

SIEMENS

Program Library Karlsruhe

S79220-A0977-A-06-7637

Product Information

AS 488/TM

Var. **M01.05**

Issue: July 1998

Descriptors

TELEPERM M , AS 488/TM , Software variant M , UPDATE , CPU 486-3

Summary

The present Product Information relates to the System Software Package:

Name	Variant	Issue	Product no. (MLFB)
AS 488/TM	M	01.05	6DS2 410-0XX00-0XA0
AS 488/TM update	M	01.05	6DS2 410-0XX00-0XB1

It also describes the alterations to the hardware configuration needed for the new CPU 486-3 module.

Description:

Ergänzende Systemdoku.	AS 488/TM	German	C79000-G8000-C700
Supplem. System Docu.	AS 488/TM	English	C79000-G8076-C700

This manuals have to be ordered seperate if required.

1 Scope

The product information for the system software M01.04 remains valid (see section 6 and 7). The following information represents an extension.

The delivery consists of:

6DS2 410-0XX00-0XA0	6DS2 410-0XX00-0XB1 (Update)
AS 488/TM Memory Card	Diskette 3,5" with AS 488/TM software
Diskette 3,5" with tools for installation	Diskette 3,5" with tools for installation
Software contract and registration card	Software contract
Product Information	Product Information

Note on software protection:

The memory card must be considered as part of the CPU. If the memory card is removed during current operation, and if the AS 488/TM enters STOP as a result of the software protection, all modifications to the configuration are lost which have been made in the meantime and which have not been saved, as well as all modified inputs which have been made since the last save operation; I/O modules may be reset to the basic status.

1.1 Supplementary Documentation

In addition to the tools required for startup of your AS 488/TM, the commissioning diskette contains a document file for the service terminal:

ASBEDI_E.doc User description for the Commissioning Terminal (IBS terminal)

For further information by separate ordering to C79000-G8076-C700 please ask for a document diskette at A&D SE PL 1S. This information which may be useful when starting up is found in this file and the following files:

DIODEF_E.doc Description of the pin allocations for the DIO interface module
(for cabinet status signals, such as door contact, fan, etc.)

BUSINI_E.doc Configuration for operating your AS 488/TM on the CS 275
or PROFIBUS-TM system bus

PERPRO_E.doc Configuring the Teleperm M I/O peripherals

DP_PRO_E.doc Configuring the PROFIBUS-DP peripheral

The INI files that need modifying for the parameter settings can be found on the AS 488/TM memory card or the update diskette.

DP_BST_E.doc Description of the standard DP driver blocks

IP262_E.doc Description of the standard driver blocks for IP262

Please print out that document files and add them to your AS 488/TM documents. Failure to observe the information provided can result in a serious malfunction of the installation. If you do not have the corresponding Windows installation on your PC, your local Siemens representative will be pleased to help you.

1.2 AS system file for PROGRAF AS+

Your commissioning diskette contains a directory PROGRAF. This contains the system file AS.SYS required for PROGRAF AS+. Copy this file into your PROGRAF PC into the directory

drv:\PROGRAF\USER\

The system file of the AS 488/TM automation system is then known to PROGRAF AS+. Carry out your PROGRAF AS configuring in the usual manner.

The following version M01.05 contains an update of the system SW file AS.SYS, which has the following extensions:

- * System sub-programs DPKD and DPGD (for ET200 diagnosis):
These are necessary because PROGRAF AS+ would otherwise generate an error message when back-translating TML user modules that use these System UPs.
- * SPUN module:
Without this module, back-translating AS235 structures can cause PROGRAF AS+ to crash.

Note:

From PROGRAF AS+ V3.00 onwards, the AS commands FORM, LA; AR, and DI, are also allowed for online structuring.

After "LA,name;" and "LOES;" PROGRAF AS+ terminates the coupling to AS 488/TM (message "Busstrukturierung abgebrochen"). The coupling must be re-established after the loading and reset procedure is complete (new ANMS).

Caution: Under no circumstances should PROGRAF AS+ be stopped while the AS is being reset, as this causes the bus structuring in the AS to remain active. If it should happen nonetheless, the user of PROGRAF AS+ should logon on the same AS.

1.3 Master type file for COM ET200 / COM PROFIBUS

In the DOKU folder on the IBS tool diskette, there are two files for the ET200 configuration tool COM ET200 or COM PROFIBUS.

