SIEMENS

SIMATIC Ident
RFID systems
Input parameters for the RF300 system for programming with Ident profile, Ident blocks and FB 45

Product Information

This product information supplements the manuals listed below for the use of the new RF300 functions:

- Function manual "Ident profile and Ident blocks", edition 10/2014
- Function manual "FB 45 for MOBY U, MOBY D, RF200, RF300", edition 7/2012

Readers of the first generation

The readers with MLFB 6GT2801-xABxx can have parameters assigned for use with RF300 or ISO 15693 compatible transponders.

The readers of the second generation:

The readers with MLFB 6GT2801-xBAxx are also capable of communicating with MOBY E transponders. Over and above this the so-called "General mode" can be set that allows transponders of the type RF300, ISO 15693 and MOBY E to be processed at the same time without needing to select the relevant air interface protocol.

A specific selection of transponder types can, however, be set, e.g. ISO 15693 und MOBY E or RF300 und MOBY E etc.

When programming with this multiple selection ("General mode" or selection of 2) care must be taken that the address setting and the data volume to be written/read are adapted to the transponder with the smallest address space or the smallest data volume. It is also not possible to address the OTP area if MOBY E transponders are selected.

In terms of the tag status, the parameter "ATTRIBUTE = 0x83" (FB 45: Mode 03) can now also be used for all transponders of the type RF300, MOBY E, ISO.

The readers are also capable of being operated via the so-called MOBY I protocol on communications modules with a suitable parameter assignment (no additional setting is necessary on the reader because the MOBY I protocol is detected automatically when it is switched on).

The input parameters needed for parameter assignment via the function blocks of the Ident profile, the Ident blocks and FB 45 are listed in the following table. These parameters are transferred from the communications module to the reader with the "RESET" command with the aid of the application blocks "RESET_RF300", "RESET_UNIV" or via "Ident_Profile/Advanced_Cmd" (or "init_run" with FB 45).

