TeSys®U ASILUFC5-ASILUFC51
AS-i Communication Module
User Manual

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When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to use Schneider Electric software or approved software with our hardware products may result in injury, harm, or improper operating results.

Failure to observe this information can result in injury or equipment damage.

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Safety Information

Important Information

NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

**DANGER**

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

**WARNING**

WARNING indicates a potentially hazardous situation which, if not avoided, can result in death or serious injury.

**CAUTION**

CAUTION indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury.

CAUTION

CAUTION, used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, can result in equipment damage.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and the installation, and has received safety training to recognize and avoid the hazards involved.
About the Book

At a Glance

Document Scope

This manual describes the implementation, functionalities and operation of the TeSys U AS-i communication module (ASILUFC5 or extended ASILUFC51).

Field of application: mainly automation systems in industry and building areas.

Validity Note

ASILUFC5 and ASILUFC51 can be used with TeSys U power bases (LUB/2B, LUS/2S) only. ASILUFC5 and ASILUFC51 are not compatible with TeSys U controller bases (LUTM).

Related Documents

<table>
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<th>Reference Number</th>
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<td>1743239</td>
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<td>TeSys U Communication Variables - User’s Manual</td>
<td>1744082</td>
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<td>LU•B/LU•S• TeSys U Starters - Instruction Sheet</td>
<td>1629984</td>
</tr>
<tr>
<td>LUCM/LUCMT Multifunction Control Units - User’s Manual</td>
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User Comments

We welcome your comments about this document. You can reach us by e-mail at techcomm@schneider-electric.com.
Overview

This chapter describes the installation and technical characteristics of a TeSys U AS-i communication module (ASILUFC5 or extended ASILUFC51).

What's in this Chapter?

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Description and Installation

Introduction

The AS-i ASILUFC5 or extended ASILUFC51 communication module connects the TeSys U starters-controllers to the AS-i wiring system for direct or remote control.

The different operation conditions of the AS-i ASILUFC5 or ASILUFC51 AS-i communication module (AS-i bus voltage presence, communication fault on AS-i bus, addressing fault, ...) are displayed on the front panel by two light-emitting diodes (green and red).

Module operation is continuously monitored by self-tests. This is totally transparent to the user.

The integration of AS-i V2 functions enables remote module diagnostics via the bus or local diagnostics via the ASITERV2 and XZMC11 addressing terminals.

The module must be supplied with a 24V DC auxiliary source and must only be used with the LUC••BL 24V DC control units.

---

**WARNING**

**IMPROPER COMMUNICATION PORT USAGE**

- Use communication ports for transfer of non-critical data only.
- The data provided by monitoring contactor status and current levels is delayed by transmission time. Do not use this data for critical control decisions.
- Verify function settings before starting the motor.
- Do not use functions such as Run, Stop and Reverse for emergency or critical control applications.

*Failure to follow these instructions can result in death, serious injury, or equipment damage.*
Description of ASILUFC5 or ASILUFC51 different states of LEDs.

<table>
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<th>Light Emitting Diodes (LEDs)</th>
<th>Status</th>
<th>Meaning</th>
</tr>
</thead>
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<tr>
<td>Green “Power” LED</td>
<td>On</td>
<td>AS-i bus voltage present</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td>No AS-i bus voltage</td>
</tr>
<tr>
<td>Red “fault” LED</td>
<td>On</td>
<td>No exchange with the Master</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Communication fault on AS-i bus)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Addressing fault</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(address is factory-set to 0)</td>
</tr>
<tr>
<td></td>
<td>Flashing</td>
<td>No 24V DC auxiliary voltage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Motor feed engaged in the “TRIP” position</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td>No fault</td>
</tr>
</tbody>
</table>
Installation

The AS-i ASILUFC5 or ASILUFC51 communication module is easily installed in the power base (LUB□□/LUS□□ or LU2B□□/LU2S□□) under the LUC□□BL control unit that locks it into position.

It must be assembled in the following order:
1. Install the ASILUFC5 or ASILUFC51 module.
2. Install the LUC□□BL control unit.
   
   **Note:** The control unit must be 24V DC.
3. The Output control connector can be connected by wire using LUBN11C cable (for LUB□□/LUS□□) or LU9MR1C cable (for LU2B□□/LU2S□□).
   