The master type-file 'SI8050AX.2MH' must be copied to the MASTERS directory of the installed COM PROFIBUS. Its contents specify the AS 488/TM as the host system and the module card IF964 as the DP master. The bitmap file 'AS488TM.BMP' must be copied into the BITMAPS directory. Once COM PROFIBUS is started, the 'Read in type files' menu item or the 'Read in GSD files' menu item from within the 'file' menu need be activated only once (see also DP_PRO_D.doc).

Note: In the case of COM PROFIBUS, these files are already supplied from V3.1 onwards.

2 Commissioning

The Memory Card contains the entire system software for AS 488/TM. It responds with the version ID M01.05 .

To perform an update from diskette, an AS 488/TM memory card version M01.03 or M01.04 must be available.

The update procedure is performed either from the IBS terminal or from a programming device having a compatible MC interface (e.g. PG740).

For versions earlier than M01.03, the update is performed by changing the memory card, or by sending it to A&D SE PL 1S (formerly AUT 7 PL 1S).

Attention: DP drivers that are already installed must be reinstalled after the update, and then archived together with the user structure.

A description of the update procedure is provided under heading 2.2 in this document.

2.1 Startup by Commissioning Terminal

Additional the diskette contains your local tool in the directory ASBEDIEN. Install this on your PC to be used for commissioning of the AS 488/TM according to the installation instructions in the document file ASBEDI_E.DOC in the directory ASBEDIEN, and connect your PC to the serial commissioning interface of your AS 488/TM via a serial interface.

For operation under Windows 3.1, a PIF file is delivered with the software. This contains the following settings: run in full screen mode, exclusive foreground execution, foreground priority very high.

For operation under Windows 95, the following setting should be specified: idle time activity very low; no screen saver.

Using your "Commissioning terminal" installed in this manner and the commands of the ASBEDIEN input program you can operate and monitor your AS 488/TM for install and diagnostic like an AS 235 and also access all data on the memory card inserted in the AS 488/TM.

Read the parameter files which have to be processed to enable parameterization from the memory card into a file on your PC using the command "COPY_PC ...". You can modify this file on your PC according to your system configuration using the ASCII editors which can be executed under DOS, and then write them back onto your memory card using the ASBEDIEN command "COPY_TM ...".

Note:

Before starting the UPDATE activities, please ensure that a current backup of the customer's system and any files that are to be modified exists. This will allow the previous software version to be restored in the even of unforeseen circumstances. The files on the memory card are not write protected, so care should be taken when accessing the memory card.

To back up the files from the memory card to your archive, use the ASBEDIEN command "COPY_PC ...".

2.2 Procedure for Update M01.04 (resp. M01.03) to M01.05

2.2.1 Update by Commissioning Terminal

You will find the files listed below on the UPDATE diskette delivered to you. Copy these files to the directory 'C:\ASBEDIEN' on your Commissioning Terminal PC or into the current working directory (e.g. C:\TEMP is specified in ASBEDIEN.PIF).

On the Commissioning Terminal PC connected to the AS 488/TM, start the program ASBEDIEN.exe (via ASBEDIEN.PIF under Windows, so that the program runs in full screen mode and without a screen saver).

Now, in command mode, copy the files previously backed up to the PC to the memory card in the AS in the following sequence:

```
<ESC>COPY_TM IBS_BEDI.386      resp. <ESC>COPY_TM C:\ASBEDIEN\IBS_BEDI.386
<ESC>COPY_TM STARTER.386      resp. <ESC>COPY_TM C:\TEMP\STARTER.386
<ESC>COPY_TM BEDIEN.386
<ESC>COPY_TM BUSTASK.386
<ESC>COPY_TM EATASK.386
<ESC>COPY_TM LA_AR.386
<ESC>COPY_TM EMULATOR.EXE
<ESC>COPY_TM FUNC.EXE
<ESC>COPY_TM C_EAM.EXE
<ESC>COPY_TM AR_DG.EXE
<ESC>COPY_TM RMOS.INI
<ESC>COPY_TM L2AMPRO.INX
<ESC>COPY_TM M7_235AR.SYS
<ESC>COPY_TM VERSION.TXT
<ESC>COPY_TM DP_TREIB.NL
<ESC>COPY_TM IP262.NL
<ESC>COPY_TM FENS.NL
```

If necessary, the following files should be modified in accordance with the new configuration guidelines and adapted to this product information.

