Hardware and Engineering

LE 4-622-CX1
Local Expansion Module for Incremental Encoders

LE 4-633-CX1
Local Expansion Module for Absolute Encoders

All brand and product names are trademarks or registered trademarks of the owner concerned. All rights reserved, including those of the translation.

No part of this manual may be reproduced in any form (printed, photocopy, microfilm or any other process) or processed, duplicated or distributed by means of electronic systems without written permission of Moeller GmbH, Bonn.

Subject to alterations without notice.

For Immediate Delivery call KMParts.com at (866) 595-9616
Warning!

Dangerous electrical voltage!

Before commencing the installation

- Disconnect the power supply of the device.
- Ensure that devices cannot be accidentally restarted.
- Verify isolation from the supply.
- Earth and short circuit.
- Cover or enclose neighbouring units that are live.
- Follow the engineering instructions (AWA) of the device concerned.
- Only suitably qualified personnel in accordance with EN 50 110-1/-2 (VDE 0105 Part 100) may work on this device/system.
- Before installation and before touching the device ensure that you are free of electrostatic charge.
- The functional earth (FE) must be connected to the protective earth (PE) or to the potential equalisation. The system installer is responsible for implementing this connection.
- Connecting cables and signal lines should be installed so that inductive or capacitive interference do not impair the automation functions.
- Install automation devices and related operating elements in such a way that they are well protected against unintentional operation.
- Suitable safety hardware and software measures should be implemented for the I/O interface so that a line or wire breakage on the signal side does not result in undefined states in the automation devices.
- Ensure a reliable electrical isolation of the low voltage for the 24 volt supply. Only use power supply units complying with IEC 60 364-4-41 (VDE 0100 Part 410) or HD 384.4.41 S2.
- Deviations of the mains voltage from the rated value must not exceed the tolerance limits given in the specifications, otherwise this may cause malfunction and dangerous operation.
- Emergency stop devices complying with IEC/EN 60 204-1 must be effective in all operating modes of the automation devices. Unlatching the emergency-stop devices must not cause restart.
- Devices that are designed for mounting in housings or control cabinets must only be operated and controlled after they have been installed with the housing closed. Desktop or portable units must only be operated and controlled in enclosed housings.
- Measures should be taken to ensure the proper restart of programs interrupted after a voltage dip or failure. This should not cause dangerous operating states even for a short time. If necessary, emergency-stop devices should be implemented.
- Wherever faults in the automation system may cause damage to persons or property, external measures must be implemented to ensure a safe operating state in the event of a fault or malfunction (for example, by means of separate limit switches, mechanical interlocks etc.).

For Immediate Delivery call KMParts.com at (866) 595-9616
Contents

About This Manual
   Other manuals 3
   Symbols 3

1 About The Local Expansion Modules 5
   LE 4-622-CX1 5
   LE 4-633-CX1 7

2 Engineering 9
   Electromagnetic compatibility (EMC) 9
   Overview of the terminals 11
   Terminal assignment on the data cable 13
   Terminal assignment for the SSI data cable on the LE 4-633-CX1 19
   Number of LEs per PS 4 28
   Connection to the PS 4 28

3 Mounting 29
   Mounting on the top-hat rail 29
   Mounting on fixing feet 30
   Mounting in the switch cabinet 31

Appendix 33
   Dimensions 33
   Accessories 34
   Technical data 35

Index 39
For Immediate Delivery call KMParts.com at (866) 595-9616
About This Manual

Other manuals
The LE 4-622-CX1 and LE 4-633-CX1 local expansion modules are used in conjunction with the PS 4-200 and PS 4-400 locally expandible compact PLCs.

Consequently, some of the topics covered in this manual are closely or directly linked to the PS 4. More detailed information is given in the corresponding manuals:

- Hardware and Engineering for the PS 4-200, AWB 27-1184-GB
- Hardware and Engineering for the PS 4-400, AWB 27-1240-GB

Symbols
Two symbols are used throughout this manual and have the following meanings:

- Indicates handling instructions
- Draws your attention to interesting tips and additional information
1 About The Local Expansion Modules

LE 4-622-CX1

Task
The LE 4-622-CX1 is used to position, detect the position of and count fast pulses.

