

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

6GT2002-0GA00

ASM 475 RFID COMMUNICATION MODULE

Used with the applicable SIMATIC RF and MOBY identification systems configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens ASM 475 technical manual and official RFID component list

Measured Components of RFID Measurement (ID29)

Component		Type	MLFB	Version
S7-CPU's	S7-1200	CPU1215C	6ES7 215-1AG31-0XB0	V 3.0
		CP1243-5	6GK7 243-5DX30-0XE0	V 1.2
	S7-300	CPU 315-2 PN/DP	6ES7 315-2EH14-0AB0	V 3.2
		CPU 319-3 PN/DP	6ES7 318-3EL01-0AB0	V 3.2
	S7-400	CPU 416-3PN/DP	6ES7 416-3ES06-0AB0	V 6.0
ET 200 stations	ET 200M	IM 153-1	6ES7 153-1AA03-0XB0	V 1.1
		IM 153-4	6ES7 153-4AA01-0XB0	V 4.0
	ET 200S	IM 151-1	6ES7 151-1AA03-0AB0	V 2.2
		IM 151-3	6ES7 151-3AA23- 0AB0	V 7.0
	IO link master	ET 200S 4SI IO-Link	6ES7138-4GA50-0AB0	V 1.0
	ET 200pro	IM 154-1	6ES7 154-1AA01-0AB0	V 2.2
		IM 154-4 PN HF	6ES7154-4AB10-0AB0	V 7.0
RFID communication modules		ASM 475	6GT2002-0GA00	
		ASM 456	6GT2002-0ED00	V 3.6
		RF 180C	6GT2002-0EF00	V 2.0
		RF 180C	6GT2002-0JD00	V 2.0
		RF 170C	6GT2002-0HD00	V 2.0
RFID reader		RF220R	6GT2821-2AC10	
		RF220R IO-Link	6GT2821-2AC32	
		RF340 R	6GT2801-2AB10	
		RF620R	6GT2811-5BA00-0AA0	
RFID transponder		RF350T	6GT2800-5BD00	
		RF620T	6GT2810-2HC81	

MOBY

FC 56

Technical Description

Table of Contents	
Introduction	1
Block Specifications	2
The Parameter Data Block	3
MOBY Commands	4
Sample Applications	5
Entry/Exit Check of an MDS in an SLG Field	6
System Configuration	7
Commissioning Guidelines	8
Error Messages and Trouble-Shooting	9
Short Description of the ASM Hardware	A
Programming MOBY-ASM on PROFIBUS-DP-V1	B

J31069-D0155-U001-A0-7618

Published in 02.2003

5	Sample Applications	5-1
5.1	Scanning the FC 56 by the User	5-2
5.2	Calling the FC 56 Cyclically (e.g., in OB 1)	5-3
5.3	Programming of New Start and Restart	5-4
5.4	Programming Module Failure	5-5
5.5	Specifying the Data Structure	5-7
5.6	The UDTs of FC 56	5-11
5.7	Using the GET Command	5-15
5.8	Determining the Memory Requirements on the SIMATIC	5-17
6	Entry/Exit Check of an MDS in an SLG Field	6-1
6.1	Definition of Terms	6-2
6.2	Entry/Exit Checking Mode 0 (MDS_IO_control 0)	6-3
6.3	Entry/Exit Checking Mode 1 (MDS_IO_control 1)	6-4
6.4	Entry/Exit Checking Mode 4 (MDS_IO_control 4)	6-4
6.5	Entry/Exit Checking Mode 5 (MDS_IO_control 5)	6-5
6.6	Diagram showing possible MDS states on an SLG	6-6
7	System Configuration	7-1
7.1	Example of a Fixed File Structure in a Manufacturing Process	7-1
7.2	Example of a Variable File Structure in a Production Process	7-3
8	Commissioning Guidelines	8-1
9	Error Messages and Trouble-Shooting	9-1
9.1	General Errors	9-2
9.2	Error Classes	9-2
9.3	error_code	9-3
9.4	Error Indication on the ERR-LED	9-12
A	Short Description of the ASM Hardware	A-1
A.1	ASM 475	A-2
A.2	ASM 473	A-5
A.3	ASM 452	A-8
B	Programming MOBY-ASM on PROFIBUS-DP-V1	B-1
B.1	Cyclic Control Word between Master and MOBY-ASM	B-5
B.2	Working with the ASM	B-7
B.3	Command and Acknowledgment Telegrams	B-8
B.4	Blocking of Long Data Sequences	B-10
B.5	The Filehandler Commands – Without Multitag	B-12
B.6	The Filehandler Commands – With Multitag	B-19
B.7	PROFIBUS Implementation	B-25
B.8	Example of a PROFIBUS Trace	B-28

