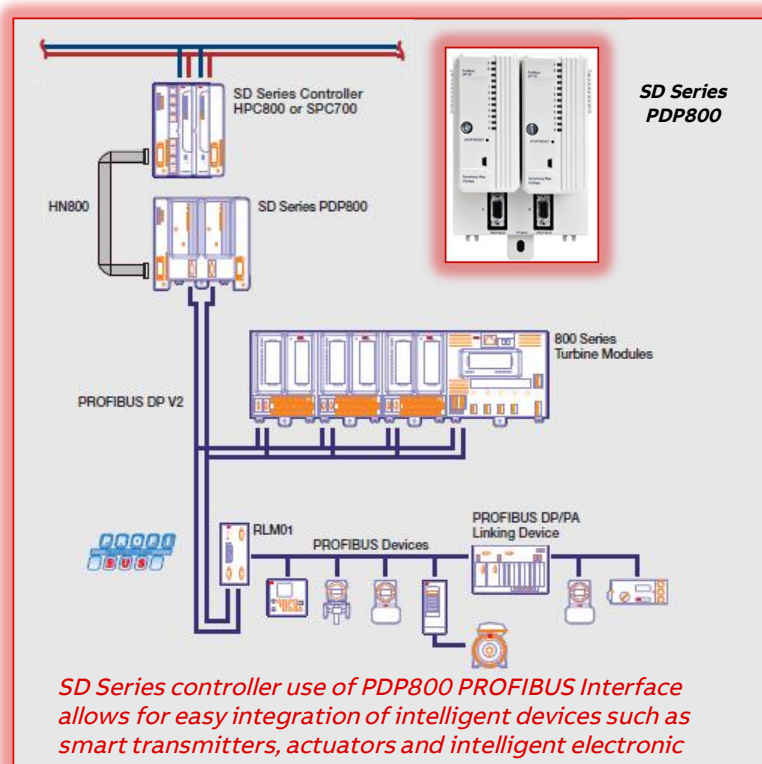
PDP800 PROFIBUS Interface Module supports:

- Module redundancy

- PROFIBUS DP line redundancy

- PROFIBUS DP V0, V1, V2

- PROFIBUS PA devices through DP/PA linking device

- 1 msec time stamping of devices by PROFIBUS DP V2

- Electric and fiber optic media for PROFIBUS DP link

    - Up to 12 Mbps rate of PROFIBUS DP link

    - Up to 15 km by fiber optic PROFIBUS DP link

    - Up to 125 slave devices

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SD Series Control and I/O-CI850
SD Series: Electrical integration via IEC61850

Communication rates of 5 msec between SD Series controllers and electrical devices improve plant or process availability with rapid responses to power glitches or interrupts.

SD Series CI850

ABB Relion® IEDs

SD Series Controller HPC800 or SPC700

Electrical Interface CI850

HN800

IEC 61850 (GOOSE and MMS)

IED's
IED's
IED's
IED's
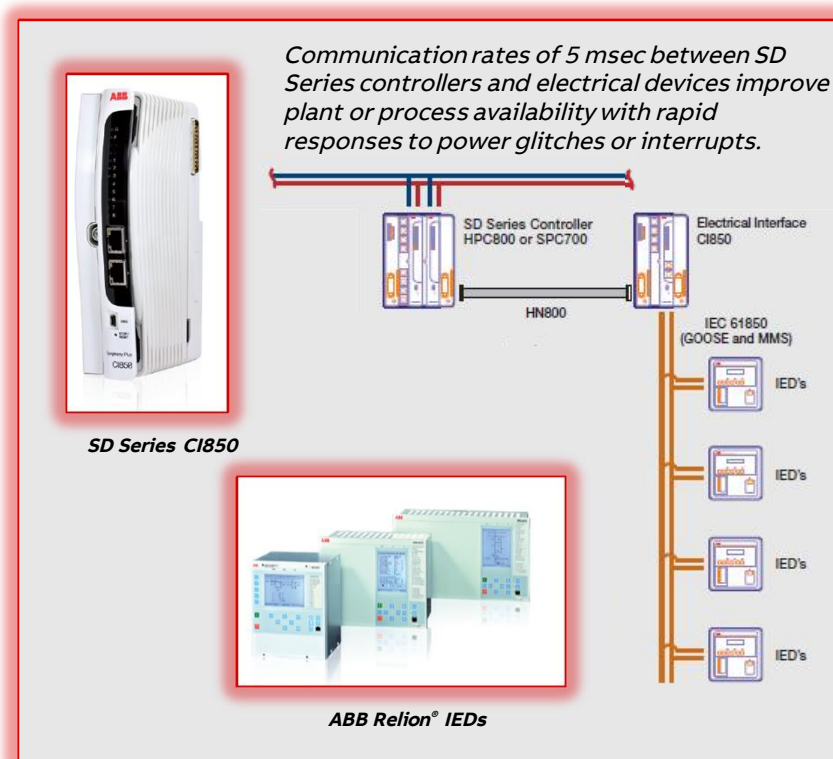
CI850 IEC61850 Interface Module supports control and supervision of MCCs, switchgear, transformers, excitation systems, and protective relays via IEC61850