   **Note:** Direct wiring can be used, for example, to insert external stop control or a voltage interface.
Once all components have been installed, here are complete power bases:

Assembled module

LU2B●
LU2S●

LUC●BL
control unit

ASILUFC5
ASILUFC51
comm. module

LU9●C
prewired coil

Assembled module

LUB●
LUS●
Connections

Electrical Connections

The connections to the AS-i bus and auxiliary 24V DC are made using XZCG connecting accessories.
Examples of Application Diagrams

Control by AS-i communication module without coil pre-wiring and with main emergency stop.

Control by AS-i communication module with coil pre-wiring and main emergency stop.

Control by AS-i communication module without coil pre-wiring and with main emergency stop and indicating lights for the operating direction and upper and lower level and stops.
## Connection Capacities

The following table shows the conductor cross-sections that may be used on ASILUFC5 / ASILUFC51 terminals:

<table>
<thead>
<tr>
<th>Connection</th>
<th>Conductor type</th>
<th>AS-I / 24V aux Conductor Cross-section (min. - max.)</th>
<th>Control / Monitor Conductor Cross-section (min. - max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 conductor</td>
<td>Rigid conductor</td>
<td>0.2 ... 1.5 mm$^2$ [24 ... 16 AWG]</td>
<td>0.14 ... 1 mm$^2$ [26 ... 18 AWG]</td>
</tr>
<tr>
<td></td>
<td>Flexible conductor</td>
<td>0.2 ... 1.5 mm$^2$ [24 ... 16 AWG]</td>
<td>0.14 ... 1 mm$^2$ [26 ... 18 AWG]</td>
</tr>
<tr>
<td></td>
<td>Flexible conductor with cable end:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>without an insulating inlet taper</td>
<td>0.25 ... 1.5 mm$^2$ [24 ... 16 AWG]</td>
<td>0.25 ... 1.0 mm$^2$ [24 ... 18 AWG]</td>
</tr>
<tr>
<td></td>
<td>with an insulating inlet taper</td>
<td>0.25 ... 1.5 mm$^2$ [24 ... 16 AWG]</td>
<td>0.25 ... 0.5 mm$^2$ [24 ... 20 AWG]</td>
</tr>
<tr>
<td>2 conductors (same cross-section)</td>
<td>2 rigid conductors</td>
<td>0.2 ... 1.0 mm$^2$ [24 ... 18 AWG]</td>
<td>0.14 ... 0.5 mm$^2$ [26 ... 20 AWG]</td>
</tr>
<tr>
<td></td>
<td>2 flexible conductors</td>
<td>0.2 ... 1.0 mm$^2$ [24 ... 18 AWG]</td>
<td>0.14 ... 0.75 mm$^2$ [26 ... 20 AWG]</td>
</tr>
<tr>
<td></td>
<td>2 flexible conductors with cable end:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>without an insulating inlet taper</td>
<td>0.25 ... 1.0 mm$^2$ [24 ... 18 AWG]</td>
<td>0.25 ... 0.34 mm$^2$ [24 ... 22 AWG]</td>
</tr>
<tr>
<td></td>
<td>with an insulating inlet taper</td>
<td>0.5 ... 1.5 mm$^2$ [20 ... 16 AWG]</td>
<td>0.5 mm$^2$ [20 AWG]</td>
</tr>
</tbody>
</table>

### Connectors

<table>
<thead>
<tr>
<th>Connectors</th>
<th>2 pins</th>
<th>3 pins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pitch</td>
<td>5.08 mm [0.20 in.]</td>
<td>3.81 mm [0.15 in.]</td>
</tr>
<tr>
<td>Tightening torque</td>
<td>4.4 to 5.3 lb-in [0.5 / 0.6 N.m.]</td>
<td>4.4 to 5.3 lb-in [0.5 / 0.6 N.m.]</td>
</tr>
<tr>
<td>Flat screwdriver</td>
<td>3.5 mm [0.14 in.]</td>
<td>2.5 mm [0.10 in.]</td>
</tr>
</tbody>
</table>
## Technical Characteristics

