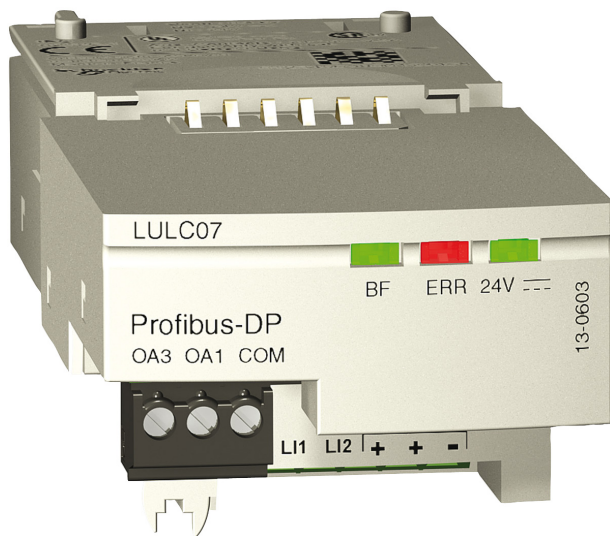


# TeSys<sup>®</sup> U LULC07 Profibus DP Communication Module

Acyclic Data Read/Write with Siemens  
Application Note

03/2009



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All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

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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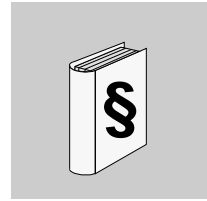
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# Safety Information



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## 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

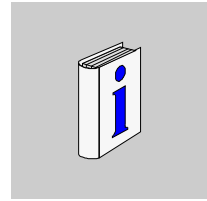
Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

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.



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## About the Book



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### At a Glance

#### Document Scope

This documentation comprises general information on how to use the Profibus DP V1 acyclic services with a Siemens PLC to access data in the TeSys U system.

#### Validity Note

This manual is valid for LULC07 V1.2 and later versions.

LULC07 can be used with TeSys U power bases (LUB/2B, LUS/2S) only.

LULC07 is not compatible with the TeSys U controller bases (LUTM).

#### Related Documents

Title of Documentation	Reference Number
LULC07 Profibus DP Module - Instruction Sheet	1639544
LU9GC7 Profibus DP Tap Module - Instruction Sheet	1639559
LU9AD7 Profibus DP Connector - Instruction Sheet	1639560
LULC07 Profibus DP Communication Module - User's Manual	1672610
LULC07 Profibus DP Module - Beginner's Guide	1672611
TeSys U Communication Variables - User's Manual	1744082
LU•B/LU•S• TeSys U Starters - Instruction Sheet	1629984
LUCM/LUCMT Multifunction Control Units - User's Manual	1743237
LUCM/LUCMT/LUCBT/LUCDT Control Units - Instruction Sheet	AAV40504
LUCA/LUCB/LUCC/LUCD Control Units - Instruction Sheet	AAV40503
Electromagnetic Compatibility - Practical Installation Guidelines	DEG999

You can download these technical publications and other technical information from our website at [www.schneider-electric.com](http://www.schneider-electric.com).

#### Product Related Information

Up-to-date information about Profibus DP is available from the Profibus Website <http://www.profibus.com> as well as from the Profibus user organization: Profibus Nutzerorganisation e.V., Haid- und Neu-Straße 7, D-76131 Karlsruhe, Germany, or from the Profibus user organisation in your country.

#### User Comments

We welcome your comments about this document. You can reach us by e-mail at [techcomm@schneider-electric.com](mailto:techcomm@schneider-electric.com).





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# Profibus Configuration via the Step7 Configuration Tool

# 1

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## Profibus DP Configuration via the Step7 Configuration Tool

### Introduction

With the software tool Step7 from Siemens you can configure the Profibus DP network.  
Starting point for this example is an existing configuration with a CPU 315-2DP as Profibus DP master.

### Configuration of the TeSys U System

Steps to be followed for configuring the TeSys U system:

Step	Action
1	Click on <b>Station</b> → <b>Open...</b> to open an existing configuration.
2	Select the Profibus DP-Mastersystem.
3	Select the TeSys U system from the hardware catalog and insert it into the Profibus DP-Mastersystem.
4	Select the Profibus DP address of the TeSys U system.
5	Select the TeSys U system to get the module list.
6	Select the correct module (e.g. SC Std R MS V1.x) from the hardware catalog and insert it to the module list.
7	Select the TeSys U system module and click <b>Edit</b> → <b>Object properties</b> to open the object properties.
8	Modify the I/O-address of the module and change to the parameter screen if necessary to modify any application parameter.
9	Double click on a single parameter to open an additional selection table and modify the parameter of the TeSys U system.
10	Double click on the TeSys U system icon to get the properties page of the TeSys U system. Via this page, you can edit the description and the diagnostic address of the TeSys U system.
11	Click <b>Station</b> → <b>Save and translate</b> and save and translate the new configuration.



