Advant with Master Software - Evolution Overview

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Power and productivity
for a better world™

ABB’s solution: Advant Master Evolution

- Extended Automation solutions to meet today’s business challenges
  - Investment Protection
    - Intellectual Property
    - Capital Equipment
  - Incremental, stepwise execution
- Tailored and detailed planning
  - Long term collaborative relationship
- Field-proven best practices
- Not migration; no *rip and replace*

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ABB’s solution: Advant Master Evolution

1984: MasterView
3500

1994: AdvaCommand
8000

2004: System 800xA
8200

2000: Industrial^{IT}

Obsolete | Obsolete | Active

1984 | 1994 | 2000 | 2004 | 2013

Obsolete | Active | Active

1984: MasterPiece
10 000

1995: Advant Controller 4xx
10 000

2004: AC 800M
61200

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Introduction

- The challenge today is to recognize the need to Evolve your system and not just maintain what you have
- Evolving a system is usually done incrementally and not all at once
- No system is maintainable for ever, therefore everyone should have a policy defining how to Evolve their system to newer and more maintainable standards
- An Evolution plan can:
  - Recognize triggers (required component replacements)
  - Identify critical components
    - Very old Controllers, power supplies
- Reduce costs
  - New parts are more cost efficient

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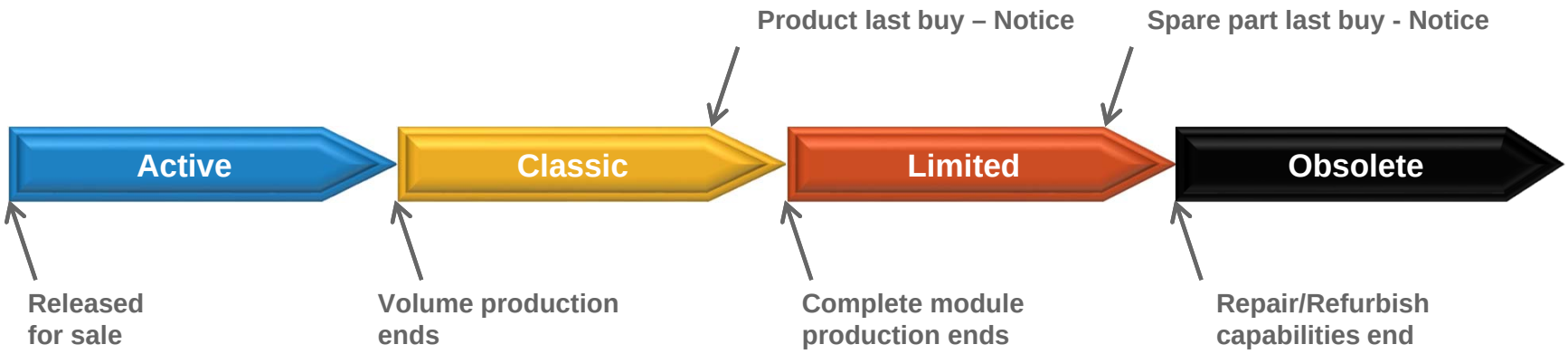
ABB's life cycle policy
Product management through the life cycle model



- ABB uses a four phase life cycle model to secure service availability during the system lifetime
- Throughout the product lifetime, the product is transferred through different life cycle phases
- No service is guaranteed when the product or part has moved into the Obsolete phase.
- ABB offers evolution services to maintain your investment in a supported life cycle phase (Active, Classic and Limited)

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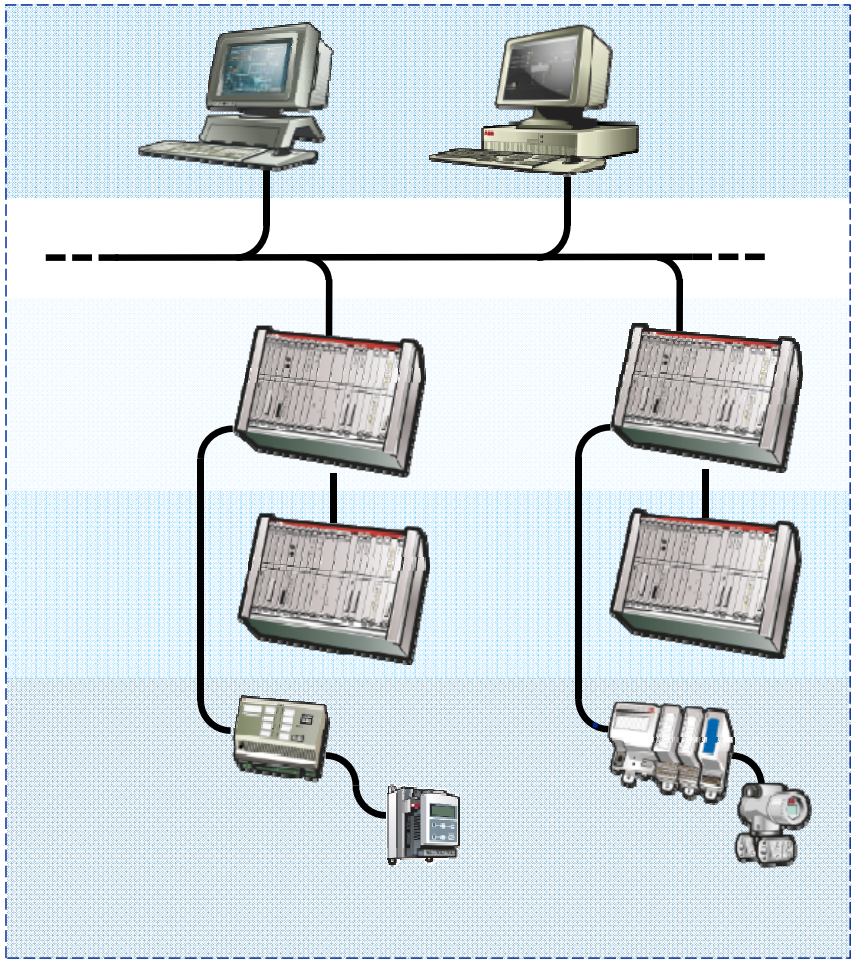
An Advant Master System is made up of 6 main areas