AS_KOM.INI	settings for non-redundant operation of the CS 275 bus
DP1.INI	parameters for pull&plug, diagnosis and ODIS
DP2.INI	parameters for 2nd DP line

After a successful transfer, exit ASBEDIEN (with Alt-X).

Now perform the following two steps:

- 1) Initiate a reboot of the AS 488/TM (reset or off/on)
- 2) Install the new terminal program ASBEDIEN V1.05 to your PC from the diskette included with your delivery (IBS tools).

To check the update procedure, start the new ASBEDIEN and select the AS status screen (BT,STAT:@;). In addition to the start-up message, the system version (M01.05) is displayed.

Attention: The data transfer was only successful if the command COPY_TM ends without error messages, and without any manual intervention (e.g. termination with ESC). In the case of errors, the copy procedure must be repeated.

If problems occur during the data transfer (frequent terminations), we recommend the following procedure:

- If the first file (IBS_BEDI.386) was transferred without errors, the AS can be rebooted with the new emergency utility disk (press MRES during switch-on). Together with the new ASBEDIEN V1.05, an error free transfer can be expected.
- Before the next RESET, the files IBS_BEDI.386 and STARTER.386 must be successfully transferred.

2.2.2 Update by Programming Device PG740

Before starting the UPDATE activities (pulling the memory card), please ensure that a current backup of the customer's system and any files that are to be modified exists. This will allow the previous software version to be restored in the even of unforeseen circumstances.

Stop your AS running (e.g. with STO) and then switch the AS off before pulling the memory card!

Copy the files listed under 2.2.1 from the update diskette into a new directory having the 'name' of your PG740.

For the update, insert the memory card into the MEM-CARD slot of the PG740. Now copy all files from the directory 'name' onto the memory card (either using the file manager or explorer, or using a DOS box):

```
COPY name\*.* E: /y
```

Now perform the following two steps:

- 1) Plug the upgraded memory card of the AS back into the allocated AS 488/TM and initiate a reboot of the AS 488/TM (reset or off/on).
- 2) Install the new terminal program ASBEDIEN V1.05 to your PC from the second diskette included with your delivery (IBS tools).

To check the update procedure, start the new ASBEDIEN and select the AS status screen (BT,STAT:@;). In addition to the start-up message, the system version (M01.05) is displayed.

2.2.3 New functions with ET200

If you want to activate the new pull&plug functionality and the diagnosis interface on the ET 200, the initializations in the corresponding INI files must be extended. To do this, please follow the necessary steps detailed in the new configuration guidelines and this product information.

2.3 Installation of the reloadable DP driver blocks (DPAE, DPAA, DPBE, DPBA)

In addition to the execution system and the standard blocks of the AS 488/TM, your memory card contains a so-called reloadable file with the optimized driver blocks for the PROFIBUS-DP I/O bus. These blocks are not present in the system data area of the AS, and are thus not activated automatically. You can load these blocks into your user memory and activate them.

To do this, install your "Commissioning terminal" and transfer the blocks from your memory card to the user memory of your AS using the operation "LA:DP_TREIB.NL;". The loaded blocks must then be parameterized to the type numbers provided in their application, and activated. You activate the parameter settings in the AS input mode using the input instruction "BT,DP:@;".

Set the desired type numbers of the DP blocks in the parameterization display using the parameters 1, 3, 5 and 7. If this blocks already are existing in the AS, the existing type numbers were accepted. Your parameter settings are accepted using the parameterization input "P,9,1;", and the blocks are stored in the user memory of your AS. The activation procedure can be previously aborted using "P,11,1;". The reloaded file is then no longer present in your AS. However, you can carry out the installation procedure from the beginning.

If you already have installed DP driver blocks and you want to update your system software, you have to update the algorithm of the DP driver blocks!

After successful activation, the user structure and the driver blocks must be re-archived to the memory card, otherwise they will be lost during the next boot procedure.

2.4 Installation of the reloadable IP262 driver blocks (RIP, KRIP)

In addition to the execution system and the standard blocks of the AS 488/TM, your memory card contains a so-called reloadable file with the optimized driver blocks for the controller module IP262. These blocks are not present in the system data area of the AS, and are thus not activated automatically. You can load these blocks into your user memory and activate them.

To do this, install your "Commissioning terminal" and transfer the blocks from your memory card to the user memory of your AS using the ASBEDIEN command "LA:IP262.NL;". The loaded blocks must then be parameterized to the type numbers provided in their application, and activated. You activate the parameter settings in the AS input mode using the input instruction "BT,IP:@;".