- Data modeling according to IEC 61850-7-3/4

- MMS client functionality according to IEC 61850-7-2

- GOOSE publisher and subscriber functionality

- Capability to send Single and Double Commands

- Capability to send Select Before Operate Commands

- Up to 20 IEDs connected to a single CI850

SD Series Control and I/O -SCI200
SD Series: General interface (multiple protocol integration)

Supports control and supervision of intelligent devices including IEDs (Intelligent Electronic Devices) and RTUs (Remote Terminal Units) via IEC60870-5-104.
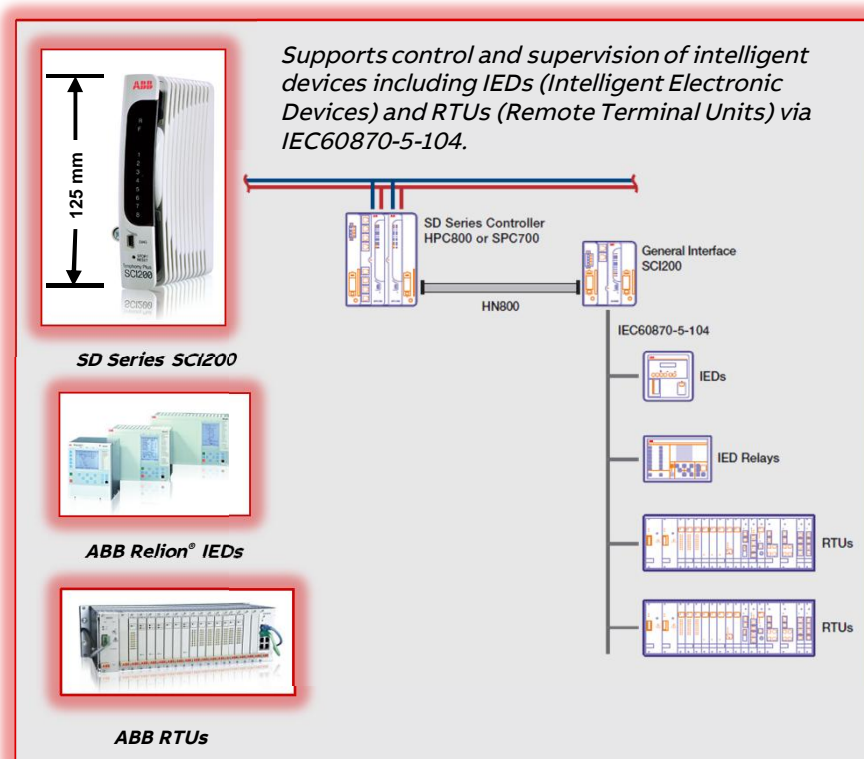
Utilizes compact SD Series packaging (125mm height vs standard 190 mm height)

SCI200 is a multi protocol interface that includes support for IEC60870-5-104

SCI200 IEC60870-5-104 features include:

- Data exchange can be accomplished in 100 milliseconds
- Master and Slave capabilities
- Supports all major data types
- Capability to send Single and Double Commands
- Capability to send Select Before Operate Commands
- As a Master, supports up to 16 devices with time synchronization to slaves
- As a Slave, supports up to 8 masters connected simultaneously
- Dual high-performance 32 bits CPUs (almost 800MIPS total)

