

## Operating manual for diagnostics M200D AS-i

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## 1. Lieferumfang

### 1.1. Scope of delivery

This function block is written for the diagnosis AS-i Motor Starters for the product family of M200D. It has to be used for SIEMENS AS-I Masters, which work with the AS-I Master function „ASi\_3422“ (FC7). The function block can read “warning / messages” and “faults” of the M200D AS-i Motor Starters.

The function block can only be used with the communication processors CP342 and PROFIBUS DP/ASi-Links of SIEMENS.

For the IE/AS-INTERFACE LINK PN IO this function block **cannot** be used.

#### 1.1.1. CPUs

All CPUs of the SIEMENS series S7-300/400 can be used.

#### 1.1.2. AS-i Master

This function block can be used for following SIEMENS ASI-Master:

communication processor	MLFB
CP 342-2	6GK7342-2....
CP 343-2	6GK7343-2AH0x-0XA0
CP 343-2 P	6GK7343-2AH1x-0XA0
DP/AS-i Master	
DP/AS-i LINK Advanced	6GK1415-2BAxx
DP/AS-Interface Link 20E	6GK1415-2AAxx
DP / AS-i F-Link	3RK1314-1....

**Table 1:** Overview AS-i Master

### 1.2. Mode of operation

If you initiate the function block by setting the entry *Enable* , at first the S1 Status bit is requested. Dependant on the value of the S1 Status bit the read out as follows:

S1 = 1 – Errors are requested and displayed

S1 = 0 – Warnings are requested and displayed

The Value is stored in the WORD RetVal . See [RetVal](#)

### 1.3. Overview of the S7-blocks

block-number	description	Comment
FC7	ASi_3422	Im FB 21 enthalten
FB21	Read out diagnosis of Motor Starter M200D AS-i	Block-number can always be changed. FB can be used as a multi-instance.

**Table 2:** Overview S7-Blocks

### 1.4. Necessary Software

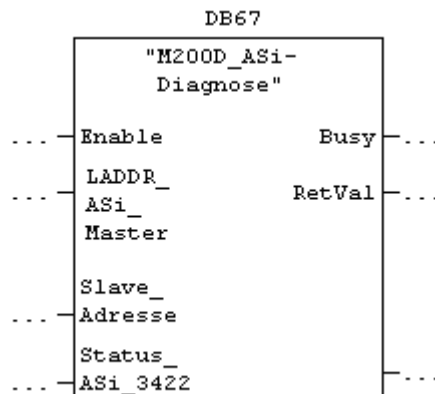
- Step 7 from V5.4+SP4

## 2. Implementation in S7 project

### 2.1. Step 7 blocks

The function block can be called in OB1 or in a time controlled OB (OB30-OB38; dependant of the CPU).

**Attention:** The block can be contained several times in the user programme. In this case it must be ensured, that only one function block is active at the same time. This means, that only one „Enable“- Input may have the value „1“ at the same time. See parameter description of function block „FC ASI\_3422“ of ASi-Master manual.



**Hint:** The block number of FB21 can always be changed – the name DB67 is arbitrary as well here

## 2.1.1. Parameter description

Name	Typ	Art	Memory area	comment
Enable	BOOL	E	E,A,M,D,L ,Constant	Trigger Read out Diagnosis
LADDR_ASi_Maste r	WORD	E	E,A,M,D,L ,Constant	PAE Address of respective AS-i Master
Slave_Adresse	BYTE	E	E,A,M,D,L ,Constant	AS-i Slave Address of the respective Motor Starter for Diagnosis
Busy	BOOL	A	E,A,M,D,L	Funtion block is busy reading out Diagnosis
RetVal	WORD	A	E,A,M,D,L	Value of Diagnosis (Warnings and error) - Details see below
Status_ASi_3422	DWORD	E/A	M,D	Status word of function block „ASi_3422“

**Table 3:** function block parameter

### 2.1.1.1. Enable

With this parameter the Diagnosis of the M200D Motor Starter is started. If the parameter is set to „True“ permanently, then the diagnosis is read out permanently. If the diagnosis shall be read out only at one certain point, the parameter can to be set with an impulse.