Set the desired type numbers of the driver blocks in the parameterization display using the parameters 1 und 3. If this blocks already are existing in the AS, the existing type numbers were accepted. Your parameter settings are accepted using the parameterization input "P,7,1;", and the blocks are stored in the user memory of your AS. The activation procedure can be previously aborted using "P,9,1;". The reloaded file is then no longer present in your AS. However, you can carry out the installation procedure from the beginning.

After successful activation, the user structure and the driver blocks must be re-archived to the memory card, otherwise they will be lost during the next boot procedure.

Subsequent installation of IP262.NL is not necessary when updating M01.04 to M01.05 .

3 Removed Errors (M01.04 to M01.05)

F: Function concerned
A: Appearance
M: Modification

- F: Monitoring with TUEB
A: If a module monitored by TUEB was overloaded online, the module loaded would not run.
M: Monitoring corrected
- F: ANMS
A: The "ANMS,bus,tnr;" command led to an operating station blockage, if there was no bus connection inserted.
M: The command is now rejected with an error message.
- F: Registering a CD coupling
M: The attempt to register a CD coupling from OS or AS, is now not only rejected by the PROFIBUS-TM, but also by the CS275 bus.
- F: SKS block
A: When forming the status word, not only the bits 0-2 and 8 were ORed, but all bits of the collective error were ORed. This led to false alarms in the OS.
M: Status word processing corrected according to user description.
- F: Input of a STEP block in AS220 mode
A: The command UE,1992; was displayed as UE,968; (i.e. modulo 1024).
M: Display corrected.
- F: BEI block
A: The block overwrote the flags of a binary output, even though it was write protected.
M: When write-protected, the value and the flags remains unchanged.
- F: Configuration file DP1.INI
A: The "alarm" and "device" switches for diagnostic assessment were the wrong way round.
M: Parsing of INI file corrected.
- F: DP1.INI file with DP peripheral
A: The contents of an altered configuration file (e.g. changed name for 2BF file) were only recognized after rebooting.
M: The configuration file DPx.INI is now also parsed after an RSOF (reset on command or by key switch).
- F: Address monitoring with DP peripheral
A: The time calculated by COM ET200 for the address monitoring had to be increased to at least 200 ms.
M: This is no longer necessary from this version M01.05 and COM PROFIBUS V3.0 onwards.

- F: Behavior of DP peripheral after AS restart
A: Modules that were in the "retain last value" state after the AS stopped (RSOF, STO, etc.) were reset once the AS was restarted.
M: Now, the signal ODIS after STA is first reset at the end of the first cycle 3. This means that the process image of the outputs can be set once to the valid value before the first output from the IO module.

- F: Reading parameters on GT block
A: When reading the timer status via the bus, 0B was always displayed.
M: Reading of timer status corrected.

- F: TM modules 6DS1310/1321/1327
A: These modules reported an incorrect module status if they were installed on IO bus B with BGNR >= 100.
M: Status query corrected.

- F: DPBE driver
A: If BADR was first parameterized with a value > 56, and then ANBY was parameterized, operation with F410 was rejected.
M: Parameterization corrected.

- F: Paging via the bus after "DI;"
A: After displaying the contents of the memory card using the instruction "DI;" via the bus (online structuring in PROGRAF AS), it is not possible to page with "F;" in blocks called up with "A,...;", as long as no circuit image is called up.
M: DI function corrected.

- F: Paging with "DI;" via the bus
A: When displaying the contents of the memory card using the instruction "DI;" via the bus (online structuring in PROGRAF AS), it is not possible to page to the next screen with the "F;" command.
M: The DI function was altered in such a way that re-entering "DI;" does not start at the beginning, but goes to the next page.
In addition, it is still possible to search with "F;" from the IBS terminal.

- F: IBS terminal: LANW command
A: Some user structures archived with AR_PC cannot be reloaded into the AS, i.e. the AS goes into STOP mode.
M: Transfer for LANW corrected in ASBEDIEN.exe.

- F: IBS terminal
A: Operation is blocked for a prolonged period.
M: After a maximum of 12 seconds, the AS times out. The IBS terminal can then be recoupled.

New deliveries of version M01.05 on memory card contain a new RMOS operating system, in which this behavior is improved.
Existing memory cards can only be upgraded to this operating system by exchanging the memory card (not with the update diskette).

