

# 1 Introduction

## 1.1 What is DeviceNet?

---

### General

DeviceNet is one of the world's leading device-level networks for industrial automation. DeviceNet offers robust and efficient data handling because it is based on Producer/Consumer technology. This modern communications model offers key capabilities that allow the user to determine effectively what information is needed and when.

Users are also benefitted from the ODVA's strong conformance testing policies, which ensure that products are interoperable. As a result, users can mix-and-match products from a variety of suppliers and integrate them seamlessly.

---

### DeviceNet standardization

DeviceNet is standardized according to the International standard IEC 62026, and DeviceNet devices are certified by ODVA for interoperability and conformance.

---

### Electronic Data Sheet file

The configuration process is based on EDS files (Electronic Data Sheet) which are required for each DeviceNet device. EDS files are provided by the device manufacturers and contain electronic descriptions of all relevant communication parameters and objects of the DeviceNet device.

The EDS file for the DeviceNet Anybus Slave, DSQC1004 is part of the RobotWare distribution.

# 1 Introduction

## 1.2 The DeviceNet anybus slave for IRC5

### 1.2 The DeviceNet anybus slave for IRC5

#### General

The DeviceNet anybus slave for IRC5 is inserted into an expansion board on top of the main computer unit in the robot controller.

The DeviceNet anybus slave, DSQC1004, requires the main computer DSQC1000.

#### Options

With option *DeviceNet Anybus Slave*, the IRC5 controller can act as a slave on the DeviceNet network.



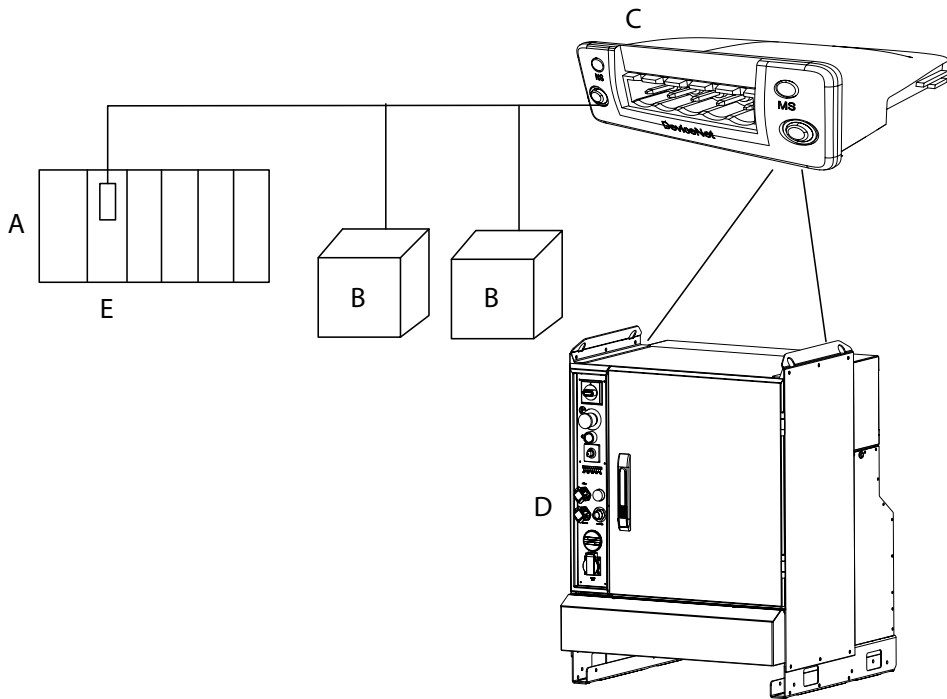
#### Note

If DeviceNet master functionality is required, then the option *DeviceNet Master/Slave* must be used.

For more information see *Application manual - DeviceNet Master/Slave*.

#### Illustration, example

The following figure illustrates an overview of the hardware.



xx1300000225

|   |                                  |
|---|----------------------------------|
| A | PLC                              |
| B | General DeviceNet I/O device     |
| C | DeviceNet anybus slave, DSQC1004 |
| D | IRC5 controller                  |
| E | DeviceNet Master/Scanner         |

*Continues on next page*

### Specification overview

| Item                   | Specification                                                               |
|------------------------|-----------------------------------------------------------------------------|
| Industrial Network     | DeviceNet                                                                   |
| Specification revision | DeviceNet Specification Edition 2.0                                         |
| Data rate              | 125, 250, 500 kbps, Automatic Baudrate Detection                            |
| Connection type        | Explicit messaging, Bit-strobed I/O, Change-of-state/Cyclic I/O, Polled I/O |
| Connection size        | Maximum 64 input bytes and 64 output bytes                                  |

