

For the evaluation of fault records, operational- and fault events the millisecond accurate determination of the absolute time is required. The differential relays 7SD52 have an internal clock on quartz crystal oscillator basis, which is normally used to synchronize the protection system. For the absolute time synchronization in special applications GPS-receivers must be used. Beside the time telegram on another output a high precision second pulse is sent to the relay. With this pulse, which occurs at the same time at each line end, where the differential relays are located, the transmission time between the differential relays can be measured exact in the transmit and receive direction. For this the devices are connected parallel with an electrical bus and receive the time telegram and second pulse exact at the same time at Port A. With the use of prefabricated cables 7XV5105 the 7SD52 devices can be connected with there IRIG-B input (Port A) to the Sync.-Transceiver 7XV5654. The maximal length of the bus with this cable is 20 m. An appropriate application is described in the manual of the Sync.-Transceiver 7XV5654.

Features:

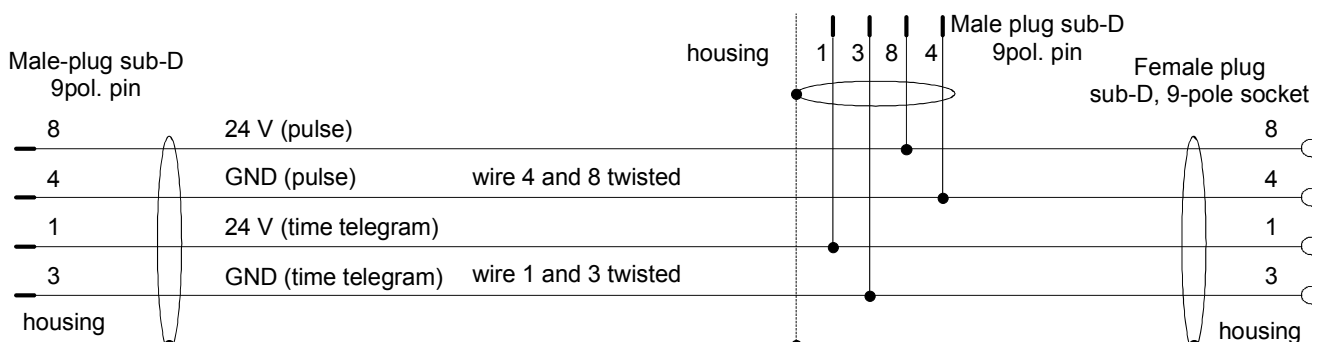
- Optical -electrical solution for SIPROTEC 4 device 7SD52 with IRIG-B interface (Port A)
- Direct connection of Port A of the 7SD52 to the Sync.-Transceiver 7XV5654
- Transmission of time telegram and second pulse at the same time.
- 4 orderable cable length from 1 m to 10 m
- 4-copper wires, shielded and twisted pair cable with 9 pole SUB-D plugs
- Metallic plug connector housings with mechanical strain relief of the cable connections and fixing bolts.
- Maximum extension of the electrical bus up to 20 m within the boundaries of an earthing system



Fig. 1: Y-cable 7XV5105 for 7SD52 differential relay

Notes on the time synchronization bus

For this system application the 24 V DC inputs (Pin 1/3 and 4/8) of Port A of the SIPROTEC 4 device 7SD52 is used (see below). For the synchronization of other relays without second pulse input the cable 7XV5104 must be used. The housing of all devices connected to the bus must be effectively earthed to a common earthing system to avoid dangerous currents flowing via the cable screen of the bus due to earth potential differences.



Application

The 9-pole male plug of the Y-bus cable S1 always comes from the direction of the GPS-receiver or the Sync.-Transceiver and provides via the 1, 3, 5 or 10 m long cable and the 9-pole male plug S2 the connection to the first and further devices at the bus. At the plug S2 a 20 cm long cable with 9-pole female plug connector B3 is provided for the extension of the bus. Should more than 6 7SD52 devices to be attached to the Sync.-Transceiver 7XV5654 two Mini-Star couplers 7XV5450-0AB00 can be used to multiply the two optical outputs of the GPS-receiver 7XV5664 to further optical inputs of Sync.-Transceivers. At each Sync.-Transceiver max. 6 7SD52 relays can be connected.