Product life cycle status
Engineering tools

	Class: Engineering tools	Product Family	Remarks
Active (green)			
Classic (yellow)			
Limited (red)		S+ Engineering	The **"Active"** version is S+ Engineering 1.0 (introduced in September 2014). Through its unified engineering environment, S+ Engineering provides all the necessary functionality needed to engineer, configure, administrate, secure, commission and maintain every component in a Symphony Plus Control System - from control and I/O (HR Series and SD Series controllers), field instrumentation and electrical devices to network architecture, and operations, engineering, and advanced system applications. **Note, S+ Engineering 1.0 is the tool required for engineering / configuration of the entire SD Series portfolio.** *S+ Engineering's control engineering application is based on Composer Harmony.
Obsolete (grey)		Composer	The **"Active"** version of Composer Harmony is version 6.1. It provides support for all HR Series (and all previous rack generations) and HPC800 DIN controllers. Use with Composer Field 1.1 provides additional support for PROFIBUS DP (PDP800) and HART I/O (HAI805 / HAO805) device configurations.
		WinTools	Moved to **"Obsolete"** in January 2009. Contains components not supported by newer PCs. Recommend evolution to S+ Engineering or Composer.
		DOSTools	**"Obsolete"** since December 31, 1999. Recommend evolution to S+ Engineering or Composer.

S+ Engineering for Harmony

Enhancement of the time-tested and proven Composer engineering platform

- Compatible with Symphony Plus HR (Harmony Rack) Series and SD (Symphony DIN) Series (including support for Rack I/O, SD Series I/O, S800 I/O, and 800 Series Turbine)

- Compatible with S+ Operations and other ABB HMI platforms

- An efficient platform to engineer, configure, administrate, secure, commission and maintain Symphony Plus / Harmony system

- Seamlessly integrates previous generation Wintools and Composer projects for evolution

S+ Engineering for Harmony

Engineering Workbench: system topology engineering
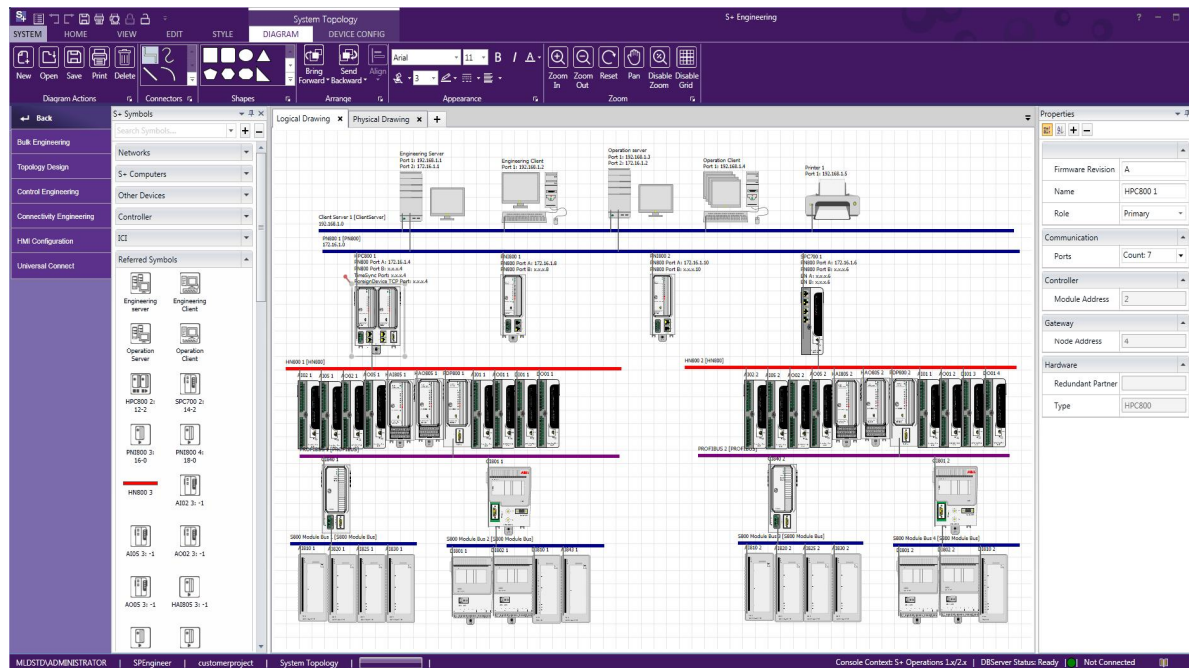
Visual method to define topology from plant network to the I/O and field device level