Special features

Table 1: Special features of the LE 4-622-CX1

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of channels (counter)</td>
<td>2</td>
</tr>
<tr>
<td>Counter range</td>
<td>24 bits: 0 to FFFF hex</td>
</tr>
<tr>
<td></td>
<td>0 to 16,777,215 decimal</td>
</tr>
<tr>
<td>Mode (set individually for each channel)</td>
<td>1: Positioning system for 5 V incremental encoders</td>
</tr>
<tr>
<td></td>
<td>2: Positioning system for 24 V incremental encoders</td>
</tr>
<tr>
<td></td>
<td>3: Fast counter for 24 V signals</td>
</tr>
<tr>
<td>Counter frequency</td>
<td>Max. 300 kHz (5 V inputs)</td>
</tr>
<tr>
<td></td>
<td>Max. 30 kHz (24 V inputs)</td>
</tr>
<tr>
<td>Preferred applications</td>
<td>Position detection for positioning tasks</td>
</tr>
<tr>
<td>Power supply to the encoder</td>
<td>External via ZB 4-122-KL1 twin-level terminal block</td>
</tr>
</tbody>
</table>
About The Local Expansion Modules

Setup

Figure 1: Structure of the LE 4-622-CX1

1. Plug-in screw terminal for the data cables

For Immediate Delivery call KMParts.com at (866) 595-9616
LE 4-633-CX1 Task

The LE 4-633-CX1 is used to position or to accurately determine the absolute position of drive shafts. The absolute position values are transferred by serial synchronous transmission.

Special features

Table 2: Special features of the LE 4-633-CX1

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of SSI channels</td>
<td>3</td>
</tr>
<tr>
<td>Transmission speed</td>
<td>125 kHz or 250 kHz</td>
</tr>
<tr>
<td>Preferred applications</td>
<td>Positioning tasks</td>
</tr>
<tr>
<td>Data code</td>
<td>Binary or Gray</td>
</tr>
<tr>
<td>Data format</td>
<td>25-bit (single and multi-turn)</td>
</tr>
<tr>
<td>Wire break detection on signal line D+ and D-</td>
<td>Yes</td>
</tr>
<tr>
<td>Power supply to the absolute encoder</td>
<td>External via ZB 4-122-KL1 twin-level terminal block</td>
</tr>
</tbody>
</table>
About The Local Expansion Modules

Setup

Figure 2: Setup of the LE 4-633-CX1

1. Plug-in screw terminal for the clock and data cables

For Immediate Delivery call KMParts.com at (866) 595-9616
2 Engineering

**Electromagnetic compatibility (EMC)**

Please read the engineering notes in the “EMC Engineering Guidelines for Automation Systems” manual (AWB 27-1287-GB).

**German EMC law**

To ensure that you conform to the requirements of the EMC law, please note the following points (see also Figure 3):

- Lay the screened data cable on the left or right of the module by the shortest route and produce a low impedance connection between the screen braid and the reference potential over a large contact area. The accessories you will need are listed in the Appendix.
- Use the ZB 4-122-KL1 twin-level terminal block for the power supply to the encoder.
- Follow the manufacturer’s instructions for the power supply unit for the encoder (absolute encoder, incremental encoder, etc).
- Insulate the end of the screen braid as closely as possible to point at which the signal line enters the module.
Figure 3: EMC measures

For Immediate Delivery call KMParts.com at (866) 595-9616
Overview of the terminals

LE 4-622-CX1

Figure 4: Overview of the terminals on the LE 4-622-CX1

1. Plug connector for the LE bus
2. Plug-in screw terminals
3. Conductor cross-sections:
   - flexible with ferrule 0.22 mm² to 1.5 mm²
   - solid 0.22 mm² to 2.5 mm²
4. Terminal for channel 0
5. Plug connector for LE bus
6. Terminal for channel 1

For Immediate Delivery call KMParts.com at (866) 595-9616
Figure 5: Overview of the terminals on the LE 4-633-CX1

1. Plug connector for LE bus
2. Plug-in screw terminals
3. Conductor cross-sections:
   - flexible with ferrule 0.22 mm² to 1.5 mm²
   - solid 0.22 mm² to 2.5 mm²
4. Terminal for channel 1 and channel 2
5. Plug connector for LE bus
6. Terminal for channel 3

For Immediate Delivery call KMParts.com at (866) 595-9616
Three different modes or connection types can be used for each counter channel to suit various applications:

Mode 1:
- Positioning system for 5 V incremental encoders

Mode 2:
- Positioning system for 24 V incremental encoders

Mode 3:
- Fast counter for 24 V pulse generators

Use the Parameter Editor of the Sucosoft S 30-S4 or S 40 software to select the mode. The mode is adopted when the program starts up and cannot be changed while the program is running. The mode can only be changed in the Parameter Editor.