<table>
<tr><th>Parameter</th><th colspan="3">Description</th></tr>
<tr><td>Ident blocks:
TAG_TYPE
Ident profile:
field_on_time
FB 45:
field_ON_time
(byte 16 of the configuration data)</td><td colspan="3">This parameter decides the mode the reader will be operated in relating to the transponders.
This parameter decides the selection or combination of transponder types for the reader. The table below shows the possible settings.
With the setting "0x01" (ISO general) the readers of generation 2 always use the commands with which the highest performance can be achieved for the given transponder. With readers of generation 1, the value "01" activates the general ISO mode with rudimentary ISO commands (see note No. 4). With this setting, the performance is generally limited, but the operation is basically guaranteed with each ISO-compatible transponder.
The transponder chip types of the transponders specified in the system manual "SIMATIC RF300" in the section "RF300 transponders" support these commands.
The following values can be set:
<table>
<tr><th>Value</th><th>Meaning</th><th>Valid for...</th></tr>
<tr><td>00</td><td>To be used for all transponders of the type RF3xxT</td><td>RF300 generation 1 and 2</td></tr>
<tr><td>01</td><td>Activation of the general ISO mode with rudimentary ISO commands. With this setting, operation is basically guaranteed with every ISO-compatible transponder.</td><td>RF300 generation 1 and 2</td></tr>
<tr><td>03</td><td>ISO my-d (Infineon SRF 55V10P) e.g. MDS D324, D339</td><td>RF300 generation 1 and 2</td></tr>
<tr><td>04</td><td>ISO (Fujitsu MB89R118) e.g. MDS D421, D422, D423, D424, D425, D428, D400, D460</td><td>RF300 generation 1 and 2</td></tr>
<tr><td>05</td><td>ISO I code SLI (NXP SL2 ICS20) e.g. MDS D100, D124, D126, D139, D150, D165</td><td>RF300 generation 1 and 2</td></tr>
<tr><td>06</td><td>ISO Tag-it HFI (Texas Instruments) e.g. MDS D200 (MLFB 6GT2600-1AA00-0AX0), D261</td><td>RF300 generation 1 and 2</td></tr>
<tr><td>07</td><td>ISO (ST LRI2K) e.g. MDS D200 (MLFB 6GT2600-1AA01-0AX0), D261</td><td>RF300 generation 1 and 2</td></tr>
<tr><td>08</td><td>ISO (Fujitsu MB89R112) e.g. MDS D521, D522, D524, D525, D528</td><td>RF300 generation 2</td></tr>
<tr><td>10</td><td>To be used for all transponders of the type RF3xxT</td><td>RF300 generation 2</td></tr>
<tr><td>20</td><td>MOBY E e.g. MDS E600, E611, E623, E624</td><td>RF300 generation 2</td></tr>
<tr><td>31</td><td>Activation of the so-called "General mode" for processing all possible transponder types currently RF3x0T, ISO 15693 and MOBY E. With this setting, operation is basically guaranteed with every compatible transponder.
If ISO mode and RF300 mode are activated a transponder can be processed up to maximum address "8192" even if the RF300 transponder has a memory of 64 kB.</td><td>RF300 generation 2</td></tr>
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<table>
<tr><th>Parameter</th><th colspan="3">Description</th></tr>
<tr><td></td><td colspan="3">Notes
1. The following special functions are not supported:
– AFI (Application Family Identifier)
– DSFID (Data Storage Format Identifier)
– Chip-specific additional functions such as EAS, Kill commands, etc.
2. If a previously unknown transponder cannot be identified based on the parameters above, an error message is generated (error_MOBY "0D" [hex]).
3. Invalid parameters are rejected with an error message ("error_MOBY 15" [hex]).
4. With "TAG_TYPE(ftim) = 01", RF300 readers of generation 1 support the ISO commands "Inventory", "ReadSingleBlock", "WriteSingleBlock", "LockBlock," "GetSystemInformation" and for multitags also "Select" and "ResetToReady".</td></tr>
<tr><td rowspan="5">Ident blocks:
TAG_CONTROL
Ident profile:
param
FB 45:
MDS_control
(byte 10, bits 5 ... 7 of the configuration data)</td><td colspan="3">This parameter switches the presence check on or off on the reader.</td></tr>
<tr><td>Value</td><td>Transponder control</td><td>Type of the communications module</td></tr>
<tr><td>0</td><td>Presence check is off. The parameter "ANZ_MDS_present" does not indicate a valid value.</td><td>all</td></tr>
<tr><td>1</td><td>Presence check is on. The transponder control is off. The parameter "ANZ_MDS_present" indicates a transponder in the transmission window of a reader.</td><td>all</td></tr>
<tr><td>4</td><td>Presence check is off. The transponder control is on as long as a command is active.</td><td>all</td></tr>
<tr><td>Ident profile:
Param
FB 45:
ECC_mode
(byte 10, only bit 4 of the configuration data)</td><td colspan="3">To be assigned the value "0".</td></tr>
<tr><td>Ident profile:
Param
FB 45:
RESET_long
(byte 6 of the configuration data)</td><td colspan="3">The "init_run" (RESET) command transfers all INPUT parameters to the reader. This bit must be set to "True" when RF300 is used.
Note on FB 45: If RF300 readers of generation 2 are to be used in MOBY I mode, the value "false" must be set here.
Note on Ident_Profile: For byte 6 there are two valid values, for the short reset, the value "0xB", for the long reset the value "0x10".</td></tr>
<tr><td rowspan="4">Ident profile:
Param
FB 45, FB 55:
MOBY_mode
(byte 10, bits 0 ... 3 of the configuration data)</td><td colspan="3">The following values are generally permissible for RF300:</td></tr>
<tr><td>Value</td><td colspan="2">Meaning</td></tr>
<tr><td>5</td><td colspan="2">without multitag handling with communications module ASM 475, ASM 456, RF170C, RF180C</td></tr>
<tr><td>7</td><td colspan="2">with multitag handling (in preparation) with communications module ASM 475, ASM 456, RF170C, RF180C</td></tr>
<tr><td></td><td colspan="3">Note: If RF300 readers of generation 2 are to be operated in MOBY I mode, the value = 1 must be set.</td></tr>
<tr><td>Ident profile:
scanning_time
FB 45:
scanning_time
(byte 9 of the configuration data)</td><td colspan="3">To be assigned the value 0.</td></tr>
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<table>
<tr><th>Parameter</th><th colspan="2">Description</th></tr>
<tr><td rowspan="4">Ident profile:
option_1
FB 45:
option_1
(byte 11 of the configuration data)</td><td colspan="2">This parameter is coded bit by bit. As default, it has the value 0. It can be used for special controls in the reader/communications module.</td></tr>
<tr><td>Value</td><td>Meaning</td></tr>
<tr><td>00</td><td>The flashing ERR LED can only be switched off by switching off the power supply to the reader</td></tr>
<tr><td>02</td><td>The flashing ERR LED is extinguished by "init_run" (RESET)</td></tr>
<tr><td rowspan="12">Ident blocks:
RF_POWER
Ident profile:
distance_limiting
FB 45:
distance_limiting
(byte 12 of the configuration data)</td><td colspan="2">With this parameter, a change to the output power can only be made for the RF380R (order no. 6GT2801-3AB10). In doing this, you must take into consideration that the change to the output power will affect both the upper and lower limit range, as well as the minimum distance that is to be maintained between adjacent RF380Rs. You will find more information on this in the "System manual "SIMATIC RF300" in the section "Field data".
The following settings can be made:</td></tr>
<tr><td>Value</td><td>Meaning</td></tr>
<tr><td>02</td><td>0.5 W</td></tr>
<tr><td>03</td><td>0.75 W</td></tr>
<tr><td>04</td><td>1.0</td></tr>
<tr><td>05</td><td>1.25 W (default)</td></tr>
<tr><td>06</td><td>1.5 W</td></tr>
<tr><td>07</td><td>1.75 W</td></tr>
<tr><td>08</td><td>2.0 W</td></tr>
<tr><td colspan="2">Settings outside the specified values mean that the default value of 1.25 W is set and no error message occurs for reasons of compatibility.
With the RF380R reader of generation 2 (MLFB 6GT2801-3BAx0) this setting is no longer needed. For reasons of compatibility these values can nevertheless remain set.</td></tr>
<tr><td>Ident profile:
Number of transponders
FB 45, FB 55:
multitag
(bytes 13 and 14 of the configuration data)</td><td colspan="2">The reader is basically intended for multitag operation, which is, however, not currently released.
Maximum number of transponders that can be processed at the same time in the antenna field. Currently permitted values "1".</td></tr>
<tr><td>Ident profile:
field_on_control
FB 45:
field_ON_control (fcon)
(byte 15 of the configuration data)</td><td colspan="2">To be assigned the value "0".</td></tr>
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Siemens AG
Division Process Industries and Drives
Postfach 48 48
90026 NÜRNBERG
GERMANY