Device specific property window

Synchronizes control topology with control engineering

Support system setup

– Publish IP to reachable computer nodes

– Share information with Install and Update (I and U) tool and enables central I and U

HMI configuration support

– Shares HMI topology information and enables further configuration in S+ Operations

Effortless documentation and report generation

S+ Engineering for Harmony

Audit trail

Changes made in S+ Engineering Environment

Online changes

Audit Trail events

Runtime System

S+ Operations Events DB
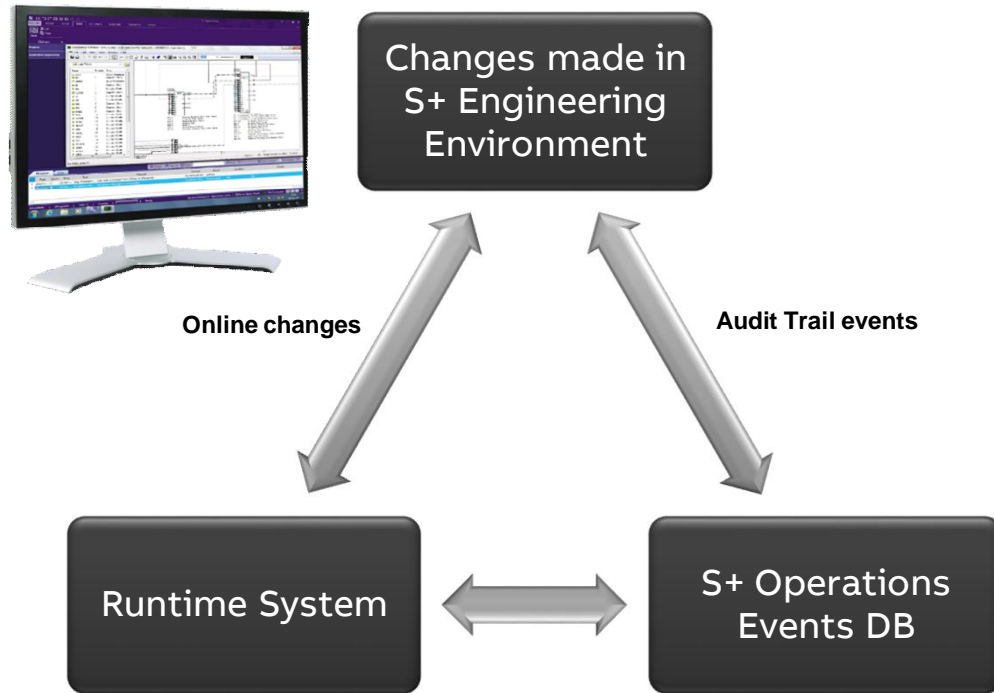
Complete audit trail support for those who require regulatory compliance

Effective way of improving security of your Symphony Plus system

Track and archive system changes made at any engineering station

All event logs are traced in a central event database

Long term archiving in plant historian

S+ Engineering for Harmony

Multi user engineering / remote engineering

User 1

User 2

User 3
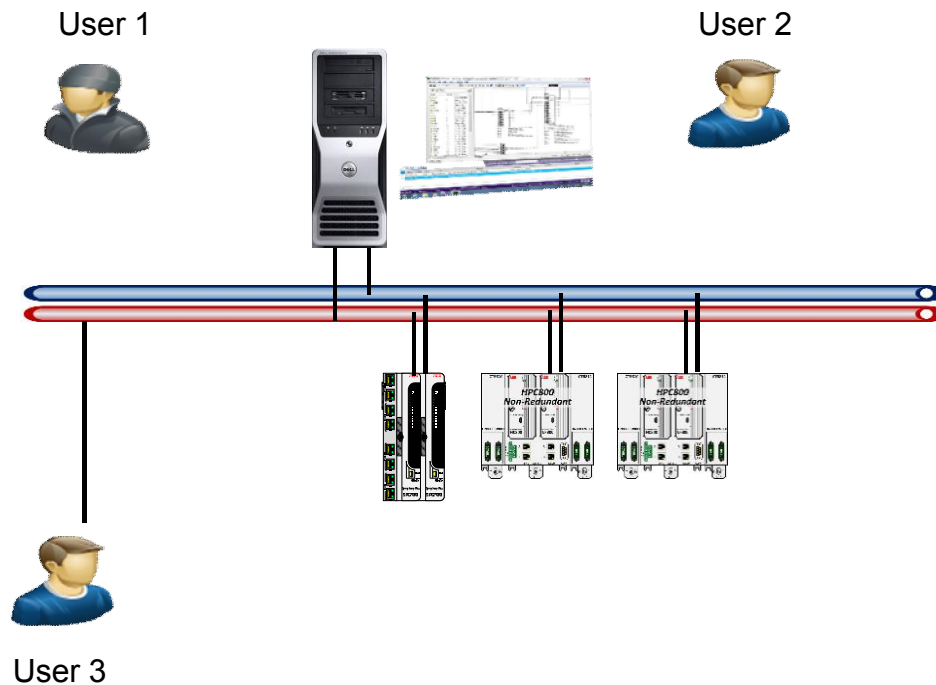
Multiple users (max 10) can work on the same project in parallel saving valuable commissioning time

