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| Dealt with by-Utfärdare | | Telephone-Telefon-nr | | 1 |
| Sven-Erik Karlsson | | 187050 | | |

AC80/AC800/AC4XX Modulbus-Sami/Sele converter PE1358A

1. General

PE1358A Sami MultiNode DDCS is a protocol converter designed to connect up to eight different Sami/Sele to ABB ModuleBus (DDCS+). The unit is enclosed in a metal box with connection terminal for Power supply and Sami/Sele connection. Connector type HP Versatile link for ABB ModuleBus connection.

The ModulBus communication is handled by an 80C32 microprocessor and the eight Sami/Sele communication links is handled by a Hitachi H8/532 microprocessor. The two microprocessors are communication thru a dual port memory.

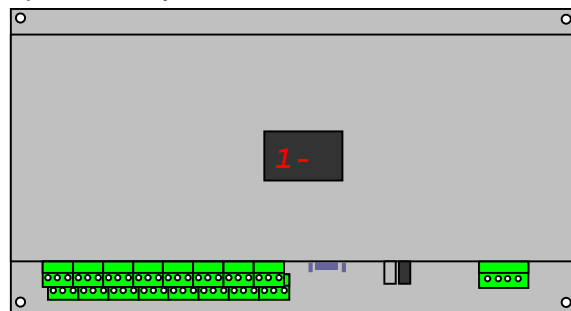
2. Technical description

2.1 Dimension and mounting

PE1358A is mounted in the ABB AC80/AC4xx cubicle or in a separate enclosure together with 24V DC supply.

To obtain the best immunity to electric noise the PE1358 must be electrically connected to cubicle through 4 M5 screws in each corner.

Size: 298 x 170 mm (w x h)
 Required mounting deep: 50mm
 Mounting screws: 4 x M5
 Mounting holes position: 278 x 160mm(w x h)



2.2 Technical data

Power supply 24V DC (12-30V DC), max 100mA at 24V
 Enclosure class IP00
 Operation 5..+40 °C., Storage -40..+70 °C.

Communication to Sami/Sele

Protocol: Sami protocol, current loop, 0-20mA

Cable: twisted pair, pair screened, common screened, 2x2x0.5 (FKAR-PIG,FLEAK)

Cable length max 50m.

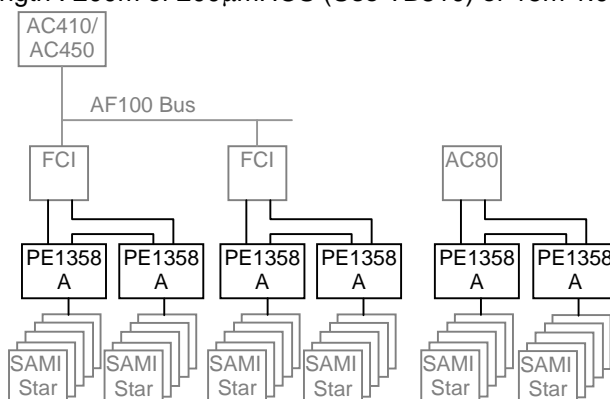
Settings: 4800 or 9600Baud,Even parity,7 bits, 1 stop bit

Communication to ABB AC80/AC4xx

PE1358A is connected in a ring with 1.0mm plastic fiber POF or 200µm Hard Clad Silica HCS fiber.

Opto fiber: Transmission speed 4Mbit

Max length : 200m of 200µmHCS (Use TB810) or 15m 1.0mm plastic (Use TB810 or TB811)



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2.3 Status indications

The communication status is indicated on a two-segment display, which will indicate the actual status on each of the eight Sami/Sele channels. First digit indicate Sami/Sele channel 1-8, Second digit indication status for channel.

| Digit | Description |
|-------|---|
| 0 | No contact with ACXX and no contact with Sami/Sele |
| 1 | Contact with ACXX (No contact with Sami/Sele) |
| 2 | Contact with Sami/Sele (No contact with ACXX) |
| - | Normal communication ABB AcXX – Sami/Sele |
| A | No message received from Sami/Sele during superv interval |
| b | Configuration error |
| c | Transmission to Sami/Sele is choked, i.e to fast update from ABB ACXX |
| d | Failure in verification of signal from ABB to Sami/Sele |
| E | Checksum error in signal from Sami/Sele |
| F | Communication line fault (Uart error) Overrun, framing or parity |