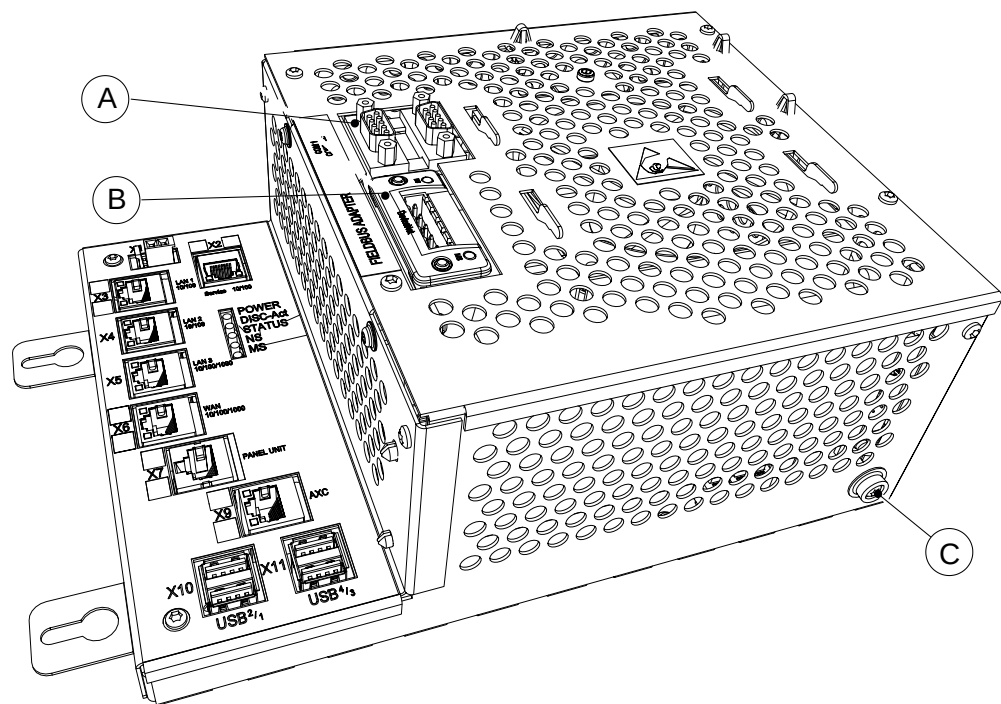
## 2 Hardware overview

### 2.1 Main computer DSQC1000

#### Connections

The I/O network is connected to the DeviceNet anybus slave, DSQC1004, on the main computer.

The following figure illustrates the location of the anybus slave in the main computer unit.



xx1300000676

|   | Description                          | Designation | Article number |
|---|--------------------------------------|-------------|----------------|
| A | Anybus Slave / RS232 expansion board | DSQC1003    | 3HAC046408-001 |
| B | DeviceNet anybus slave               | DSQC1004    | 3HAC045973-002 |
| C | Ground connection for ESD bracelet   |             |                |

#### Installation of the anybus slave

For information on how to install and replace the anybus slave, see *Product manual - IRC5*.

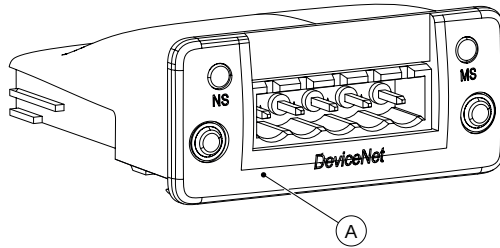
*Continues on next page*

## 2 Hardware overview

### 2.1 Main computer DSQC1000

*Continued*

#### Illustration, DeviceNet anybus slave DSQC1004



xx1300000671

|    |                        |
|----|------------------------|
| A  | DeviceNet anybus slave |
| NS | Network status LED     |
| MS | Module status LED      |

#### LEDs

This section describes the LEDs of the DeviceNet anybus slave.

##### Network Status (NS) LED



#### Note

A test sequence is performed on this LED during start of the device.

| LED state             | Description                                     |
|-----------------------|-------------------------------------------------|
| Off                   | Not online / No power                           |
| Green                 | Online, one or more connections are established |
| Flashing Green (1 Hz) | Online, no connections established              |
| Red                   | Critical link failure                           |
| Flashing Red (1 Hz)   | One or more connections timed out               |
| Alternating Red/Green | Self test                                       |

##### Module Status (MS) LED



#### Note

A test sequence is performed on this LED during start of the slave device.

| LED state             | Description                                                     |
|-----------------------|-----------------------------------------------------------------|
| Off                   | No power                                                        |
| Green                 | Operating in normal condition                                   |
| Flashing Green (1 Hz) | Missing or incomplete configuration, device needs commissioning |
| Red                   | Unrecoverable fault(s)                                          |
| Flashing Red (1 Hz)   | Recoverable fault(s)                                            |
| Alternating Red/Green | Self test                                                       |

*Continues on next page*