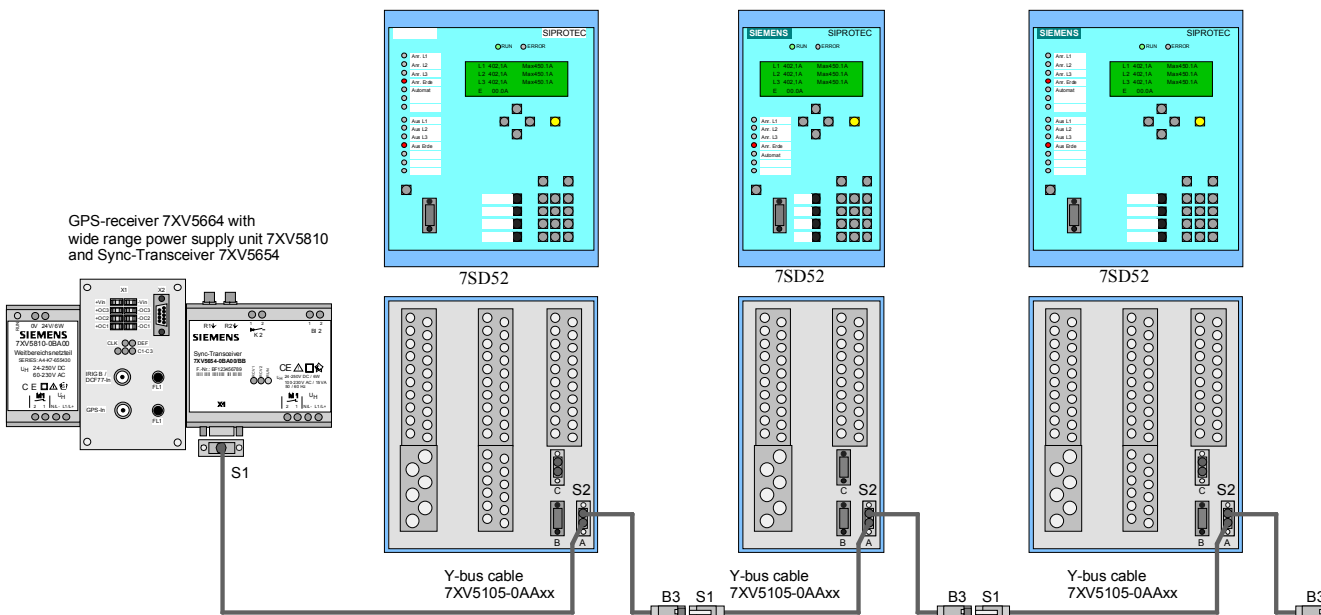


Fig. 2: Connection of max. 6 7SD52 relays to the Sync.-Transceiver 7XV5654 with Y-bus cables 7XV5105

Selection and Ordering data

Y-connection cable for IRIG-B time telegram and second pulse for the line differential relay 7SD52

7 X V 5 1 0 5 - 0 A A

Y-connection cable for the connection to Port A of the 7SD52 relay
For the connection and extension of the time synchronization bus with IRIB-B telegrams and second pulse. Twisted pair copper cable, 4-wires, shielded with 9-pole sub-D connectors

Length 1 m
Length 3 m
Length 5 m
Length 10 m

0 1
0 3
0 5
1 0

Bus length extension cable

7 X V 5 1 0 5 - 1 A A

Cable for bus length extension. Copper cable with 4-wires, shielded with 9-pole sub-D plugs.
Length 10 m

1 0

Adapter-cable / accessories

7 X V 5 1 0 5 - A A 0 0

Adapter cable to two Sync.-Transceiver 7KE6000-8Ax Length 0,3m
Shielded, 4-wires with crimp lugs to 9-pole sub-D plug (female)

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