2.4 Dip switch setup

| S1 | Normal | FUNCTION |
|----|--------|--|
| 1 | Off | On=Halt cyclic presentation on LCD |
| 2 | On=1 | Fiber Transmitter Intensity 0-3 |
| 3 | On=2 | Fiber Transmitter Intensity 0-3 |
| 4 | On=1 | Cluster number 0-7 |
| 5 | On=2 | Cluster number 0-7 |
| 6 | On=4 | Cluster number 0-7 |
| 7 | On/Off | On=Sami Ch1-4, 4800/ Off =Sami Ch1-4,9600 Baud |
| 8 | On/Off | On=Sami Ch5-8, 4800/ Off =Sami Ch1-4,9600 Baud |

| DESCRIPTION | | Ref. | |
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2.5 Connections

Communication to ABB AC80/AC4xx

PE1358A is connected in a ring with 1.0mm plastic fiber POF or 200µm Hard Clad Silica HCS fiber.

Max length : 200m of 200µmHCS (Use TB810) or 15m 1.0mm plastic (Use TB810 or TB811)

Communication to Sami/Sele

Cable: twisted pair, pair screened, common screened, 2x2x0.5 (FKAR-PIG,FLEAK)

Cable length max 50m.

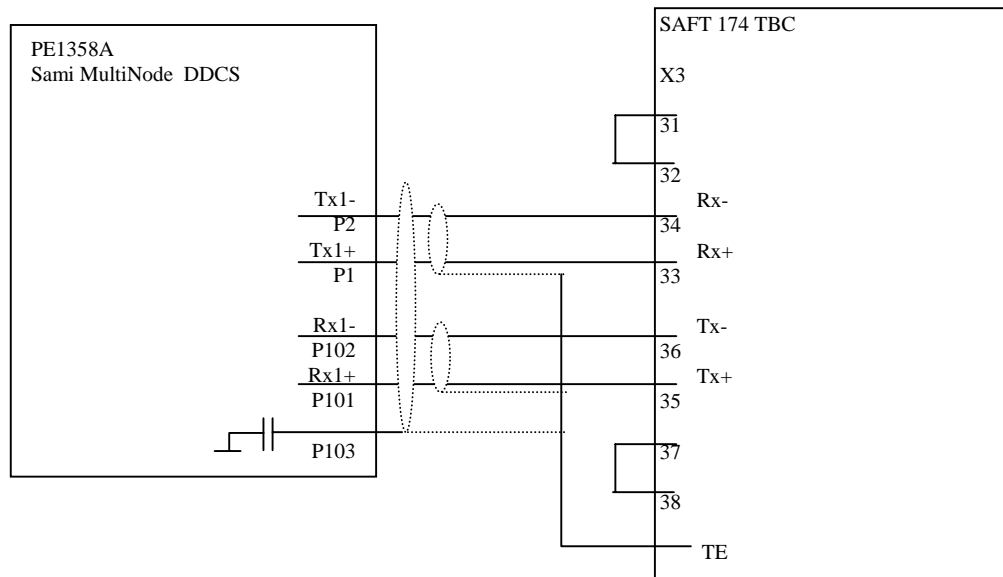
There is two different connections of the serial link in SamiStar depending on equipment in the convertor.

In a single drive is normally a SAFT 174TBC and SAFT 188 IOC card used. With SAFT 188 IOC it is only possible to use channel 2 for the serial link.

In a sectional drive is normally a SAFT 189 TSI card used. This card has two serial links that may be used for the communication to PE1358A. and in most cases channel 1 is used.

