ABB

Technical Note 061

How to use multidrop/panelbus

How to control several drives with one control panel

The multidrop feature allows controlling of multiple drives with one control panel. The control panel can control only one drive in the multidrop network at a time, but warnings and faults are relayed from all drives to the control panel. The multidrop feature is available on a variety of ABB drive families including the ACS480, ACH480, ACS580, ACH580, ACQ580 and ACS880 series.

For smooth operation of the multidrop, it is beneficial to have the same FW version in all the drives in the network. When the FW version is the same, the control panel doesn't need to download new texts every time when changing the control from one drive to next drive. It is important to remember that to be able to switch the control panel control from one drive to the next drive, the first drive must be set to Auto (ACH and ACQ families) or Remote (ACS families) before making the change. The same multidrop network can be used with PC tools like Drive Composer or with remote monitoring adapter NETA-21.

To use multidrop feature, all drives need to have unique node numbers.

Set-up instructions:

Step 1: Set a unique Node ID number at parameter 49.01 Node ID number for every drive in the multidrop network.

Step 2: Set Control panel communication loss time, parameter 49.04 to minimum of 180 seconds to avoid nuisance trips.

Step 3: Refresh settings using parameter 49.06. 49.06 must be refreshed after making parameter changes in group 49.

Step 4: Chain all the drives together with RJ-45 cables.

- ACS480 and ACH480 drives use CDPI-02 adapters for the RJ-45 cable connection.
- ACS580, ACH580 and ACQ580 drives use CDPI-01 adapters for the RJ-45 cable connection. Reference Figure 1 for the two types of CDPI adapters and Figure 2 for a connection example.
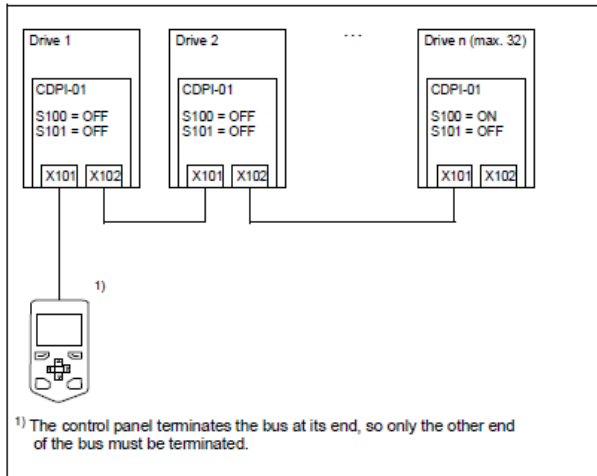

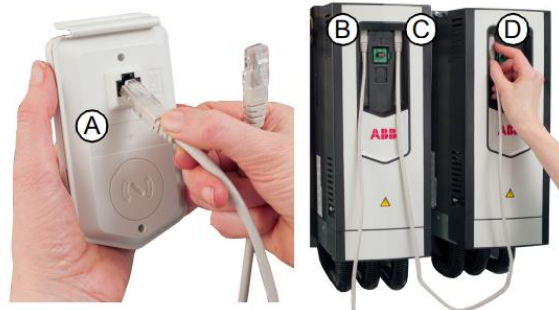CDPI-01 (with 2 LEDs)   CDPI-02 (with 1 LED)

Figure 1

Note: when using CDPIs, pay special attention to which connectors to use for input and output points of the daisy chain connection. A link to the CDPI manual is located at the end of this document.

- ACS880 drives do not need any adapters for multidrop connections, the required connectors are embedded in ACS880 as shown in Figure 3.

Connection example with several 580 series drives

Figure 2

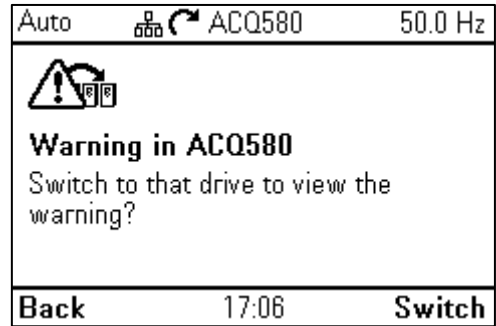*Connection example with ACS880-01 drives.*

Figure 3

Once the network is set up, you will see a symbol in the top row indicating that the control panel is connected to multiple drives.
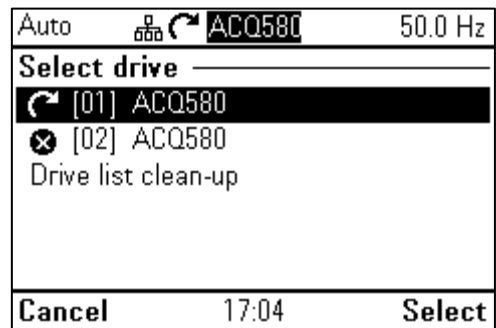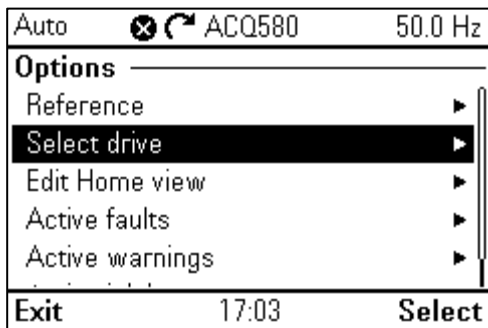

Should one of the drives in the network enter a faulted state, the symbol will change, and the Control panel's LED will start to flash red.

If any of the drives in the network become faulted or enter a warning condition, the control panel will indicate that there is a problem on one of the drives in the network and the control panel suggests to switch the control panel view to the drive having issues.

Auto	🖧⟳ ACQ580	50.0 Hz
⚠️🖳		
Warning in ACQ580		
Switch to that drive to view the warning?		
Back	17:06	**Switch**

Alternatively, if you wish not to change the view immediately, you can later access the other drives via Options → Select drive. There you can see a summary of all drives connected to multidrop network. The symbols in front of every drives' name indicates if the drive is faulted or running or stopped.

Auto	⊗⟳ ACQ580	50.0 Hz
Options		
Reference	▶	
Select drive	▶	
Edit Home view	▶	
Active faults	▶	
Active warnings	▶	
Exit	17:03	**Select**

Auto	🖧⟳ ACQ580	50.0 Hz
Select drive		
⟳ [01] ACQ580		
⊗ [02] ACQ580		
Drive list clean-up		
Cancel	17:04	**Select**

Additional supporting documentation listed below is found on the ABB website:
- 3AXD50000009929 – CDPI-01/02 panel bus adapters user's manual
- 3AUA0000085685 – APx-AP-x Assistant control panel user's manual