In connection with the additional PLC/PLC Link package, the following errors have been corrected (already present in version M01.24):

- F: Occasionally, send acknowledgements from the S5KS block are not recognized.
A: For no reason, the error output 4200 is set on the S5KS block and the I&C fault message S382 is transmitted. In addition, the send operation is blocked for one monitoring cycle.
M: Recognition of send acknowledgement corrected.
- F: Time monitoring of S5KS block
A: If a S5KS block is fitted with a reducer (over an XB block), the reducer is not taken into consideration when ascertaining the monitoring time, so that the monitoring time calculated is too large by the reducing factor.
M: Ascertaining of monitoring time corrected.
- F: Occasional send delays of between 2 and 32 seconds
A: The cumulative effect of the two errors above can occasionally lead to send delays dependent on the reducing factor.
M: Error no longer occurs after above correction.
- F: Last data word of a received binary field is missing
A: When transmitting binary fields, the data word containing the last 16 binary values was not accepted by the binary block for all values having an even data word length.
M: Correction in S5KE block
- F: More than 1024 binary values received
A: If more than the maximum permissible amount of binary data, i.e. 64 words, are received, the binary values that are in the following target module are replaced with invalid values.
M: Correction in S5KE block

Note:

Like M01.04, version M01.24 can be upgraded to M01.05, i.e. the extra PLC/PLC Link V1.02 will also run on M01.05 .

Caution:

When upgrading AS 488/TM system software, care must be taken that the coupling module TPM478 is version **6** or later, otherwise all error corrections will not be effective.

3.1 Errors corrected by the M01.05.02b quick correction patch

- Errors could occur in the TELEPERM M couple components 6DS1310-.../6DS1321-... and 6DS1327-..., if relatively large gaps were projected in the address area of the subordinated SIMATIC S5 components.
- Error in SYST.WART function "Administer program copy":
The component generated by copying a TML program could no longer be called up when the original was then deleted (no error display on NEMO compiler). The back translation with PROGRAF AS was cancelled with an error message, e.g. component length 0. The memory display with "BT, RAM;" could, when "Z;" was entered, lead to a blockade of the control channel.
- The number of active users on the PROFIBUS-DP was limited to 64, although up to 124 users were allowed if two PROFIBUS-DP threads were used.
- Diagnosis for pull & plug on the ET200:
For binary components with 1 byte data length, the driver (e.g. DPBE) registered no QVZ (S305) when the module is pulled.
- Diagnosis for pull & plug on the ET200:
From the sixth component in the ET200 line, the driver registers no QVZ (S305), when the module is pulled (irrespective of the module type).
- Control channel block for DI and AR via bus system:
A bus control channel block could occur sporadically when one DI or AR was controlled via PROGRAF AS+ and no IBS terminal was connected. This block was released again when ASBEDIEN was started.

The M01.05.02b quick correction patch has been delivered as standard since 6/98.

4 Extended Functions

S5KS/S5KE: Byte transposition with binary values

To avoid extensive reconfiguration because of the differing representations of binary values in the SIMATIC PLCs and in the AS 488/TM, a new type of data has been introduced whereby the bytes of the binary values transferred are transposed according to the SIMATIC S5 counting mechanism.

When data type 0 is chosen (e.g. for PLC/PLC Link), the data words in the DB blocks are transposed byte-wise in comparison to the SIMATIC representation, when coupling to SIMATIC S5 or S7.

When data type 3 is chosen, the data is transposed byte-wise before being transmitted from block S5KS, so that the data has the SIMATIC bit values in the data receiver module. The data type DAAR = 3 is an extension of the S5KS block that is not defined in the TELEPERM manual.

The S5KE block also transposes the bytes on reception of a telegram of data type 3, so that the binary data has the TELEPERM bit values.

Using the new M7 - CPU 486-3:

From M01.05 onwards, the AS 488/TM system software can not only run on the CPU 488-4, but also on the new CPU 486-3. For this purpose, there is separate information in TELEPERM M - *aktuell*, as the ordering configuration has been altered.

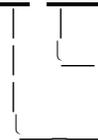
The CPU 486-3 replaces the CPU 488-4. In contrast to the CPU 488-4, the CPU 486-3 has only two module ports for interface modules instead of three. The standard configuration of the AS 488/TM includes three interface modules, meaning that the expansion module EXM 478 must be installed for the third module.

The new configuration is described in Chapters 4.1 to 4.3.