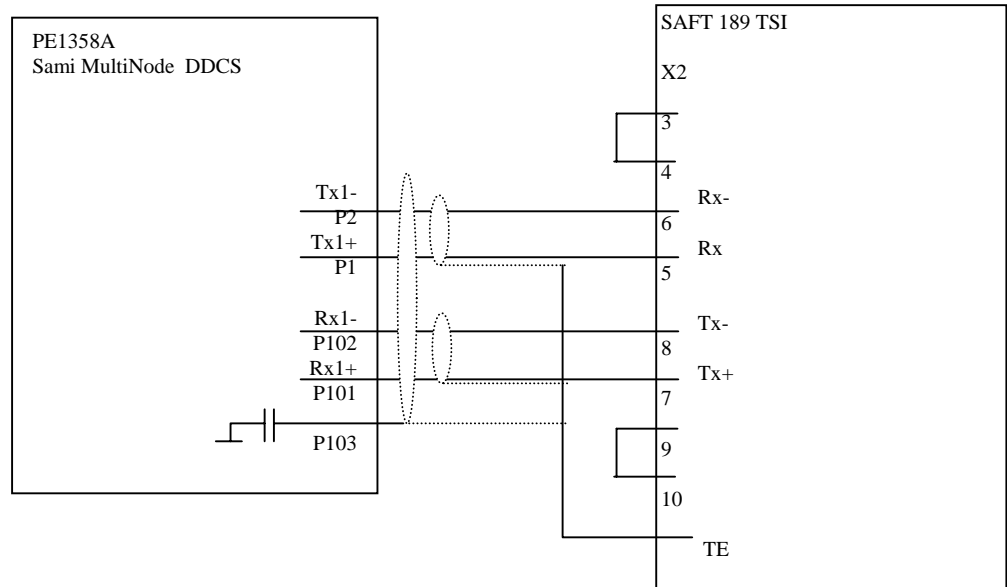
Channel 2 is usually reserved for the transmitting of the torque reference in a master – slave configuration.

Connection of PE1358A to SamiStar with SAFT 174 TBC and SAFT 188 IOC



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Connection of PE1358A to SamiStar with SAFT 189 TSI



2.6 Address

PE1358A answer on node address 1-8 on the selected cluster. Cluster number 0-7 is strapped on dipswitch.

Address 1 is connected to Sami/Sele channel 1, address 2 to Sami/Sele channel 2 and so on.

2.7 Orders to Sami Star from ABB

Orders are sent from ABB ACxx by Data set 10,12,14 and 16, Data set 18,20..26 are used for configuration.

There are two different modes to send data from PE1358A to Sami Star.

1. Regular transmit mode.

Following data are using Regular transmit mode

DS10.I1, DS10.I2, DS10.I3, DS12.I1, DS12.I2, DS12.I3, DS14.I1, DS14.I2

2. Request transmit mode.

Following data are using Request transmit mode.

DS14.I3, DS16.I1

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2.8 Signals from Sami Star to ABB

Signals from Sami/Sele is placed in Data set 11,13,15 and 17.
Two modes is used for data receiving PE1358 from Sami Star .

1. Regular receive mode

Following data are using Regular receive mode from Sami/Sele
DS11.O1, DS11.O2, DS11.O3, DS13.O1, DS13.O2, DS13.O3,DS15.O1,DS15.O2

2. Verified receive mode

Following data are using Verified receive mode
DS15.O3,DS17.O1

Regular receive mode is initiated by writing suitable addresses and intervals to Sami/Sele Address block. Addresses can be in range 0-255. Intervals have to be chosen with care because Sami/Sele has only limited capacity to transmit. Transmitting program in Sami/Sele executes about every 24ms and the interval is multiples of 24ms. With 9600bps baud rate it is possible to send two signals as 24ms interval. The other intervals has to be 48ms or longer. Sami/Sele is automatically calculating the transmitting load and if overload exist the intervals will be automatically increased.

The addresses specified for Regular receive mode must also be specified in Acxx configuration data DS18 and DS20 sent to PE1358A. Define the Regular receive signals in order without any wholes. When the first addr set to 0 is detected then the following addresses are not included.

Verified receive mode has to be used if Sami/Sele address is greater then 255 or the user wants more then 8 signals from Sami/Sele.

The transfer of signal value from Sami/Sele is done by PE1358A requesting the contents of a chosen signal according to the mailbox method. This request is initiated by the interval set by the user. The action takes about 60-80ms and the minimum request interval is 100ms. It means that the interval parameter has to be at least 5 (5x24ms).

2.9 Mailbox function

Verified receiving mode and Request transmitting mode are using a Mailbox in Sami/Sele when transmitting and requesting data. The Mailbox is located on 2 specific addresses in Sami/Sele. Normally one Mailbox is located in addr.112 and 113.

In some newer Sami there is a second mailbox in addr 132 and 133.

If it is decided to interface the PE1354A with the same data communication channel as the YPK107A (Panel) the second mailbox must be used to avoid confusion of messages.

Mailbox address is specified in DS24.I3. Give only the firs addr 112 for Mailbox 1 and 132 for Mailbox 2.