Automatic "lock" on the document – so individuals can work on it without interruption and avoid simultaneous edits

Different users can update and tune different function loops within the same controller at the same time

Collaboration throughout the process –
from definition of process points to system/cabinet layout to diagnostics and service

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S+ Engineering for Harmony

Explorer and Automation Architect

Explorer

- Intuitive means of organizing and locating system configuration information

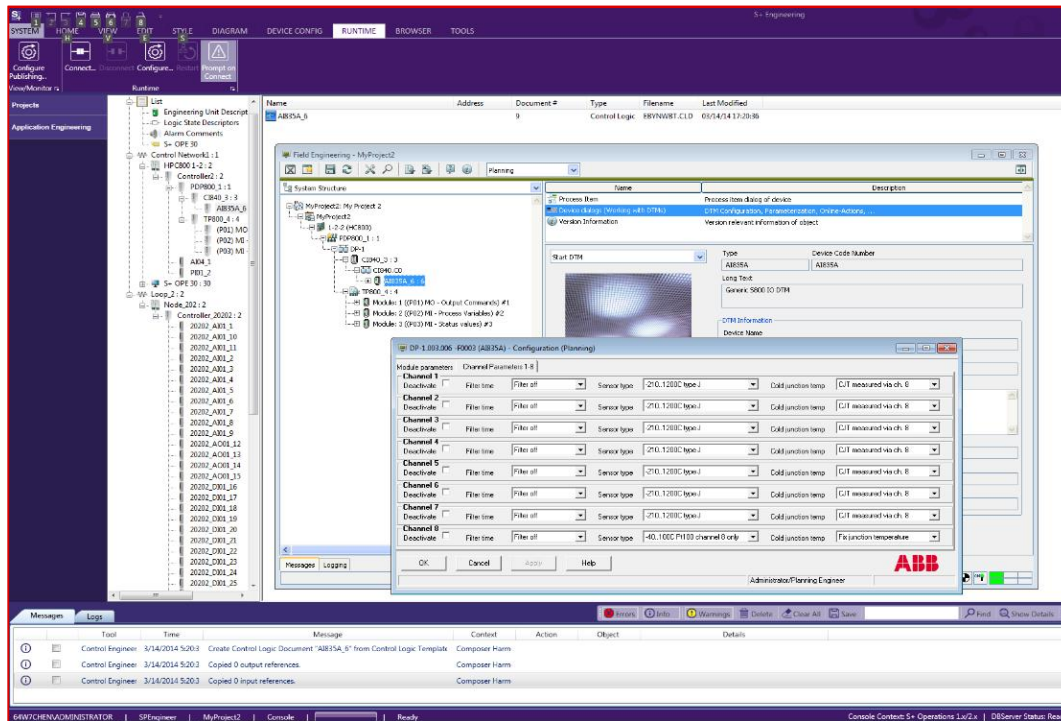- Microsoft Explorer style left-pane menu provides hierarchical view of S+ System