Figures

1-1	Interface modules for the FC 56	1-1
1-2	MDS memory	1-4
2-1	Overview of configuring FC 56	2-4
2-2	Slots on the S7-300 and analog addresses for ASM 475	2-6
2-3	Example: Automatic address generation of a MOBY-ASM in ET 200 configuration	2-7
2-4	Parameterizing the physical address allocation in UDT 10	2-8
3-1	Command and status word BEST with names of variables	3-7
5-1	Flow chart of the FC 56 scan	5-2
5-2	Example of several MOBY commands assigned to one channel	5-8
5-3	Example of a separate data block assigned to each MOBY channel	5-10
8-1	Placement of the MOBY ASMs in the hardware catalog	8-1
8-2	Example of a hardware configuration	8-2
8-3	Parameterizing the object characteristics	8-2
8-4	Editing DB 56	8-3
8-5	Variables for function check – VAT1	8-4
A-1	Configuration for ASM 475 (centralized layout)	A-2
A-2	Interfaces and indicators of the ASM 475	A-4
A-3	Maximum configuration of ASM 473 on an ET 200X with sample addressing	A-5
A-4	Interfaces and indicators of the ASM 473	A-7
A-5	ASM 452 configurator	A-8
A-6	Switch settings, interfaces and indicators of the ASM452	A-10
B-1	States of command and acknowledgment counter	B-3
B-2	Layout of the cyclic control word	B-5
B-3	Startup timing initiated by user	B-6
B-4	Startup timing by ASM initiated by power failure	B-6
B-5	Command processing: command by command	B-7
B-6	General telegram layout	B-9

Tables

1-1	Memory sizes which can be formatted	1-5
2-1	Typical runtimes of FC 56 (cycle load of AS in msec)	2-1
2-2	Overview of MOBY FC 56 configuration	2-3
2-3	Number of MOBY channels	2-5
3-1	UDT 10 “MOBY Param”	3-2
3-2	INPUT-Parameter	3-3
3-3	Variables in BEST	3-8
3-4	Indications	3-10
4-1	UDT 50 “MOBY FH CMD”	4-1
4-2	Command set	4-2
4-3	UDT 50 “MOBY FH CMD” – FORMAT	4-8
4-4	UDT 50 “MOBY FH CMD” – CREATE	4-9
4-5	UDT 50 “MOBY FH CMD” – QUEUE-WRITE	4-10
4-6	Sample UDT for QUEUE-WRITE command	4-11
4-7	UDT 50 “MOBY FH CMD” – QUEUE-READ	4-12
4-8	Sample UDT for QUEUE-READ command	4-13
4-9	Sample UDT for acknowledgment of QUEUE-READ	4-14
4-10	UDT 50 “MOBY FH CMD” – WRITE/UPDATE	4-15
4-11	UDT 50 “MOBY FH CMD” – READ	4-16

