

# ENGINEERING SPECIFICATION

## SYMCOM SOLUTIONS-D SOFTWARE

### PART 1 GENERAL

#### 1.1 REFERENCES

- A. DeviceNet™ Specification (November 2007) - ODVA

Solutions-D Software shall provide the functionality of a DeviceNet™ configuration tool.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

The product specified is the Solutions-D software package, manufactured by SymCom, Inc.

#### 2.2 DESCRIPTION

- A. Regulatory Requirements:

1. The product shall provide the functionality of a DeviceNet™ configuration tool and may or may not be fully compliant as a DeviceNet™ master.

#### 2.3 PERFORMANCE/DESIGN CRITERIA: DEVICENET™ DEVICE MONITORING/CONFIGURATION TOOL

- A. Communications Protocols

1. The software shall communicate using the DeviceNet™ protocol.

- B. Network Features/Functions

1. The software shall provide the ability to create and configure multiple DeviceNet™ networks, with each network having its own set of communications settings.
2. The software shall provide the ability to adjust the following communications parameters for a DeviceNet™ network:
  - a. baud rate at which the network communicates (125K or 250K)
  - b. number of times a message is resent after a timeout occurs (0-3)
  - c. the expected packet rate (EPR) of a DeviceNet™ response (0-65535)
3. The software shall provide the ability to add devices to the network by one of the following methods:
  - a. automatic detection
  - b. manual addition
4. The software shall provide the ability to detect faulted devices on a network.
5. The software shall provide the ability to perform automatic faulted node recovery as defined by the DeviceNet™ standard.
6. The software shall provide the ability to monitor and log real-time data.
7. The software shall provide the ability to view and configure settable parameters for devices.
8. The software shall be able to import and parse EDS (electronic description sheet) files.
9. The software shall be able to display EDS files and EDS file summaries.
10. The software shall be able to replace obsolete EDS files with up-to-date EDS files.
11. The software shall provide the ability to display all registered EDS files and provide the ability to filter by:
  - a. device vendor
  - b. device type
12. The software shall be able to detect unregistered devices on a network.
13. The software shall provide the ability to change the address of a device.
14. The software shall provide the ability to perform a device reset.
15. The software shall provide the ability to monitor and configure DeviceNet™ scanners.
16. The software shall provide the ability to save and reopen networks.
17. The software shall be able to control and/or monitor inputs and outputs for devices (i.e. the fault relay on a SymCom 777).

- C. Parameter Features/Functions

1. The software shall display real-time and settable parameters in one of the following formats:
  - a. numeric with units
  - b. enumerated string (displayed in a drop-down list for settable parameters)
  - c. bit string with individual bit descriptions
2. The software shall be capable of displaying a description of the parameter and a valid range of values for settable parameters.
3. The software shall include the following:
  - a. ability to automatically retrieve settable parameter values from a device immediately after the device is selected
  - b. ability to automatically send settable parameter values to a device immediately after the value is changed

- c. ability to lock a network so settable parameters cannot be uploaded or changed; this is useful in commissioning multiple devices with the same set of settable parameters
  - 4. The software shall provide the ability to print and export a device's parameters and the parameters' respective value.
- D. Logging Features/Functions
  - 1. The software's logging options shall include:
    - a. an adjustable logging interval (amount of time elapsed before data is logged) of 5 seconds to 1 hour
    - b. an adjustable setting to specify user-controlled or time-controlled logging
      - 1) Start time/date, end time/date, and repeat daily options shall be provided for time-controlled logging
    - c. an adjustable directory where logging files are stored
    - d. an adjustable setting to overwrite or append to existing logging files
  - 2. The software shall be able to log real-time parameters.
  - 3. The software shall provide the ability to specify which devices are to be logged.
  - 4. The software shall provide the ability to specify which parameters for a device are logged.
  - 5. The software shall provide the ability to specify when a parameter for a device is logged based upon the following conditions:
    - a. the value to be logged is greater than a specified threshold
    - b. the value to be logged is greater than or equal to a specified threshold
    - c. the value to be logged is equal to a specified threshold
    - d. the value to be logged is less than or equal to a specified threshold
    - e. the value to be logged is less than a specified threshold
  - 6. The software shall provide the ability to view up-to-date logging files at any time using the following methods:
    - a. a textual display with no formatting
    - b. a spreadsheet-type format with color highlighted special events
    - c. a graphical plot
- E. Scanner Features/Functions
  - 1. The software shall provide the ability to configure the following parameters of a DeviceNet™ scanner:
    - a. interscan delay time (2 to 9000 milliseconds)
    - b. foreground to background poll ratio (1 to 32000)
    - c. expected packet rate (10 to 32000 milliseconds)
    - d. transmit retries (1 to 10)
  - 2. The software shall provide the ability to retrieve and configure which devices are in the scanlist for a DeviceNet™ scanner
  - 3. The software shall provide the ability to configure a bit-strobed I/O connection between a scanner and device along with the following connection characteristics:
    - a. input size (0 to 8 bytes)
    - b. output bit enabled/disabled
  - 4. The software shall provide the ability to configure a polled I/O connection between a scanner and device along with the following connection characteristics:
    - a. input size (0 to 255 bytes)
    - b. output size (0 to 255 bytes)
    - c. poll rate (every scan or background)
  - 5. The software shall provide the ability to configure a change of state/cyclic I/O connection between a scanner and device along with the following connection characteristics:
    - a. input size (0 to 255 bytes)
    - b. output size (0 to 255 bytes)
    - c. heartbeat rate (0 to 32000 milliseconds)
    - d. timeout time (0 to 100000 milliseconds)
    - e. inhibit time (0 to 32000 milliseconds).
  - 6. The software shall provide the ability to map from a byte/bit specific location of a device to an input table location in the scanner with the option to specify the following input table parameters:
    - a. word location to map to
    - b. bit location to map to
    - c. the number of bits to map
  - 7. The software shall provide the ability to map from a byte/bit specific location of a device to an output table location in the scanner with the option to specify the following output table parameters:
    - a. word location to map to
    - b. bit location to map to
    - c. the number of bits to map
- F. Distribution
  - 1. The software shall be distributed on a CD
  - 2. The software shall utilize the serial number of the included USB-CAN module as a software serial number.
- G. Hardware/System Requirements
  - 1. The product shall operate on the Microsoft Windows 2000/NT/XP/Vista operating systems.
  - 2. The product shall communicate with DeviceNet™ networks via a SysTec SysWorxx USB-CAN converter.

End of Section