In modes 1 and 2, the signal is quadrupled internally. This means that the rising and falling signal edges are evaluated at inputs A and B or X and Y.
Positioning system for 5 V incremental encoders

With this type of connection, the 5 V pulses of an incremental encoder are counted. The incremental encoder should be connected to LE 4-622-CX1 as shown in Figure 6 below:

Figure 6: Connection of a 5 V incremental encoder

1. Incremental encoder
2. Screened data cable
3. Power supply unit for the incremental encoder (follow the manufacturer’s instructions)
4. Plug-in screw terminal for connecting the data cable
5. ZB 4-122-KL1 twin-level terminal block for connecting the power supply

In this mode, the LE 4 needs antivalent signals in order to operate.

The incremental encoder sends the following 5 V signals:

For Immediate Delivery call KMParts.com at (866) 595-9616
Figure 7: Signals from a 5 V incremental encoder

The signals at inputs A/B and A/B are offset by 90° so that the direction can be detected. A and B are the antivalent signals of A and B. R or R (antivalent signal) is the reference signal which the encoder sends once every revolution, for example.

If a wire break occurs on one of these cables, an error message is signalled at the “Error” output of the function block.

Select the “Incremental encoder 5 V DC (mode 1)” setting in the Parameter Editor.
Positioning system for 24 V incremental encoders

With this type of connection, the 24 V pulses of an incremental encoder are counted. The incremental encoder should be connected to LE 4-622-CX1 as shown in Figure 8 below.

![Figure 8: Connection of a 24 V incremental encoder](image)

1. Incremental encoder
2. Screened data cable
3. Power supply unit for the incremental encoder (follow the manufacturer's instructions)
4. Plug-in screw terminal for connecting the data cable
5. ZB 4-122-KL1 twin-level terminal block for connecting the power supply

For Immediate Delivery call KMParts.com at (866) 595-9616
The incremental encoder sends the following 24 V signals:

![Diagram of signals from a 24 V incremental encoder]

Figure 9: Signals from a 24 V incremental encoder

The signals at LE inputs X/Y are offset by 90° so that the direction can be detected. R is the reference signal which the encoder sends once every revolution, for example.

Select the "Incremental encoder 24 V DC (mode 2)" setting in the Parameter Editor.

**Fast counter for 24 V pulse generators**

With this type of connection, the 24 V pulses from a pulse generator are counted. The pulse generator,
such as an initiator, should be connected to the LE 4-622-CX1 as shown in Figure 10 below.

**Figure 10: Connection of a 24 V pulse generator**

1. Pulse generator
2. Screened data cable
3. Power supply unit for the incremental encoder (follow the manufacturer’s instructions)
4. Plug-in screw terminal for connecting the data cable
5. ZB 4-122-KL1 twin-level terminal block for connecting the power supply
Terminal assignment for the SSI data cable on the LE 4-633-CX1

The pulse generator sends 24 V counter pulses to LE input X. The counter level changes in response to a positive edge. The counting direction can be changed using an external switch which acts on LE input Y:

- Up counting = 0 V at input Y
- Down counting = 24 V at input Y

X = LE input for counter pulses
Y = LE input for displaying the direction
ZS = Counter level

Select the “Pulse generator 24 V DC (mode 3)” setting in the Parameter Editor.

The following terminal assignment diagram shows how to connect an absolute encoder with SSI interface (SSI = Synchronous Serial Interface) to the LE 4-633-CX1. This local expansion module has three SSI channels.
Absolute encoders using either Gray and/or binary code may be connected.

Figure 11: Connection of an absolute encoder with SSI interface

1. Absolute encoder with SSI interface
2. Screened data cable
3. Power supply unit for the absolute encoder (follow the manufacturer’s instructions)
4. Plug-in screw terminal for connecting the data cable
5. ZB 4-122-KL1 twin-level terminal block for connecting the power supply

Wire the D+ cable of the absolute encoders to the D+ input on the LE 4-633-CX1. Repeat accordingly for D-, T+ and T-.
Incorrect timing diagrams may be obtained if these data cables are swapped over, which can cause a wire break message to appear on the PS 4.

For Immediate Delivery call KMParts.com at (866) 595-9616
Terminal assignment for the SSI data cable on the LE 4-633-CX1

In contrast to incremental encoders, absolute encoders can record the precise (absolute) position, even after a power failure. Either single-turn or multi-turn absolute encoders can be used, depending on the distance or angle to be resolved and the required resolution accuracy. Given the need to detect either distances or angles, we generally differentiate between translational (linear motion) and rotational (rotary motion) position determination.