- Operator Interface (HMI or HSI)
- Engineering Tool
- Communications network
- Controllers
- I/O’s and power
- Remote I/O and drives

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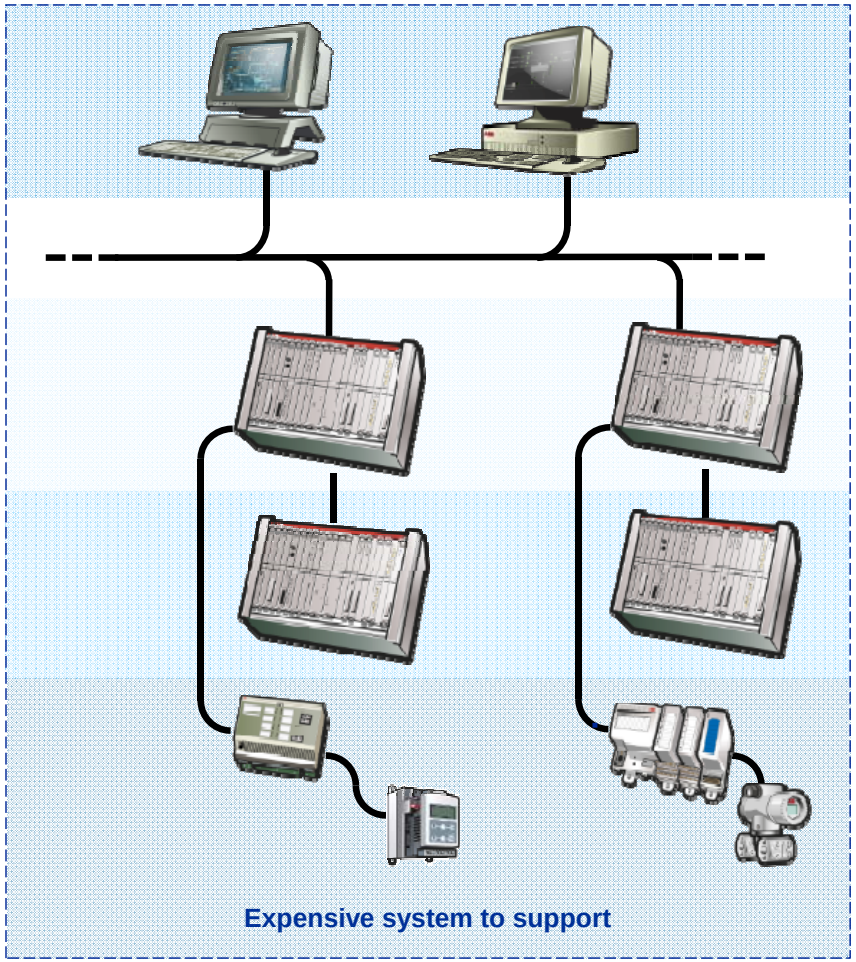
Evolving an Advant Master System



Expensive system to support

Evolve the Operator Interface to 800xA, by utilizing Sentinel pricing (Sentinel includes Engineering software)