4-12	UDT 50 "MOBY FH CMD" – DELETE	4-17
4-13	UDT 50 "MOBY FH CMD" – ATTRIB	4-18
4-14	UDT 50 "MOBY FH CMD" – COVER	4-19
4-15	UDT 50 "MOBY FH CMD" – DIR	4-20
4-16	UDT 220 "MOBY FH directory"	4-21
4-17	UDT 50 "MOBY FH CMD" – END	4-22
4-18	UDT 50 "MOBY FH CMD" – MDS-STATUS	4-23
4-19	UDT 160 "MDS STATUS FH"	4-24
4-20	UDT 100 "MDS-STATUS"	4-25
4-21	UDT 50 "MOBY FH CMD" – TRACE	4-26
4-22	UDT 50 "MOBY FH CMD" – GET	4-27
4-23	UDT 200 "MOBY UID4"	4-27
4-24	UDT 50 "MOBY FH CMD" – NEXT	4-28
4-25	UDT 50 "MOBY FH CMD" – ASM/SLG-STATUS	4-29
4-26	UDT 50 "MOBY FH CMD" – SET-ANT	4-30
4-27	UDT 50 "MOBY FH CMD" – MOVE	4-31
4-28	UDT 50 "MOBY FH CMD" – LOAD	4-32
5-1	Overview table of the UDTs	5-11
5-2	UDT 110 "MOBY SLG-STATUS"	5-12
5-3	UDT 120 "MOBY SLG status diag. 1"	5-13
5-4	UDT 130 "MOBY SLG status diag. 2"	5-13
5-5	UDT 140 "MOBY SLG status diag. 3"	5-14
5-6	UDT 170 "MOBY FH-STATUS"	5-14
6-1	Entry/exit checking of an MDS	6-1
9-1	Error classes of the FC 56	9-2
9-2	Error messages via the "error_code" variable	9-3
9-3	Error indications of the ERR-LED	9-12
A-1	Input parameters for ASM 475	A-3
A-2	Input parameters for ASM 473	A-6
A-3	Settings of the MOBY-related parameters	A-9
A-4	Input parameters for ASM 452	A-9
B-1	Filehandler commands – without multitag	B-12
B-2	Filehandler commands – with multitag	B-19
B-3	Data record numbers	B-27

Introduction

The FC 56 is a STEP 7 function for MOBY identification technology. It can be used with both the SIMATIC S7-300 and S7-400 for various MOBY interface modules.



Figure 1-1 Interface modules for the FC 56

The configurations with the different interface modules are shown in appendix A. The FC 56 can be used to all configurations.

- The interface module is operated directly on a SIMATIC S7-300.
- The interface module is located in the rack of an ET 200M or ET 200X. The ET 200M/ET 200X is used on an S7-300 or S7-400.
- Since the interface module is a self-contained PROFIBUS slave, it is linked with the integrated PROFIBUS connection to a SIMATIC S7-300 or S7-400.

These configurations can be mixed. Different interface modules can also be connected.

Filehandler

The FC 56 uses the filehandler in ASM/SLG. This offers you the advantages listed below.

- The user addresses his data by logical name (file name) consisting of 8 alphanumeric characters. The absolute address of the data is no longer needed.
- Consecutive data are called files.
- The filehandler automatically manages the different file lengths.
- Files can be assigned access rights.

Features of the FC 56

- All MOBY systems (SLGs and MDSs) can be used with the FC 56.
- The user can chain several commands together. This means that many small data areas of an MDS can be processed with one command start.
- It is easy to set up the data structures with “Universal Data Types” (UDTs). The UDTs are available with English (UDT 10, 50 ...) and German (UDT 11, 51 ...) commentary.
- Transmission of the data to and from the ASM and execution of the commands on the ASM take place in parallel. This means optimal data throughput.
- Use of the symbolic names for the block variables gives you a very well organized user program even with complex configurations.

Features of the interface

For the features of the individual ASMs, see appendix A. Since the features of the individual ASMs are continuously being added to, you should always use the latest edition of this description.

PROFIBUS configuration

A GSD file on the “Software MOBY” product (6GT2 080-2AA10) is included for the interface modules which can be directly connected to PROFIBUS.

Technically, the FC 56 uses the PROFIBUS-DP/V1 protocol. Important control data are cyclically sent in a data word. Actual MOBY data are transmitted in non-cyclic telegrams.

Non-SIMATIC applications

Applications which are programmed on remote controllers cannot use the FC 56. The PROFIBUS interface is described in Appendix B for these applications. Programmers of a remote controller can use this interface to develop their own MOBY function. Together with the FC 56 description and the UDTs, data structures which are the same or similar to the FC 56 can be created on a remote controller.

Prerequisites for use of the FC 56

Remember that the FC 56 uses non-cyclic telegrams (SFC 58/59). Older CPUs of the SIMATIC family or a small model series may not have these services. Be sure to check this during configuration.

- STEP 7 version
The ASM 475 and ASM 473 modules require a STEP 7 version $\geq V 5.1$.