Caution: A memory card upgraded from M01.03/M01.04 to M01.05 will not run on the CPU 486-3. For this CPU, either an original delivery of M01.05 must be used, or the old memory card must be upgraded by A&D SE PL 1S.

As both the original MC and an upgraded memory card identify themselves with "Version M01.05", the display for "BT,STAT:@;" has been expanded:

SYSTEMSTATUS V235 -M01.05-05-208



micro-program version: 208 means new
RMOS-OS (runs on CPU 486-3)
processor type: 5 means CPU 486-3

Replacing the CP5412-A1 with an IF964-DP interface module:

Now, not only the CP5412-A1 module (in the AT adapter card ATM 478) can be used as a bus coupling for the PROFIBUS-TM system bus, but an IF964-DP interface module can also be used. The extended configuration is described in the file BUS_INI.doc (on the diskette IBS tools + instructions).

The configuration file L2AMPRO.INI (for the IF964) takes precedence over the parameter file DOS_CONF.DAT (for CP5412-A1). In order to maintain the previous bus configuration when updating, the new INI file is supplied as L2AMPRO.INX. The file must be renamed accordingly if an IF964-DP is to be used.

With new deliveries of version M01.05, it is standard that the PROFIBUS-TM system bus is accessed with the interface module IF964-DP as a master, which is operated in the EXM 478 expansion module. This replaces the previous configuration with the CP5412-A1 bus coupling in the ATM 478 expansion module.

Note for modified firmware (release 4) of IM 153-1 (DP slave):

From version M01.04 the AS 488/TM system software offers a new diagnostic interface for PROFIBUS-DP, including the possibility to find absent and replaced modules.

The user can analyse the diagnostic data with TML blocks. This interface does not create any process control messages.

The configuration file DPx.INI includes a QVZ-switch. After activating this interface, the system software will create a process control fault message S305 = „response or module failure“ if an ID-related diagnostic bit is set.

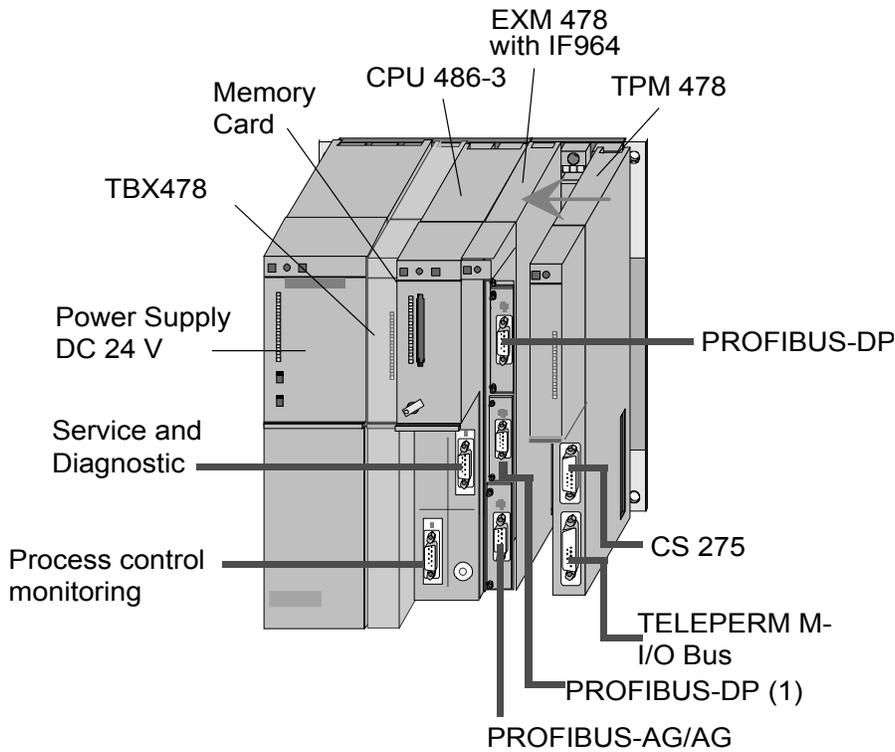
The system software does not support any channel-related diagnostic messages of PROFIBUS-DP modules. In concern to the release of IM 153-1 and with activated QVZ-switch different reactions will arise:

- * With release 2 a process control fault message S305 will be created only by a module failure or absent module.
- * With release 4 the recognized active channel-related diagnostic bit and module failure and absent module creates a process control fault message S305 and the DP driver marks all module corresponding analog or binary values as faulty.