Evolve the Communications system with newer components

Evolve existing Controllers to never ones

Evolve existing rack I/O with newer components. Update Power System

Evolve existing remote I/O to S800

Easy and cost effective to support

Add more functionality; Alarm Management, Asset Management

Utilize modern communications systems: Fiber, firewalls

Further evolve to newer technologies: Fieldbus support

Further evolve to newer technologies

Further evolve to newer technologies

Easily adapts to newer technologies

Evolution is specific to a customers need and has no specific order

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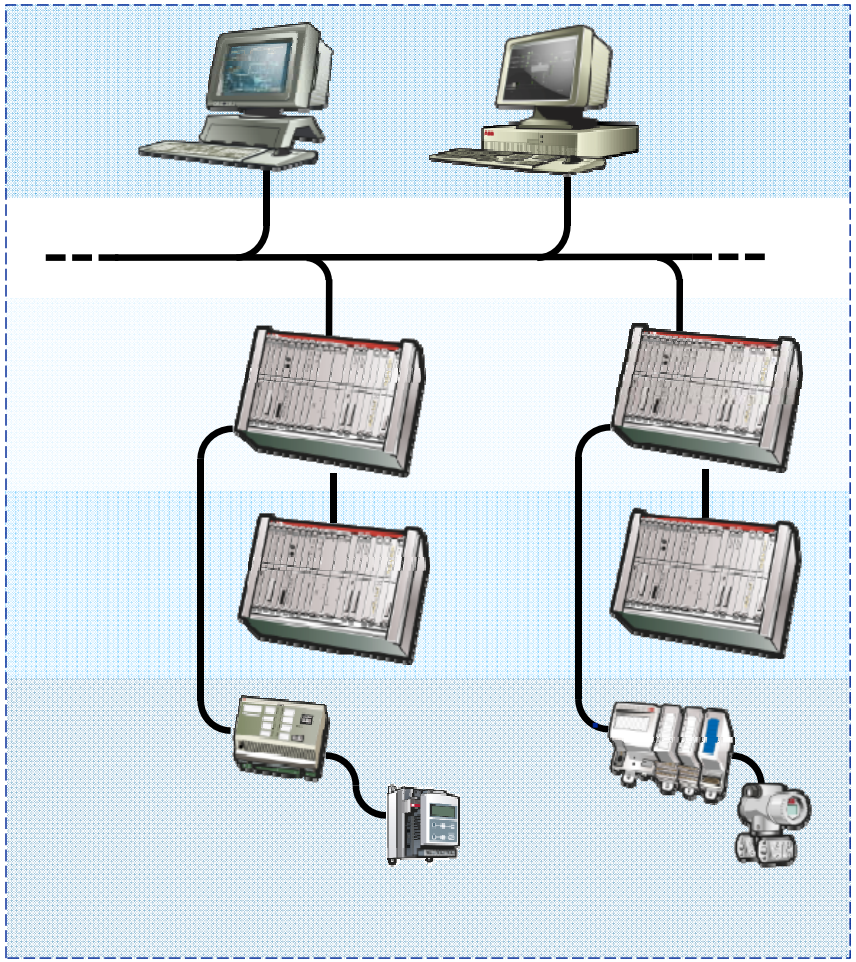
Advant Master Evolution
Operator interface Evolution



Operator Interface (HMI or HSI)

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Advant Master Evolution
Operator interface Evolution

1984
MV810
MV830
MV850

1994
AdvaCommand Unix
X Terminals

1998
AdvaCommand NT

2001
Operate IT

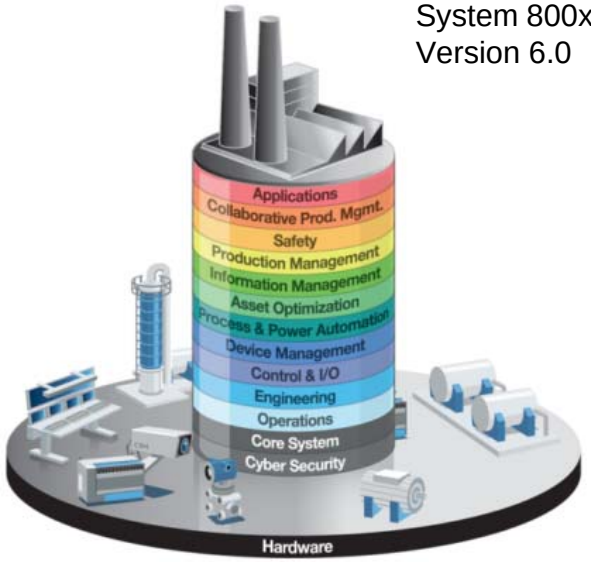
Expensive system to support

2004
System 800xA for Advant
Version 4.1

2007
System 800xA for Advant
Version 5.0

2010
System 800xA for Advant
Version 5.1

2014
System 800xA for Advant
Version 6.0



Easily adapts to newer technologies

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Advant Master Evolution
Advant Station 500 LifeCycle Services

Extend the performance and life of you Advant Station with these services:

- Preventive Maintenance Kits
- Backup without tape station - Extension 1
- Software upgrading
- Cleaning and decontamination
- Printer independency - Extension 2
- Advant Station Repair Service
- Advant Station Rental Service

Find out more here: Life Cycle Services for Advant Station 500 Series

Advant Station hardware	Preventive Maintenance kits	Advant Station Repair Service	Cleaning and decontamination	Extension 1 - backup solution	Extension 2 - printer solution	Rental Service
HP B2600	X	X	X	X	X	X
HP B2000	X	X	X	X	X	
HP B180	X	X	X	X	X	X
HP B132L+	X	X	X	X	X	X
HP B132L	X	X	X	X	X	X
HP 715		X	X	X	X	
HP 748		X	X	X	X	