The following diagrams show how the data from the absolute encoder appears as a bit pattern on the PS 4 (bit 31 to bit 0). The differences between 25-bit multi-turn (Figure 12), 21-bit multi-turn (Figure 13) and 13-bit single-turn (Figure 14) should be noted since the LE 4-633-CX1 analyses the data in 25-bit multi-turn format.
Figure 12 shows the graphical structure of the 25-bit multi-turn data format in relation to the resolution per revolution and the number of revolutions.

Bits 6 to 0 always contain pulse value “0”
Figure 12: Multi-turn data format (25-bit) for synchronous serial data transmission with bit pattern in the PS 4
Figure 13 shows the graphical structure of the 21-bit multi-turn data format in relation to the resolution per revolution and the number of revolutions.

Only the first 21 bits (bit 31 to bit 11) have to be evaluated in the PS 4 since the LE 4-633-CX1 reads the data from the absolute encoder in 25-bit multi-turn data format. Bits 10 to 7, which have a “?” do not have to be evaluated. Bits 6 to 0 always contain pulse value “0”.
Terminal assignment for the SSI data cable on the LE 4-633-CX1

Parallele Winkelinformationen im Gray/Binär-Code

Anzahl Umdrehung

Auflösung pro Umdrehung

Figure 13: Multi-turn data format (21-bit) for synchronous serial data transmission with bit pattern in the PS 4

For Immediate Delivery call KMParts.com at (866) 595-9616
Figure 14 shows the graphical structure of the 13-bit single-turn data format in relation to the resolution for one revolution.

Since the LE 4-633-CX1 reads the data from the absolute encoder in 25-bit multi-turn data format, only the first 13 bits (bit 31 to bit 19) may be evaluated in the PS 4. Bits 18 to 7, which have a “?” must not be evaluated. Bits 6 to 0 always contain pulse value "0".

Please also note the data format information provided by the absolute encoder manufacturer.
Figure 14: Single-turn data format (13-bit) for synchronous serial data transmission with bit pattern in the PS 4
Engineering

**Number of LEs per PS 4**
Two such LEs may be connected to each PS 4. The LEs must be located at position 1 or 2, immediately beside the PS 4, although either LE may be placed in each position.

**Connection to the PS 4**
Connect the LE 4 directly to the PS 4 using the plug connector.

*Figure 15: Connection to the PS 4*
3 Mounting

Local expansion modules can be mounted either on the top-hat rail or on fixing feet.

Snap the LE 4 onto the top-hat rail or fix it to the mounting plate before connecting it to the PS 4.

Mounting on the top-hat rail

- Insert one side of the module into the top-hat rail ①.
- Use the screwdriver to push the slide bar out of the module ②.
- Swivel the module onto the top-hat rail ③.
- Remove the screwdriver. The slide bar will engage on the top-hat rail and lock the module in place ④. Check that the module is fixed securely.

Figure 16: Mounting on the top-hat rail

For Immediate Delivery call KMParts.com at (866) 595-9616
Mounting on fixing feet

- Push the fixing foot in until it latches into position ①.
- Check that it is seated firmly. The latching lug must engage in the hole ②.
- Use an M4 screw to fix the fixing feet to the mounting plate ③.

Figure 17: Mounting on fixing feet
Mounting in the switch cabinet

The following conditions must be fulfilled:

► Fix the PS 4 with its local expansion modules horizontally in the switch cabinet.
► Ensure that it is at least 50 mm away from the cable duct.
► Keep the control and power circuits separate.

Figure 18: Horizontal arrangement of the modules in the switch cabinet

1. At least 50 mm
2. Power circuit
3. Cable duct

For Immediate Delivery call KMParts.com at (866) 595-9616
For Immediate Delivery call KMParts.com at (866) 595-9616
Appendix