### 2.1.1.2. LADDR\_ASi\_Master

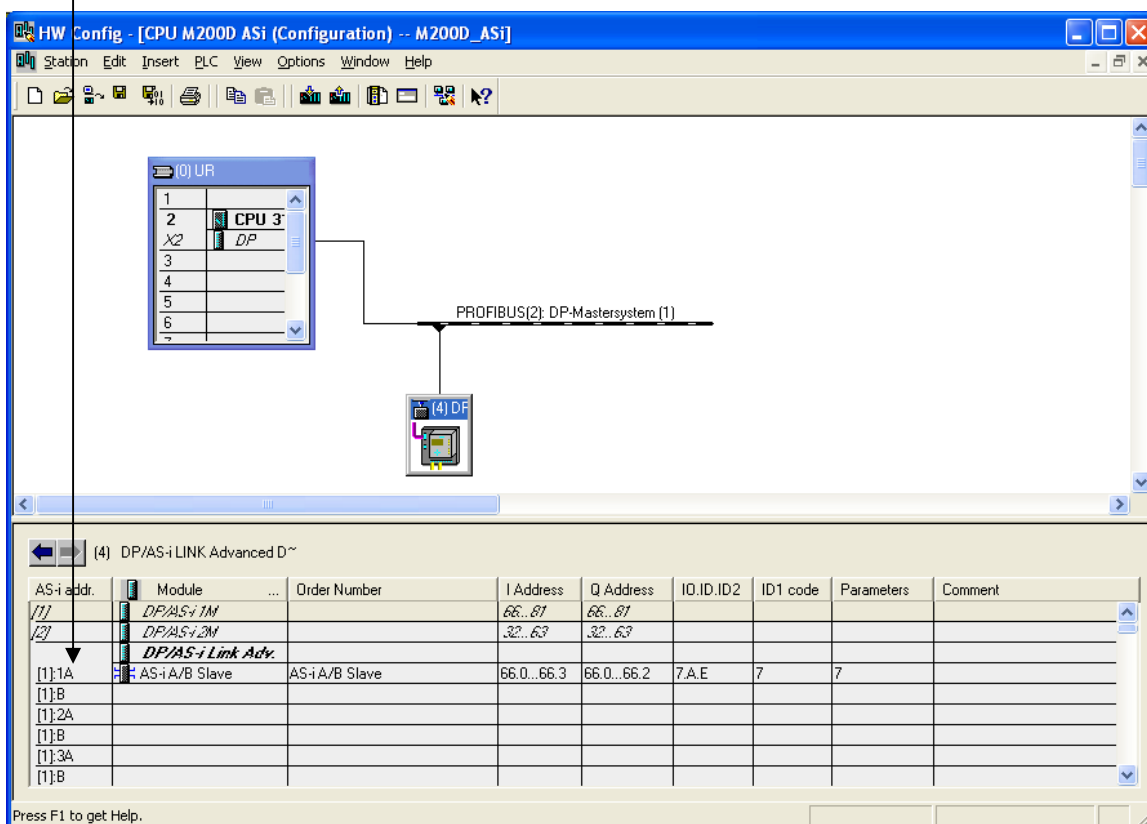
Here the start address of of the AS-i Master has to be set. (See process Image of HWKonfig)

The screenshot shows the HW Config software interface. At the top, the title bar reads "HW Config - [CPU M200D ASi (Configuration) -- M200D\_ASi]". The main window displays a hardware rack configuration with 7 slots. Slot 2 contains "CPU 3" and slot 4 contains "DP". A PROFIBUS line labeled "PROFIBUS(2): DP-Master/system (1)" connects the rack to a DP module. Below the rack, a table lists the DP/AS-i Link Advanced D~ configuration for the DP module.

AS-i addr.	Module	Order Number	I Address	Q Address	ID.ID2	ID1 code	Parameters	Comment
[1]	DP/AS-i 1M		66..81	66..81				
[2]	DP/AS-i 2M		32..63	32..63				
	DP/AS-i Link Adv.							
[1]:1A	AS-i A/B Slave	AS-i A/B Slave	66.0..66.3	66.0..66.2	7.A.E	7	7	
[1]:B								
[1]:2A								
[1]:B								
[1]:3A								
[1]:B								

### 2.1.1.3. Slave\_Adresse

The Slave address of the respective M200D Motor Starter has to be set here.



### 2.1.1.4. Busy

If this parameter output is „TRUE“, the function block is active to read out diagnosis of a Motor Starter. If the function block shall be called several times for the respective AS-i Master, this parameter can be used for interlocking.

### 2.1.1.5. RetVal

The output parameter RetVal (WORD) contains the **diagnosis values** and error information of the „ASi\_3422“. The exact description of the error values, values > 8000<sub>hex</sub>, you can find in the manual of the respective AS-i Masters at the description of the function block „FC ASi\_3422“.

If there is no error in the run of the function block the error/warning messages are displayed in the right byte, the left Byte is „0“. The messages are displayed in the right Byte as follows:

Bit 7..4	Bit 3..0
Output Error number	Output warning number

### 2.1.1.6. Status\_ASi\_3422

With this parameter entry the status of the function Block As-i Diagnosis is displayed in a double word. If the function Block „M200D\_ASi-Diagnosis“ for one AS-i-Master is used several times in the programme, or the block „FC\_ASi\_3422“ is used for this AS-i-Master as well for a different

function <sup>1</sup>, the identical data area for the parameter „Status\_ASi\_3422“ (or „Status“ for FC „ASi\_3422“), always must be used for storing the Status double word (e.g. MD54 or DB11.DBD2).

### 2.1.2. Return Values alarm messages

Response: Diagnose – alarms (A) / messages (M)				
P3	P2	P1	P0	Message / alarm
0	0	0	0	00 dez No alarm / message
0	1	0	0	04 dez (M) Thermal motor model deactivated
1	0	1	0	10 dez (M) Manual local control
1	0	1	1	11 dez (A) Prewarning limit of motor model exceeded
1	1	0	0	12 dez (M) Temperature sensor deactivated

Table 4: Warnings of M200D AS-i Basic

### 2.1.3. Return value Error messages

Feedback: Diagnosis – Errors (F)				
P3	P2	P1	P0	Errors
0	0	0	0	00 dez No fault
0	0	1	0	02 dez (F) Main switch OFF
0	0	1	1	03 dez (F) Zero current disconnection
0	1	0	0	04 dez (F) Overload
0	1	0	1	05 dez (F) Device fault
0	1	1	0	06 dez (F) Supply voltage switching element missing
1	0	0	1	09 dez (F) Plug removed line-side
1	0	1	0	10 dez (F) Supply voltage electronics insufficient
1	1	0	0	12 dez (F) short circuit tripping
1	1	0	1	13 dez (F) Asymmetry disconnection
1	1	1	0	14 dez (F) Incorrect parameter value
1	1	1	1	15 dez (F) Group fault

Table 5: Errors M200D AS-i Basic

<sup>1</sup> For a different function independent of the Function block Diagnosis