X = Available

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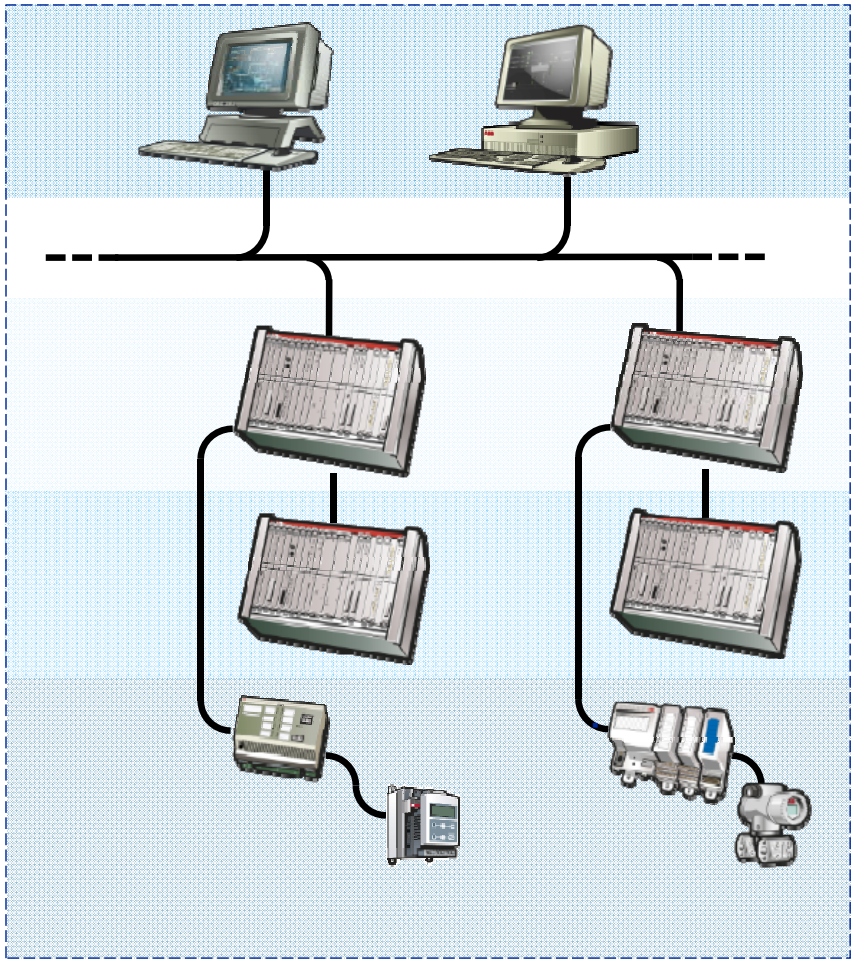
Advant Master Evolution
Engineering Tool Evolution



Engineering Tool

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Advant Master Evolution
Engineering Tool Evolution

1984 - 1994
MA214
MA215
MA220

1995 -1998
AdvaBuild for Windows
1.0-1.5

1998 - 2001
AMPL Control Configuration
CAEE
Windows NT

2001 - 2005
Control Builder A 1.0 -1.2
Online Builder 1.0
Windows NT & 2000

2005 - 2011
Control Builder A 1.2/1
Online Builder 3.0/2
Windows XP

Expensive system to support

2011 -
Control Builder A 1.3

Standard Desktop or Laptop with Microsoft Windows 7 or 2008 Server

PU410 communication box for MB300 and Serial Interface

Central Backup of application software.