Dimensions

Figure 19: Front view of the PS 4, LE 4

Figure 20: Side view of the PS 4, LE 4

Figure 21: PS 4, LE 4 with fixing feet

For Immediate Delivery call KMParts.com at (866) 595-9616
## Accessories

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Manufacturer</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixing foot</td>
<td>Klöckner-Moeller</td>
<td>ZB 4-101-GF1</td>
<td>Fixing foot for screwing the LE or PS 4 onto a mounting plate</td>
</tr>
<tr>
<td>Plug-in screw terminal</td>
<td>Klöckner-Moeller</td>
<td>ZB 4-110-KL1</td>
<td>Screw terminal for the input/output level</td>
</tr>
<tr>
<td>Twin-level terminal block</td>
<td>Klöckner-Moeller</td>
<td>ZB 4-122-KL1</td>
<td>Snap-fit 2 x 11-pole potential terminal</td>
</tr>
<tr>
<td>Contact clamps for</td>
<td>Klöckner-Moeller</td>
<td>ZB 4-102-KS1</td>
<td>Contact clamps for connecting the screen of the data cable to the earth potential</td>
</tr>
<tr>
<td>fixing the screening</td>
<td>e.g. Weidmüller</td>
<td>KLBü 3-8 SC</td>
<td>Order no.: 169226</td>
</tr>
<tr>
<td>Terminal clamp for</td>
<td>e.g. Weidmüller</td>
<td>FM 4/TS 35</td>
<td>Order no.: 068790</td>
</tr>
<tr>
<td>snap-on mounting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>for the top-hat rail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lightning protection</td>
<td>Module e.g. from Dehn</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>module</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For Immediate Delivery call KMParts.com at (866) 595-9616
## Technical data

<table>
<thead>
<tr>
<th><strong>Technical data</strong></th>
<th><strong>General</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable standards</td>
<td>EN 61131-2, EN 50178</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>0 to 55°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>−25°C to 70°C</td>
</tr>
<tr>
<td>Shock</td>
<td>2 shocks with sinusoidal half-wave 11 ms duration, 15 g peak value</td>
</tr>
<tr>
<td>Surge withstand capability</td>
<td>15 g, 11 ms</td>
</tr>
<tr>
<td>Vibration</td>
<td>Constant 1 g, f = 10 – 150 Hz</td>
</tr>
<tr>
<td><strong>EMC</strong></td>
<td>EN 55011/22 class A</td>
</tr>
<tr>
<td>Emissions</td>
<td>EN 61131-2, EN 50178</td>
</tr>
<tr>
<td>ESD</td>
<td>Contact discharge 4 kV, Air discharge 8 kV</td>
</tr>
<tr>
<td>RFI</td>
<td>EN 61000-4-3 AM/PM 10 V/m</td>
</tr>
<tr>
<td>Burst</td>
<td>EN 61000-4-4 Mains/digital I/O 2 kV, analog I/O, field bus 1 kV</td>
</tr>
<tr>
<td>Surge</td>
<td>EN 50142 Digital I/O, assym. 0.5 kV, Mains DC, assym. 1 kV, Mains AC, assym. 2 kV, Mains AC, sym. 1 kV</td>
</tr>
<tr>
<td>Line-conducted interference</td>
<td>EN 50141 AM 10 V</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP 20</td>
</tr>
<tr>
<td>Humidity class</td>
<td>RH 1</td>
</tr>
<tr>
<td>Insulation voltage</td>
<td>600 V AC</td>
</tr>
<tr>
<td>Weight</td>
<td>270 g</td>
</tr>
<tr>
<td>Connections</td>
<td>Plug-in screw terminals</td>
</tr>
<tr>
<td>Conductor cross-sections flexible with ferrule: solid:</td>
<td>0.22 to 1.5 mm², 0.22 to 2.5 mm²</td>
</tr>
<tr>
<td>Power supply to the encoder</td>
<td>Separate via ZB 4-122-KL1 twin-level terminal block</td>
</tr>
<tr>
<td>Data cable to encoder</td>
<td>As per encoder manufacturer’s specifications (but normally screened cable)</td>
</tr>
</tbody>
</table>

For Immediate Delivery call KMParts.com at (866) 595-9616
### LE 4-622-CX1

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase shift deviation (mode 1+2; 5 V and 24 V incremental encoder)</td>
<td>Max. ± 50 %</td>
</tr>
<tr>
<td>Minimum pulse-width (mode 3; 24 V pulse generator)</td>
<td>16 µs</td>
</tr>
</tbody>
</table>

