# NR&D

# Niobrara SC909 Smart Cable

The Niobrara SC909 Smart Cable is a miniature RS-232/RS-422 converter cable. It is intended to be used to connect a personal computer RS-232 serial port to the 9-pin RS-485 port of a Modicon® Momentum™ PLC.

The RS-232 end of the SC909 cable consists of a 9-pin female D-subminiature connector with jackscrews (black backshell). The RS-422 end of the cable terminates in a 9-pin male D-subminiature connector with jackscrews (silver backshell). The RS-232 end is configured to plug directly into a standard serial port of a personal computer. The RS-422 end is configured to match the pinout of a Momentum 9-pin D-subminiature RS-485 port. The SC909 is powered by a 120 VAC adapter (included) that plugs in to the RS-232 backshell.

The SC909 may also be used to drive a 4-wire RS-485 multidrop network with the RS-232 device acting as the master. The SC909 incorporates internal biasing on its receive lines; thus external biasing networks are not required.

**Installation:**
1.
Connect the RS-422 (silver backshell) end of the SC909 to the RS-485 serial port of a Momentum PLC.
2.
Connect the RS-232 (black backshell) end of the SC909 to the PC or other RS-232 device. If the device is COM1: or COM2: of the personal computer, ensure that the port settings are correct.
3.
Connect the cord from the AC adapter to the 3.5mm power jack on the back of the RS-232 backshell and plug the adapter body into a 120VAC 50/60 Hz outlet. **NOTE:** The AC adapter is required in all applications.
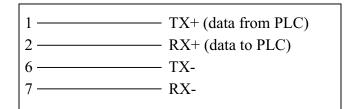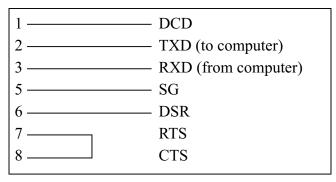4.
Refer to the instructions for the software package you are using.

**Cable Pinouts:**

The RS-485 end of the cable (silver backshell) is compatible with Momentum RS-485 ports. The pinout is as follows:

```
1 ———————————— TX+ (data from PLC)
2 ———————————— RX+ (data to PLC)
6 ———————————— TX-
7 ———————————— RX-
```

No connection is made to pins 3-5 and 8-9.

The end of the cable with a black backshell and transformer connector is an RS-232 DCE interface. The pinout is as follows:

```
1 ———————————— DCD
2 ———————————— TXD (to computer)
3 ———————————— RXD (from computer)
5 ———————————— SG
6 ———————————— DSR
7 ——————┐      RTS
8 ——————┘      CTS
```

DSR and DCD are driven high by the SC909. The state of pins 4 (DTR) and 9 (RI) is ignored.

**Notes:**

The SC909 is a versatile RS-232/RS-422 adapter which can be modified for special applications. Call the factory for more information.

**Common Problems:**

- The baud rate of the COM: port of the personal computer is not the same as the baud rate of the Momentum port.

- The cable is not connected to the correct COM: port of the personal computer.

- The device number being used in the software is not valid.

- The output voltage of the RS-232 signals on some laptop personal computers is well below RS-232 standard levels. Charging the batteries or connecting the personal computer to AC power will sometimes help.

- Attempting to use software inside the Windows® environment with improper COM: port settings. Correct the COM: port settings or try again outside windows.