Flash card programmer:
- OmniDrive USB2 LF(/SD)
- CardWare 7.0

2014 -
Control Builder A 1.4

Standard Desktop or Laptop with Microsoft Windows 7/8 or 2012 Server

Easily and cost effective to support

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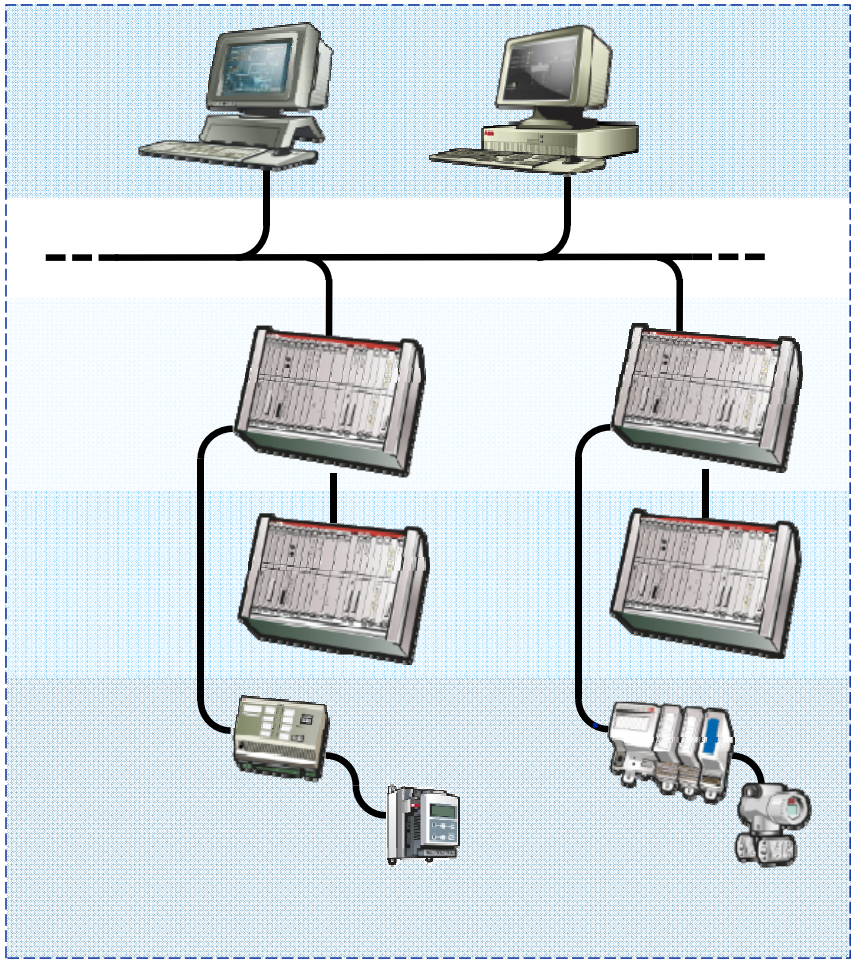
Advant Master Evolution
Evolving the Communications System

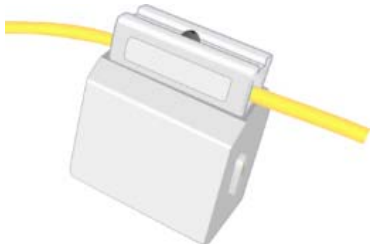


Communications network

Advant Master Evolution
Evolving the Communications System

1984-1986
MasterBus 200
Serial 1,5 Mbit
Twisted Pair

1995 -
MasterBus 300
Ethernet 10Mbit HUBs



1987 -
MasterBus 300
10 Mbit
Thick Ethernet,
Trancievers

Expensive system to support

2005 -
MasterBus 300

2015 -
MasterBus 300 ABB Switches

Standard Ethernet Industrial switches 10/100/1000 Mbit (10 Mbit for controller connections, 100 or 1000 Mbit between switches.)

MasterBus 300 ABB Switches 10/100/1000 Mbit

RJ-45 Connection for controller
Optical fiber between switches

Easily and cost effective to support

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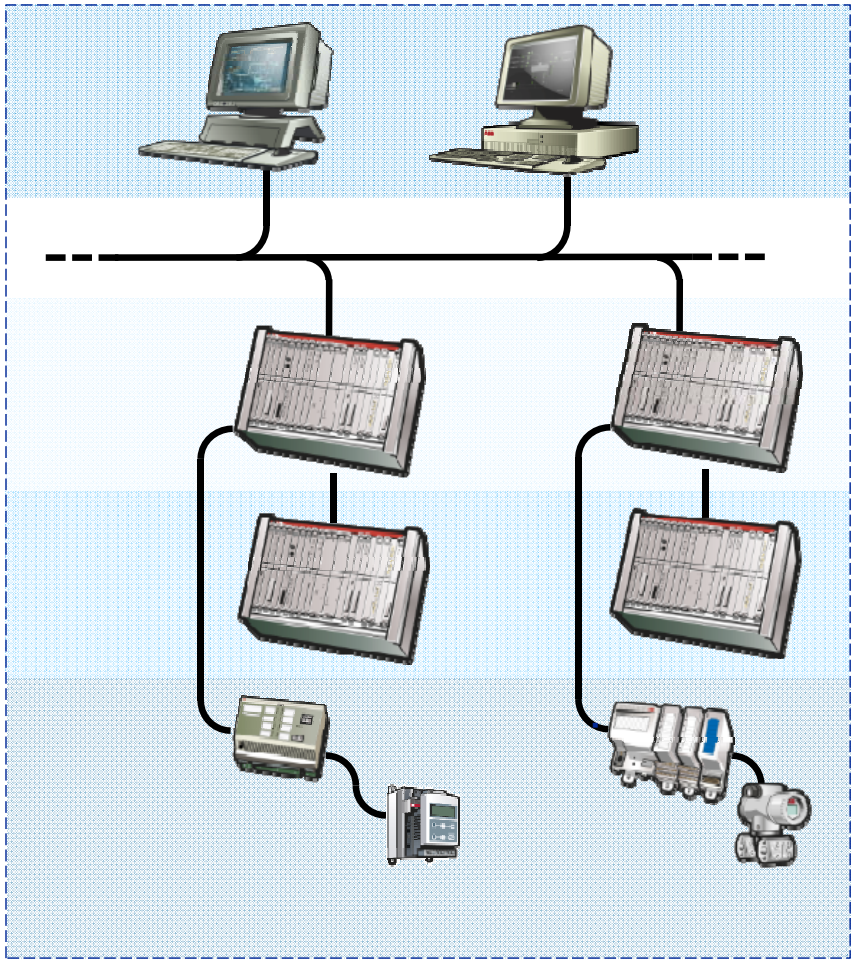
Advant Master Evolution
Controller Evolution



Controllers

Advant Master Evolution
Controller Evolution

1984
MP200

1986
MP200/1

1995
AC450
Gen 1 with
PM510 CPU

1995
AC410

Expensive system to support

1998-
AC450
Gen 2 with
PM511 CPU

Application software can be reused.

