



Technical Description

Advant Master, Upgrade of IEEE802.3 Network Equipment

Products Concerned **Advant Master, MasterBus 300/300E, GCOM, HPC**

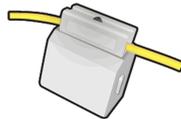
Description

Upgrade of IEEE802.3, 10Base5 Trunk cables, Transceivers and Network equipment.

1. The IEEE802.3, 10Base5, Thick Ethernet, (yellow trunk cable) with clamped transceivers using a vampire tap is in the by ABB defined, obsolete life cycle phase.

1.1 10Base5 components

10Base5 components, such as transceivers are getting hard to find and it is strongly recommended to upgrade the network infrastructure with modern network switch technology, using ABB certified industrial Ethernet network switches.



10Base5 Transceiver

1.2 Media converters for 10Base5

Media converters, for conversion from 10Base5 yellow trunk cable to today's standard media 10BaseT with RJ45 interface, are also hard to find, as ABB do not provide any certified products. Most products on the market are more or less obsolete today.

1.3 HUB equipment

Over the years, as a successor for the 10Base5 yellow cable, many ABB customers have been recommended to use Hirschmann industrial network equipment, typically the ASGE series HUB equipment. These HUB's were rack mounted with a series of different interface cards, including fiber optical communication.

Today the ASGE HUB and most equivalent equipment are also more or less obsolete, and an upgrade to network switch technology is the natural evolution.



Ethernet HUB

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1.4 10Base-FL transceivers

10Base-FL fiber optical transceivers using ST type FO contacts, have been used in combination with Hirschmann ASGE and similar HUB's. The advantage was that a single controller far away could be connected via multimode fiber using a 10Base-FL transceiver at the controller side and a 10Base-FL interface card in the ASGE HUB.

10Base-FL transceivers are more or less obsolete and hard to find on the market.



Typical 10Base-FL Transceiver

2. Abbreviations and Explanations

Media:

10Base5	Thick Ethernet, coaxial cable 50 Ohm impedance, (yellow cable).
10BaseFL	Fiber optical cable. 10Mbit/s baud rate.
10BaseT	Twisted pair cable, (typically Cat 5 cable with RJ-45 type contacts).

Media interface:

AUI	DB15, 15 pin interface contacts on transceivers and Advant Master, MasterBus 300 boards.
RJ-45	10BaseT Twisted pair, snap-in interface contact.
ST fiber Interface	Bayonet type, optical fiber interface contact.
LC fiber Interface	Snap-in type, optical fiber interface contact, fits SPF transceivers.
SPF	Small Form-Factor Pluggable optical transceivers for network switches.

Protocol:

MasterBus 300	Communication between Advant Master nodes.
MasterBus 300E	Communication between Advant Master nodes over longer distances with support for slower than 10Mbit/s baud rate
GCOM	Generic communication protocol, used for communication between Advant Master and external computers.
HPC	High performance communication, used for high speed communication in rolling mill applications using RMC, (rolling mill control) system software option.



3. Upgrade recommendations

3.1 ABB have solutions and workarounds for all of the described use cases.

ABB offer a range of suitable ABB branded network products.

In general all currently used MasterBus 300/300E, GCOM and HPC network equipment can be replaced with ABB NE series network switches and CIX518V1 AUI-10BaseT (RJ-45) transceivers.

A 10BaseFL transceiver at the controller side need to be replaced with a 10BaseT transceiver in combination with a network switch with fiber optical interface.

ABB network switch models NE801, NE802, NE810, NE820 and NE840 can be used together with the transceiver CIX518V1 which is needed at each controller's side, converting the AUI to Twisted pair contact (RJ45).

NE810, NE820 and NE840 have optical interface and support the LC type optical interface only, using the Small Form-Factor Pluggable (SFP) optical transceivers.