2.10 Communication supervision

If PE1358 lose contact with AC80/AC4XX then PE1358 will stop the communication to Samii/Sele.

If PE1358 lose contact with Sami/Sele then PE1358 will stop communication to AC80/AC4XX.

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2.11 Signals AC80/AC800/AC4xx to/from Sami/Sele

Eprom version PE1358A H8 Ver 3 and newer have this Mapping table.

| AC80 Reference | Value | Name | Function |
|---|-------------------|---------------------|---|
| DS10.I1 | -32768..32767 | Data to Sami/Sele | Regular transmit 1 data |
| DS10.I2 | -32768..32767 | " | Regular transmit 2 data |
| DS10.I3 | -32768..32767 | " | Regular transmit 3 data |
| DS12.I1 | -32768..32767 | " | Regular transmit 4 data |
| DS12.I2 | -32768..32767 | " | Regular transmit 5 data |
| DS12.I3 | -32768..32767 | " | Regular transmit 6 data |
| DS14.I1 | -32768..32767 | " | Regular transmit 7 data |
| DS14.I2 | -32768..32767 | " | Regular transmit 8 data |
| DS14.I3 | -32768..32767 | " | Request transmit 1 data |
| DS16.I1 | -32768..32767 | " | Request transmit 2 data |
| | | | |
| DS11.O1 | -32768..32767 | Data from Sami/Sele | Regular receive 1 data |
| DS11.O2 | -32768..32767 | " | Regular receive 2 data |
| DS11.O3 | -32768..32767 | " | Regular receive 3 data |
| DS13.O1 | -32768..32767 | " | Regular receive 4 data |
| DS13.O2 | -32768..32767 | " | Regular receive 5 data |
| DS13.O3 | -32768..32767 | " | Regular receive 6 data |
| DS15.O1 | -32768..32767 | " | Regular receive 7 data |
| DS15.O2 | -32768..32767 | " | Regular receive 8 data |
| DS15.O3 | -32768..32767 | " | Verified receive 1 data |
| DS17.O1 | -32768..32767 | " | Verified receive 2 data |
| | | | |
| DS23.O1 | 1=OK,0-6 No comm. | Data from PE1358 | Sami/Sele Comm status |
| DS23.O2 | -32768..32767 | " | Sami/Sele com error counter |
| DS23.O3 | -32768..32767 | " | Number of rec. frames from Sami/Sele |
| DS25.O1 | -32768..32767 | " | Number of trm. frames to Sami/Sele |
| DS25.O2 | -32768..32767 | " | Rec addr not Set up ok |
| Configuration data from AC80 to PE1358 | | | |
| DS16.I2 | 0-255 | High byte | Address Regular receive 1 |
| | 0-255 | Low byte | Address Regular receive 2 |
| DS16.I3 | 0-255 | High byte | Address Regular receive 3 |
| | 0-255 | Low byte | Address Regular receive 4 |
| DS18.I1 | 0-255 | High byte | Address Regular receive 5 |
| | 0-255 | Low byte | Address Regular receive 6 |
| DS18.I2 | 0-255 | High byte | Address Regular receive 7 |
| | 0-255 | Low byte | Address Regular receive 8 |
| DS18.I3 | 0-32767 | | Address Verified received 1 |
| DS20.I1 | 0-32767 | | Address Verified received 2 |
| DS20.I2 | 0-255 | High byte | Interval Verified received 1&2 |
| | 0-255 | Low byte | Refresh interval transmit data |
| DS20.I3 | 0-255 | High byte | Address Regular transmit 1 |
| | 0-255 | Low byte | Address Regular transmit 2 |
| DS22.I1 | 0-255 | High byte | Address Regular transmit 3 |
| | 0-255 | Low byte | Address Regular transmit 4 |
| DS22.I2 | 0-255 | High byte | Address Regular transmit 5 |
| | 0-255 | Low byte | Address Regular transmit 6 |
| DS22.I3 | 0-255 | High byte | Address Regular transmit 7 |
| | 0-255 | Low byte | Address Regular transmit 8 |
| DS24.I1 | 0-32767 | | Address Request transmit 1 |
| DS24.I2 | 0-32767 | | Address Request transmit 2 |
| | | | |
| DS24.I3 | 1-255 | Low byte | Mailbox address in Sami/Sele Mailbox includes two consecutive addresses in Sami/Sele. Set value to first mailbox addr. |