Very fast upgrade.

Still in active sales phase.

Latest SW release year 2013, with support for many more years to come.

Easy and cost effective support

2003-
AC800M

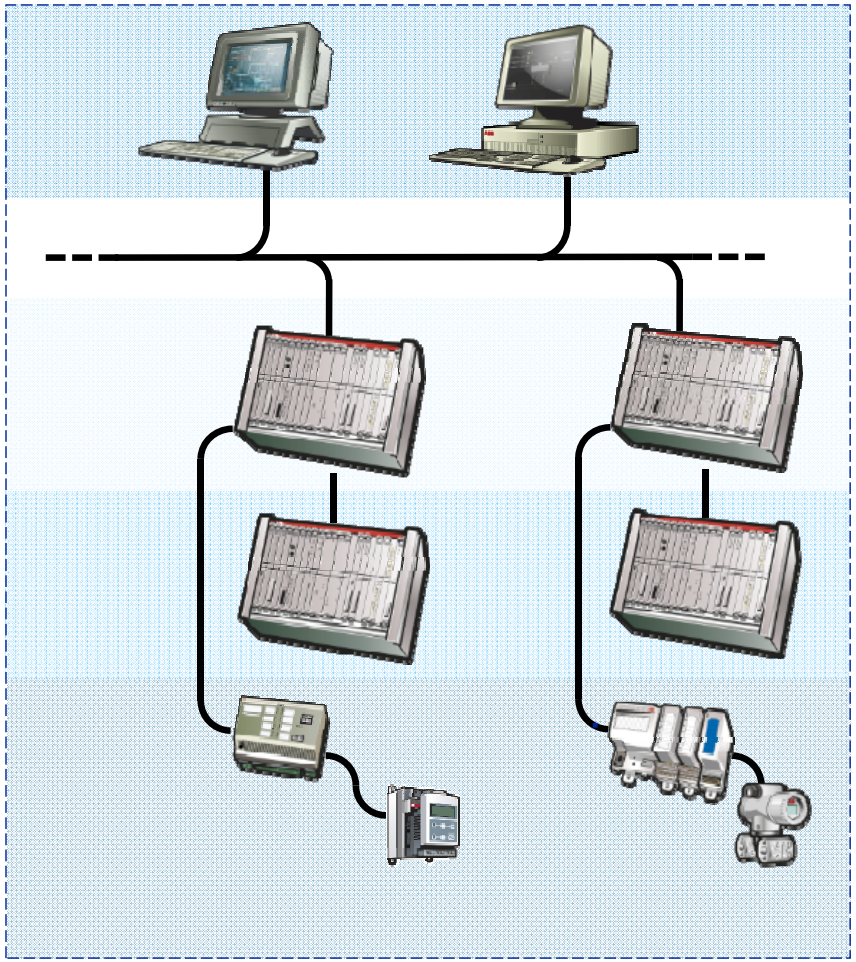
Application software to be converted.

Automatic conversion partly available on request.

S100Rack I/O and S800 remote I/O S800 can be connected.

Easily adapts to newer technologies

Advant Master Evolution
Rack I/O Evolution



I/O’s and power

Advant Master Evolution
Rack I/O Evolution

1978
S100

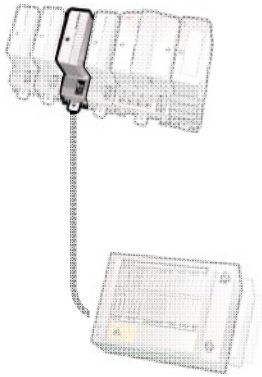
Expensive system to support

2000 -
S100

Rack I/O cards re-designed

Optical extension available for distributed S100 I/O racks and to rebuild MP200/1 racks to I/O racks for AC450

Easy and cost effective support



2003 -
CI856

S100 communication for AC800M

Easily adapts to newer technologies

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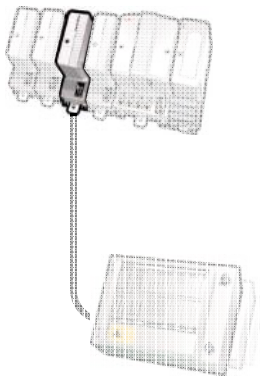
Advant Master Evolution
Rack I/O Evolution – AC800M Interface to S100 I/O



CI856, S100 I/O connector

The communication board CI856 together with the control software gives support for migration of the installed base of S100 I/O. Each CI856 board supports up to 5 S100 I/O racks.