<p>| | | |</p>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module certification</strong></td>
<td>ASI</td>
<td></td>
</tr>
<tr>
<td><strong>Protection class</strong></td>
<td>Complying with IEC 539</td>
<td>IP20</td>
</tr>
<tr>
<td><strong>Immunity to fast transients</strong></td>
<td>Complying with IEC 1000-4-4 / EN 61000-4-4 level 4</td>
<td>2kV</td>
</tr>
<tr>
<td><strong>AS-i power supply</strong></td>
<td>26.5V - 31.6V</td>
<td></td>
</tr>
<tr>
<td><strong>Current consumed</strong></td>
<td>On the AS-i bus</td>
<td>25mA in normal operation, 30mA in fault.</td>
</tr>
<tr>
<td><strong>Auxiliary power supply</strong></td>
<td>24V DC +/- 30%</td>
<td></td>
</tr>
<tr>
<td><strong>Current consumed</strong></td>
<td>On the 24V auxiliary</td>
<td>Depends on the load connected to the outputs. Limited to 500mA</td>
</tr>
<tr>
<td><strong>Relay output rating</strong></td>
<td>Short-circuit and overload protected</td>
<td>0.5A / 24V</td>
</tr>
</tbody>
</table>
Software Implementation

Overview

Hardware implementation of an ASILUFC5 / ASILUFC51 AS-i communication module is being followed by its software implementation.

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</table>
Configuration Software

AS-i Comm. Module and PL7 Software

The AS-i communication module is configured with the PL7 Micro/Junior/Pro software. All the slave equipment corresponding to all the inputs/outputs of the AS-i bus can be configured from the PLC interface declaration screen.

Used with the Master PLC interface TSXSAY 1000 and to retain interchangeability compatibility with the motor starters in box LF1/LF2.

The 7.D.F.0 motor start profile limits the configuration to 31 slave devices as a maximum. In fact, an ASILUFC5 / ASILUFC51 module occupies the 2 addresses of banks A and B. The 7.A.7.E motor start profile limits the configuration to 62 slave devices as a maximum.

The ASILUFC5 configuration is guided by the screen sequence. The following is a configuration example with the Premium TSXSAY 1000 PLC interface.

Configuration Example (Steps 1-2)

Configuration example: step 1

![Configuration example: step 1](image1)

Configuration example: step 2

![Configuration example: step 2](image2)
Addressing

Description of Addressing

Here is a view of the links with an addressing terminal, which can be of two different types:
- referenced as ASITERV2,
- referenced as XZMC11.
Description of the I/O Variables on the ASILUFC5/ASILUFC51 Module

AS-i Profiles

The following table describes the input and output variables associated to the AS-i profiles:

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<th>AS-i Profiles: 7.D.F.0 (for ASILUFC5) or 7.A.7.E (for ASILUFC51)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current consumed on the AS-i bus</td>
</tr>
<tr>
<td>Bit value</td>
</tr>
<tr>
<td>Data bits (commands) (Outputs)</td>
</tr>
<tr>
<td>D0</td>
</tr>
<tr>
<td>D1</td>
</tr>
<tr>
<td>D2</td>
</tr>
<tr>
<td>D3</td>
</tr>
<tr>
<td>Data bits (status) (Inputs)</td>
</tr>
<tr>
<td>D0</td>
</tr>
<tr>
<td>D1</td>
</tr>
<tr>
<td>D2</td>
</tr>
<tr>
<td>D3</td>
</tr>
</tbody>
</table>

If D0 and D1 output bits are set to 1 at the same time, the motor stops.

**NOTE:** The parameter bits are reserved.

Schematic diagram

The ON, OFF, TRIP and power contact states are transmitted via a mechanical link.
### Managing Faults

#### Description of the Faults

<table>
<thead>
<tr>
<th>Fault</th>
<th>Causes</th>
<th>Corrective actions</th>
</tr>
</thead>
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<tr>
<td>Green &quot;Power&quot; LED Off</td>
<td>No AS-i bus voltage</td>
<td>Check the state of the AS-i power supply</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check the cables and the connecting terminals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check the polarity of the power supply wire</td>
</tr>
<tr>
<td>Red &quot;Fault&quot; LED flashing</td>
<td>No 24V DC auxiliary voltage</td>
<td>Check the state of the auxiliary power supply</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check the cables and connection terminals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check the polarity of the power supply wire</td>
</tr>
<tr>
<td>Motor feed engaged in the &quot;TRIP&quot; position</td>
<td></td>
<td>Remove the cause of the fault</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rearm the product</td>
</tr>
<tr>
<td>Red &quot;Fault&quot; LED permanently On</td>
<td>No exchange with the Master (Communication fault on AS-i bus)</td>
<td>Check the connection to the Master</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check if the Master is set to Run</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check if the 24V AS-i and 24V DC auxiliary connections are not reversed</td>
</tr>
<tr>
<td>Addressing fault (Address factory-set to 0)</td>
<td></td>
<td>Set an address from 1 to 31 (ASILUFC5) or 1 to 62 (ASILUFC51)</td>
</tr>
</tbody>
</table>