---

# Acyclic Data Read/Write with Siemens S7

# 2

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## Overview

This chapter gives some examples of how to use the DP V1 acyclic services with a Siemens PLC to access data in the TeSys U system that are not exchanged cyclically.

## What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Acyclic Data Write with Siemens S7 via DP V1	12
Acyclic Data Read with Siemens S7 via DP V1	14

## Acyclic Data Write with Siemens S7 via DP V1

### Overview

Writing TeSys U system internal data acyclically can be done in the Step 7 programming logic using SFB53.

### Writing via SFB53 (WRREC)

Writing data via DP V1 and SFB53 (WRREC).

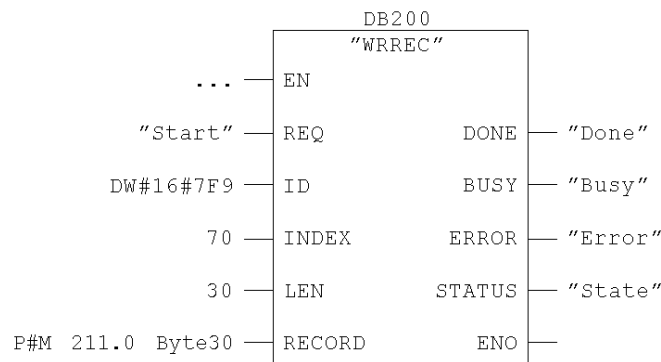
Network comment

```

Parameter of WRREC (SFB53)
Inputs:
=====
Req      : Start of writing via DPV1
ID       : Diagnostic address from hardware configuration in
           Hex-format
Index    : Index of the table which is to write
Len      : Length of the table
Record   : Start of the data buffer with the values to write
           to the Slave

Outputs :
=====
Done     : Writing via DPV1 done
Busy     : Writing via DPV1 on work
Error    : Writing via DPV1 with error
Status   : State of the WRREC
    
```

### Function block WRREC



For writing the communication module commands, Modbus reg. 700-714, the following values have to be set:

Input	Value	Meaning
ID	16#7F9	diagnostic address in hexadecimal format as chosen in HW config screen
INDEX	70	index (address of first register divided by 10)
LEN	30	length in bytes

**Note:**

The diagnostic address can be found in the HW configurator, click the DP slave TeSys U and open properties. In the dialog box shown look under **addresses** to find the diagnostic address.

**Writing via SFC58 (WR\_REC)**

Writing data via DP V1 can also be done using SFC58 (WR\_REC).

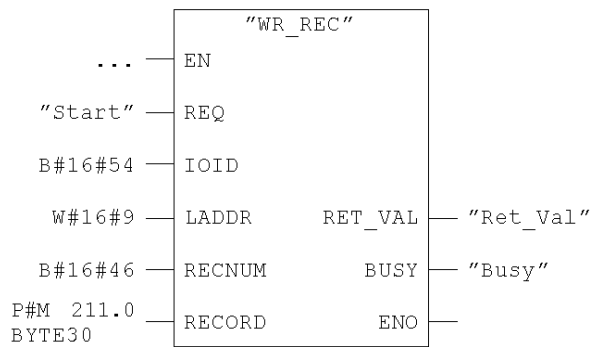
**Network comment**

```

Parameter of WR_REC (SFC58)
Inputs :
=====
Req      : Start of writing via DPV1
IOID     : B#16#54 = Peripherie Input (PE) or
          B#16#55 = Peripherie Output (PA)
LADDR    : Logical address of the slave
Recnum   : Index of the table
Record   : Start and length of the data buffer with the
          values to write to the Slave

Outputs :
=====
Ret_Val  : Error code of the WR_REC
Busy     : Writing via DPV1 on work
    
```

**Function block WR\_REC**



For writing the communication module commands, Modbus reg. 700-714, the following values have to be set:

Input	Value	Meaning
IOID	16#54	diagnostic address in hexadecimal format as chosen in HW config screen
RECNUM	16#46	index: 70 (address of first register divided by 10) presented in hexadecimal
RECORD	211.0 Byte30	length in bytes: 30

The logical addresses of DPV1 slave

Address	Area
Input	9...16
Output	9...12

**NOTE:** The address for input (for IOID=16#54) or for the output (for IOID=16#55) can be found in the screen **HW-config** in the lower part of the window when selecting the TeSys U.