**Counter inputs 5 V**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level</td>
<td>Conforming to RS 422</td>
</tr>
<tr>
<td>Differential input voltage</td>
<td>$U_{\text{max}} = 5.25 \text{ V}$</td>
</tr>
<tr>
<td></td>
<td>$U_{\text{min}} = 2 \text{ V}$</td>
</tr>
<tr>
<td>Input current</td>
<td>$I_{\text{max}} = 20 \text{ mA at } U &lt; 5.25 \text{ V}$</td>
</tr>
<tr>
<td></td>
<td>$I_{\text{min}} = 2.5 \text{ mA at } U &gt; 2 \text{ V}$</td>
</tr>
<tr>
<td>Maximum counter frequency</td>
<td>300 kHz</td>
</tr>
<tr>
<td>Pulse quadrupling</td>
<td>Yes</td>
</tr>
<tr>
<td>90° offset signals</td>
<td>Yes</td>
</tr>
<tr>
<td>Antivalent signals</td>
<td>Yes</td>
</tr>
<tr>
<td>Counter range</td>
<td>24 bits</td>
</tr>
<tr>
<td>Electrical isolation</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Counter inputs 24 V**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage</td>
<td>$U_{\text{max}} = 30 \text{ V}$</td>
</tr>
<tr>
<td></td>
<td>$U_{\text{min}} = 18 \text{ V}$</td>
</tr>
<tr>
<td>Input current</td>
<td>$I_{\text{max}} = 2.5 \text{ mA at } U = 18 \text{ V}$</td>
</tr>
<tr>
<td>Maximum counter frequency</td>
<td>30 kHz</td>
</tr>
<tr>
<td>Pulse quadrupling</td>
<td>Yes (for incremental encoder)</td>
</tr>
<tr>
<td>90° offset signals</td>
<td>Yes (for incremental encoder)</td>
</tr>
<tr>
<td>Counter range</td>
<td>24 bits</td>
</tr>
<tr>
<td>Electrical isolation</td>
<td>Yes</td>
</tr>
</tbody>
</table>
### LE 4-633-CX1

<table>
<thead>
<tr>
<th>Technical data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of SSI interfaces</td>
</tr>
<tr>
<td>Data code</td>
</tr>
<tr>
<td>Data format</td>
</tr>
<tr>
<td>Electrical isolation</td>
</tr>
<tr>
<td>- LE bus to SSI interfaces</td>
</tr>
<tr>
<td>- Between SSI interfaces</td>
</tr>
<tr>
<td>Clock output of SSI interface</td>
</tr>
<tr>
<td>Data input of SSI interface</td>
</tr>
<tr>
<td>Wire break detection</td>
</tr>
<tr>
<td>Data transmission speed</td>
</tr>
</tbody>
</table>
| Maximum cable length to absolute encoder | Depends on the data transmission speed of the absolute encoder and is specified by the manufacturer in the technical data.
|                            | It is limited, however:                |
|                            | Baud rate: cable length:               |
|                            | 250 kHz: <150 m                        |
|                            | 125 kHz: <350 m                        |

For Immediate Delivery call KMParts.com at (866) 595-9616
For Immediate Delivery call KMParts.com at (866) 595-9616
Index

A
Accessories ......................................................... 34
Antivalent signals .................................................. 14

C
Connection of 24 V incremental encoder ................. 16
Connection of 5 V incremental encoder .................... 14
Counter level .......................................................... 19
Counter pulses ...................................................... 19
Counting direction ................................................ 19

D
Data cable, screening ............................................. 9

E
EMC ............................................................................. 9

I
Incremental encoder, 24 V ........................................ 16
Incremental encoder, 5 V .......................................... 14

M
Modules
  Arrangement in the switch cabinet ....................... 31
  Mounting .............................................................. 29
    on the fixing feet ............................................ 30
    on the top-hat rail .......................................... 29
  Mounting in the switch cabinet ......................... 31

P
Parameter Editor ................................................ 13
Positioning system
  24 V incremental encoder .................................... 16
  Positioning system
    5 V incremental encoder ................................. 14

Q
Quadrupled signals .............................................. 13

For Immediate Delivery call KMParts.com at (866) 595-9616
Index

R
Reference signal ............................................................. 17
Referenzsignal ............................................................... 15

S
Screening of data cables .................................................. 9
Setup
LE 4-622-CX1 ............................................................... 6
LE 4-633-CX1 ............................................................... 8
Special features
LE 4-622-CX1 ............................................................... 5
LE 4-633-CX1 ............................................................... 7

T
Task
LE 4-622-CX1 ............................................................... 5
LE 4-633-CX1 ............................................................... 7
Technical data ................................................................. 35
Terminal overview
LE 4-622-CX1 ............................................................... 11
LE 4-633-CX1 ............................................................... 12

W
Wire break ................................................................. 15