The CI856 interface currently support DSBC 174/176 bus extender slave and the following S100 I/O boards:

DSAI 130/130A	Analog input board, 16 ch.
DSAI 130D	Analog input board, 16 ch. With 4 sets of filter times
DSAI 133 / 133	Analog input board , 32 ch.
DSDI 110 /110A /110AV1	Digital input board, 32 ch. 24V
DSDI 120 /120A /120AV1	Digital input board, 32 ch. 48V
DSDO 110	Digital output board, 32 ch.
DSDO 115	Digital output board, 32 ch.
DSDO 115A	Digital output board, 32 ch., OSP control
DSDO 130	Digital output board, 16 relay ch., 24-240 VAC/VDC
DSDO 131	Digital output board, , 16 relay ch., 24-240 VAC/VDC
DSAO 110	Analog output board, 4 ch.
DSAO 120	Analog output board, 8 ch.
DSAO 120A	Analog output board, 4 ch., OSP control
DSAO 130	Analog output board, 16 ch.
DSAO 130A	Analog output board, 16 ch., OSP control
DSAX 110 /110A	Analog input/output board, 8+8 ch.
DSDP 010	Absolute binary decoder with hardware strobe, 2 ch.
DSDP170	Pulse counter board, 4 ch.

Development is ongoing, to cover all S100 I/0-modules.

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Advant Master Evolution
Evolving the Power System – Preventive Maintenance

Preventive maintenance is the most efficient maintenance program because it ensures that equipment is serviced before a breakdown actually occurs.

Preventive maintenance is carried out during planned productions shutdowns and the required parts and resources should be reserved in advance.

Our pre-specified easy-to-order kits consist of genuine ABB spare parts that are necessary for a specific scheduled maintenance. These cost-efficient kits have a lower price when compared to the price of individual spare parts.

Read more about these preventive maintenance kits here.

Preventive Maintenance Schedule for Advant OCS

Years from start-up		1	2	3	4	5	6	7	8	9	10	11	12
Fans		I	I	R	I	I	R	I	I	R	I	I	R
Air-filters		I	I	R	I	I	R	I	I	R	I	I	R
Rechargable batteries		I	I	R	I	I	R	I	I	R	I	I	R
Power supplies		I	I	I	I	(R)	I	I	I	I	R	I	I
Mechanics	Plastic housing	I	I	I	I	I	I	I	I	I	I	I	I
	Corrosive atmosphere	-	-	-	-	-	-	-	-	-	I	-	-
	Tightness of terminals	-	-	-	-	-	-	-	-	-	I	-	-
Improvements	HW/SW upgrade	I	I	I	I	I	I	I	I	I	I	I	I
	Product Bulletin and release notes	I	I	I	I	I	I	I	I	I	I	I	I
Spare Parts		I	P	I	P	I	P	I	P	I	P	I	P

R = Replacement of component,
(R) = Replacement if high ambient temperature or cyclic heavy duty
I = Inspection (visual inspection, correction and replacement if needed)
P = Performance of on-site work (commissioning, tests, measurements, etc.)

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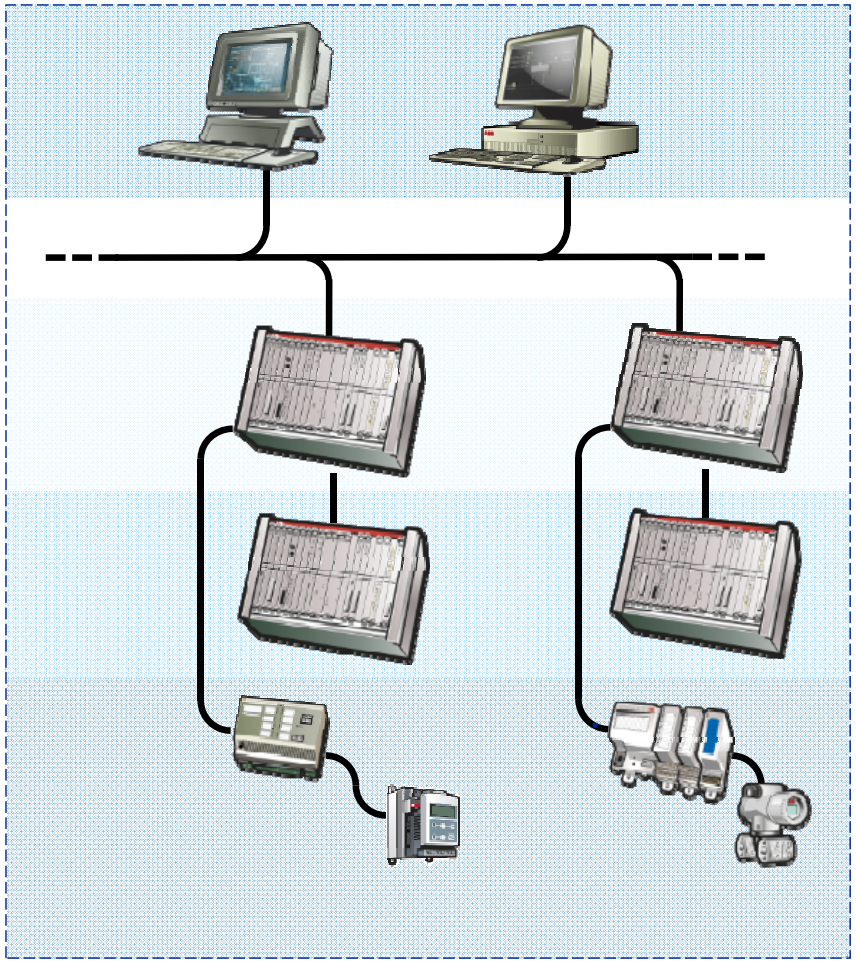
Advant Master Evolution
Remote I/O Evolution