## Acyclic Data Read with Siemens S7 via DP V1

### Overview

Reading TeSys U system internal data acyclically can be done in the Step 7 programming logic using SFB52.

### Reading via SFB52 (RDREC)

Reading data via DP V1 and SFB52 (RDREC).

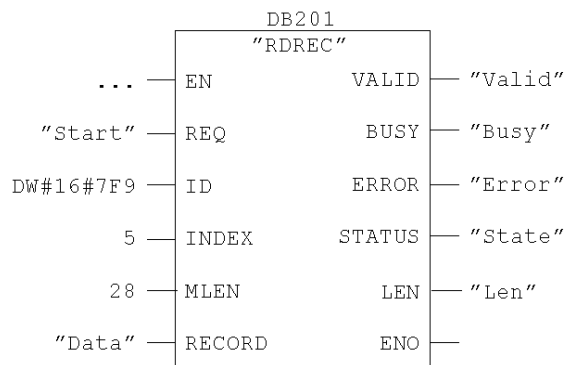
Network comment

```

Parameter of RDREC (SFB52)
Inputs:
=====
Req      : Start of reading via DPV1
ID       : Diagnostic address from hardware configuration in
           Hex-format
Index    : Index of the table which is to read
MLen     : Length of the table
Record   : Start of the data buffer with the values to read
           from the Slave

Outputs :
=====
Valid    : Reading via DPV1 successful
Busy     : Reading via DPV1 on work
Error    : Reading via DPV1 with error
Status   : State of the RDREC
Len      : Length of the read data table
    
```

### Function block RDREC



For reading the communication module identification, Modbus reg. 050-063, the following values have to be set:

Input	Value	Meaning
ID	16#7F9	diagnostic address in hexadecimal format as chosen in HW config screen
INDEX	5	index (address of first register 50 divided by 10)
MLIN	28	length in bytes

**Note:**

The diagnostic address can be found in the HW configurator, click the DP slave TeSys U and open properties. In the dialog box shown look under **addresses** to find the diagnostic address.

### Reading via SFC59 (RD\_REC)

Reading data via DP V1 can also be done using SFC59 (RD\_REC).

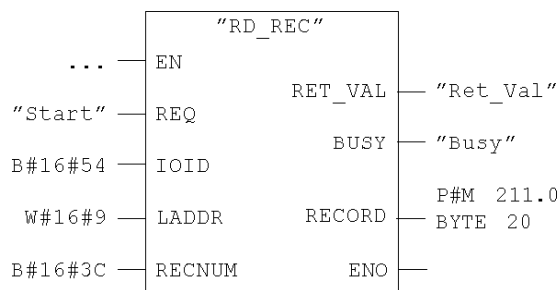
#### Network comment

```

Parameter of RD_REC (SFC59)
Inputs:
=====
Req      : Start of Reading via DPV1
IOID     : B#16#54 = Peripherie Input (PE) or
           B#16#55 = Peripherie Output (PA)
LADDR    : Logical address of the slave
Recnum   : Index of the table

Outputs :
=====
Ret_Val  : Error code of the WR_REC
Busy     : Reading via DPV1 on work
Record   : Start and length of the data buffer for the
           values to read from the slave
    
```

#### Function block RD\_REC



For reading the configuration, Modbus reg. 600-609, the following values have to be set:

Input	Value	Meaning
IOID	16#54	diagnostic address in hexadecimal format as chosen in HW config screen
RECNUM	16#3C	index: 3C (start register 600 divided by 10 and presented in hexadecimal)
RECORD	211.0 Byte20	length: 20

The logical addresses of DPV1 slave

Address	Area
Input	9...16
Output	9...12

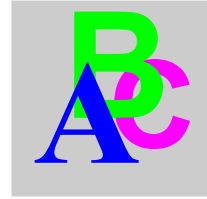
**NOTE:** The address for input (for IOID=16#54) or for the output (for IOID=16#55) can be found in the screen **HW-config** in the lower part of the window when selecting the TeSys U.





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