Patch cables and converters from ST to LC type connectors are available on the market, if no certified resources are available to change connectors to LC

NE801 / NE802 NE810



NE820



NE840



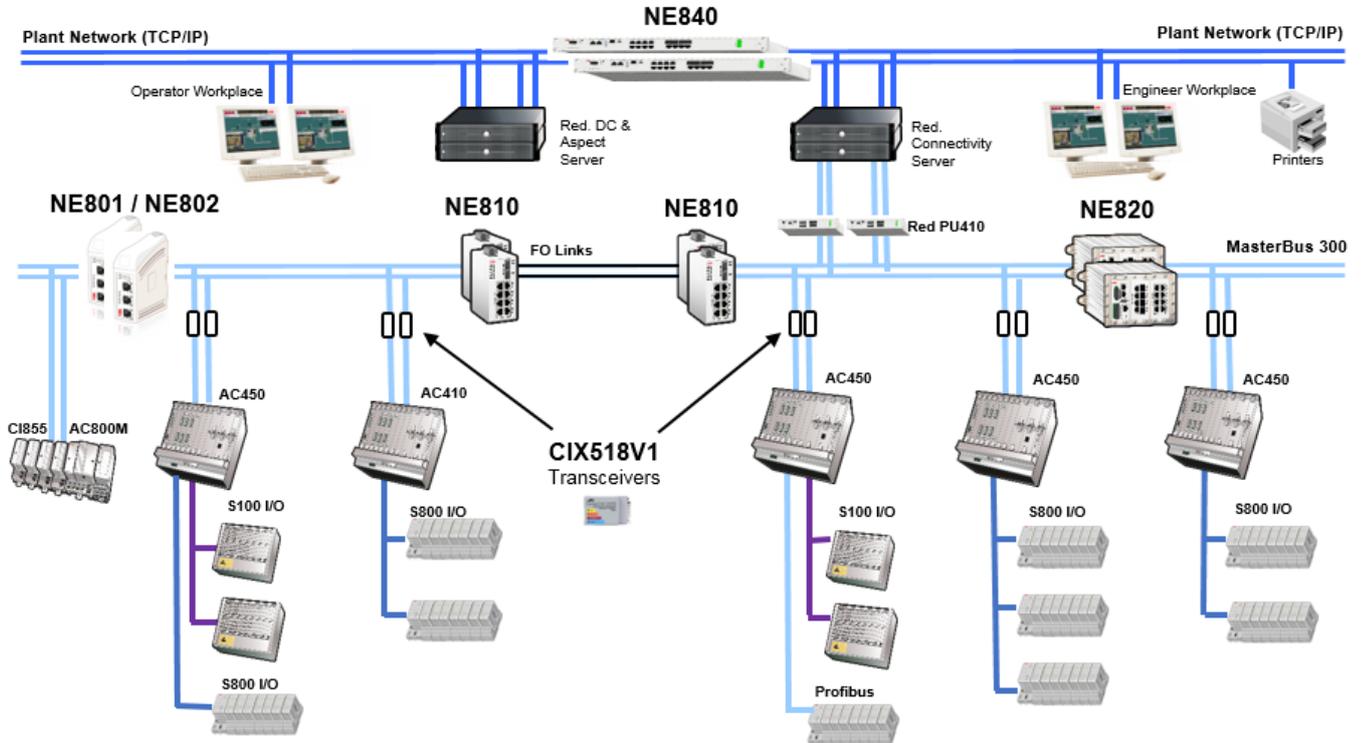
CIX518V1



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Typical installation with System 800xA and Advant Master, using ABB network equipment



4. Additional upgrade arguments

In addition to the obsolescence arguments:
A switched network solution, filters and isolates errors in the network switches. Compared to non-switched networks where errors may be propagated to the complete network, in worst case causing data traffic disturbance or stop. Problems of this kind can for example be caused by a media error on a yellow cable, a transceiver error, or a network HUB error.

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REVISION

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