Automation Architect

- Visual creation, editing, monitoring and tuning of control logic

- Drag and drop function codes from libraries right into the control logic document (CLD)
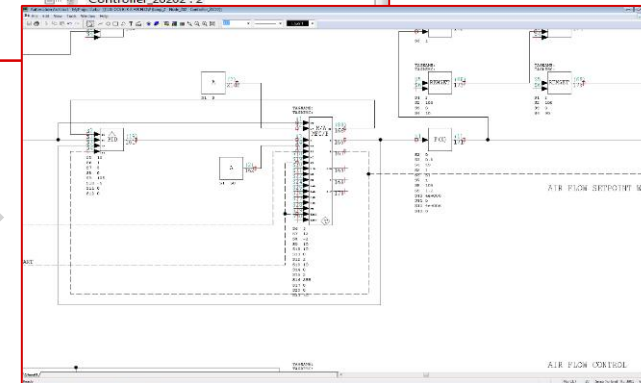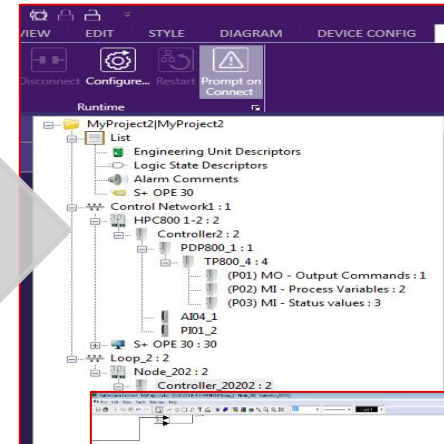
S+ Engineering for Harmony
Field device integration

- Complete support for configuration, commissioning, maintenance and management of intelligent field and electrical devices using PROFIBUS and HART

- Unlimited access to HART device parameters (including primary and secondary variables) in control application via function blocks

- Full support for PROFIBUS-DP V0, V1, V2 (SOE and diagnostic) as well as PROFIBUS-PA

- Use of standard HART and PROFIBUS DTMs – no need of any additional tools

- Shortens commissioning time by allowing single platform (without additional tools/software) for smart device configuration

S+ Engineering for Harmony
## Modbus TCP device integration
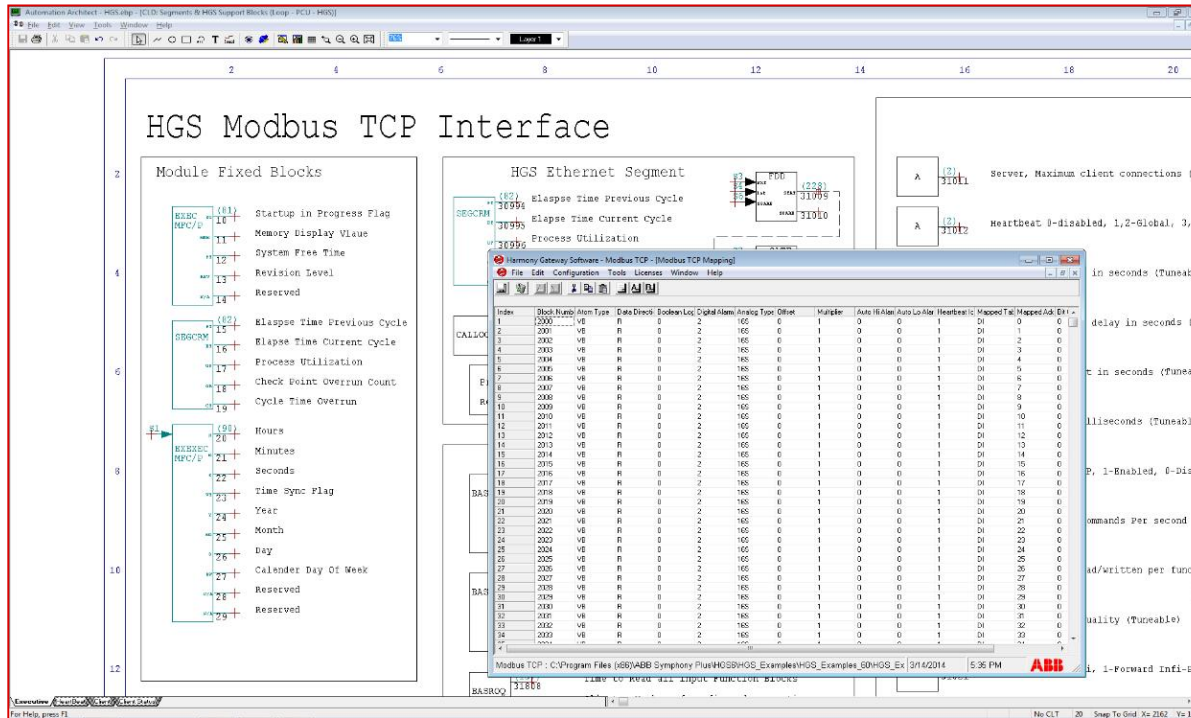
- Built-in functionality of Harmony Gateway Software (HGS)