Remote I/O and drives

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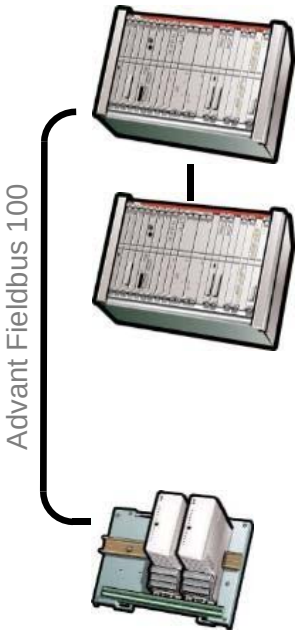
Advant Master Evolution
Remote I/O Evolution

1988 - 1996
MP200/1 or
AC450 to S400

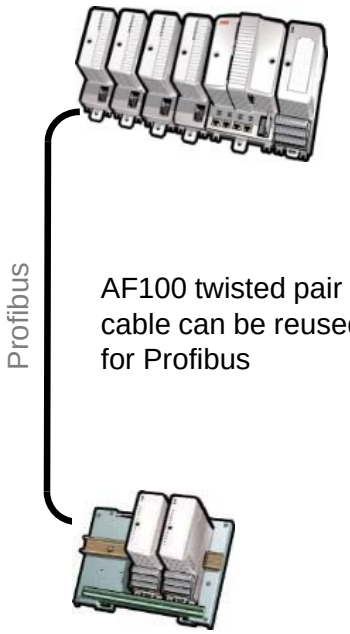
Expensive system to support

1996 -
AC 450 S100 to
S800 I/O with
Advant Fieldbus



Easy and cost effective support

2003 -
AC800M to
S800I/O with
Profibus



AF100 twisted pair cable can be reused for Profibus

Easily adapts to newer technologies

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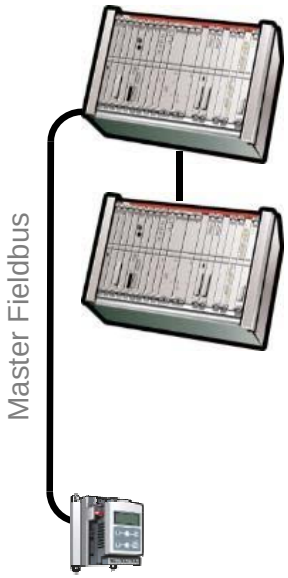
Advant Master Evolution
Drives connection

1984
MP200/1 with
Master Fieldbus

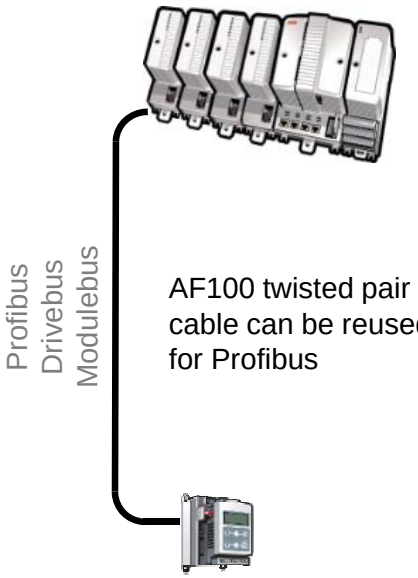


Expensive system to support

1995 -
AC450 with Master
Fieldbus or
Advant Fieldbus

Easy and cost effective support

2003 -
S800:
Profibus
Drivebus
Modulebus



AF100 twisted pair
cable can be reused
for Profibus

Easily adapts to newer technologies

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Advant Master
LifeCycle Parts Services

- Committed to ensure the best possible accessibility and continuous trouble-free operation of your system, we provide cost efficient spare parts and services.
- Whether your need is to repair a broken part or purchase a spare part, our services lead to cost efficient maintenance.
- To see the complete portfolio, please visit:
  www.abb.com/controlsystems -> LifeCycle Services -> Spare Parts
- Read more about the LifeCycle Parts Services for Advant Master here

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Advant Master Evolution
Summary

- Masterpiece and Advant Master can easily be evolved to newer technologies ABB Evolution can be done incrementally
  - Suits any budget
- ABB Evolution does not have to change the whole system
  - No “rip & replace” nor migration
  - Change only required components as needed
- ABB has many solutions for Evolution at all systems levels
  - Operate Interface (HMI)
  - Communications system
  - Controllers
  - I/O and Power systems

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