- Complete integration of Modbus data within the control application by mapping Modbus points to function blocks in the controller

- Ultimate design flexibility - HGS can configure S+ controller as a client, server or client/server concurrently

Product life cycle status
Operator consoles

	Class: Operator consoles	Product Family	Remarks
Active			
Classic		S+ Operations	S+ Operations is the HMI for Symphony Plus and is in the **"Active"** phase of its product life cycle. The current version is S+ Operations 2.0
Limited		800xA Process Portal	800xA Process Portal is in the **"Active"** phase of its product life cycle (version 6.0).
Obsolete		Power Generation Portal (PGP)	PGP (version 4.1) moved to **"Classic"** in January 2014. Recommend evolution to S+ Operations which re-uses native PGP HMI operator graphics, tags, and symbols.
		LAN90 PCView	Recommend evolution to S+ Operations HMI. S+ Operations SODG translation features allows direct –re-use of LAN90 PCView operator graphics, tags, and symbols.
		Process Portal B	Process Portal B(version 2.0) moved to **"Limited"** in January 2014. Recommend evolution to S+ Operations or 800xA Process Portal. Standard conversion process allows for re-use of existing PPB SLGMS based operator graphics, tags, and symbols.
		Conductor NT	Conductor NT (version 6.0) moved to **"Limited"** in January 2014. Recommend evolution to S+ Operations or 800xA Process Portal. Standard conversion process allows for re-use of existing CNT SLGMS based graphics, tags, and symbols.
		OIS40 Series (includes CVMS software)	Recommend evolution to S+ Operations or 800xA HMI.
		OIS20 (includes OIS20 & OIS25) & MCS Series	Recommend evolution to S+ Operations HMI. S+ Operations SODG translation feature allows for direct –re-use of OIS 20 / MCS operator graphics, tags, and symbols.
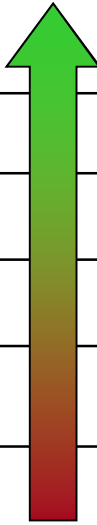
February 27, 2017

800xA 6.0 for Symphony Plus Harmony connect
What is New for 800xA Symphony Plus Harmony?
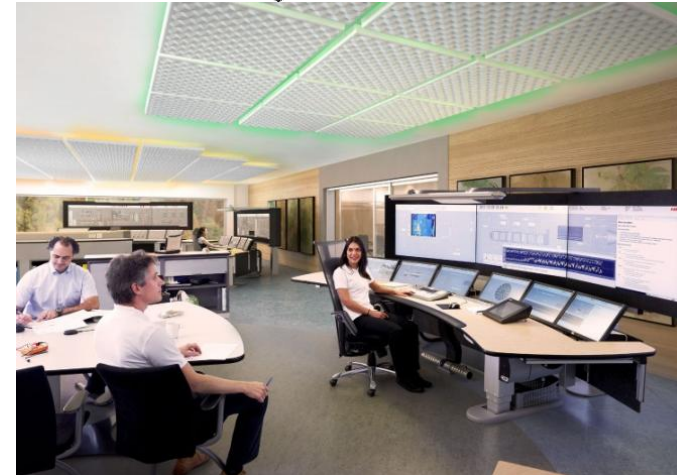
Support new Operating System
  - Windows 8
  - Windows 2012 server
  - Support Virtualization

The Power of Integration
  - Flexible System Architectures
  - Improving operator effectiveness
  - Easier to setup and maintenance
  - EOW support

ABB

800xA for Symphony Plus Harmony

Full support for all Harmony and
Symphony Plus hardware

– Connectivity Server streamlined
– SQL removed!

Composer Database imported
directly into Aspect Directory

Easier to configure
and maintain!

Future Software Releases

S+ Operations

S+ Operation 2.1

- Windows 10
- Windows 2016 Server
- Quality Improvements

S+ Operations 3.1

- Smart Configurator (post setup wizard)
- Pocket Portal
- Panel HMI
- Virtual PNI support
- Cyber Security Improvements

S+ Engineering

S+ Engineering 1.4

- Windows 10
- Windows 2016 Server
- Quality Improvements

S+ Engineering 2.1

- New Database
- Ethernet I/P intergration
- Updates for Configurable Function Codes
- Updates to Soft Controller
- Quality Improvements