New ordering configuration:

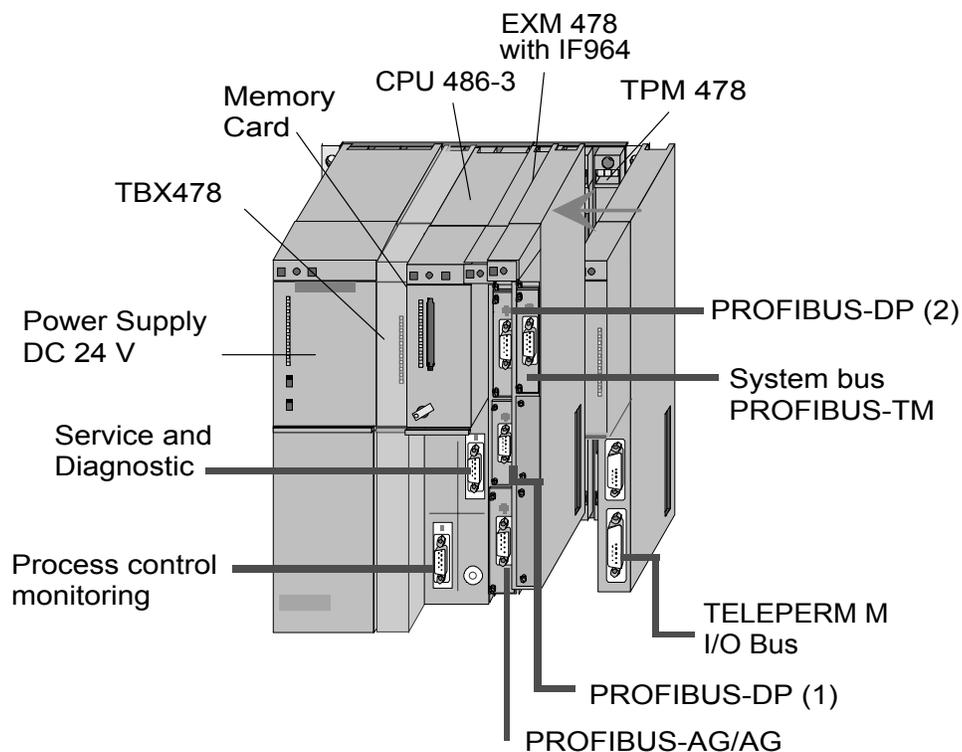
As the CPU 488-4 is replaced by the CPU 486-3 and the CP5412-A1 is replaced by the IF964-DP interface module, there are the following alterations to the previous description of the standard configuration.

4.1 Migration of AS 488/TM with CPU 486-3, CS275 and TM-E/A as well as PROFIBUS Interfaces



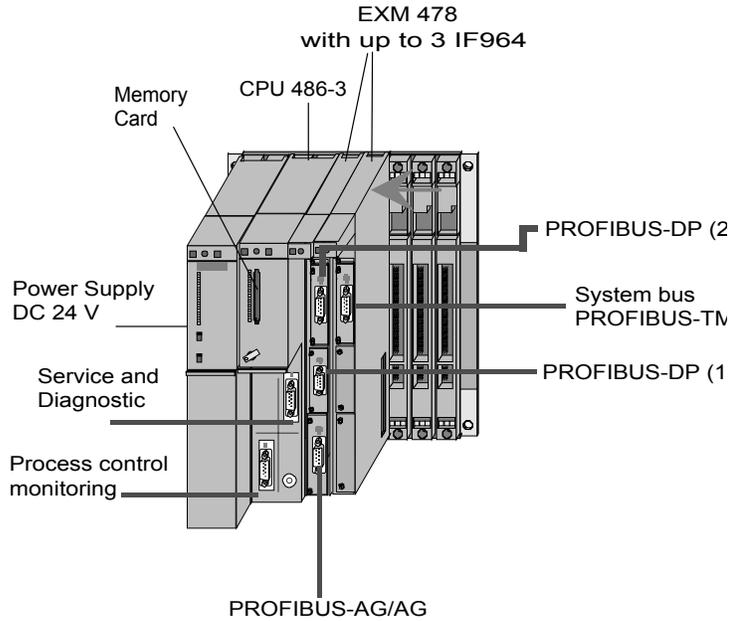
Slot	Module box	Module	Interface Module	Use for	Configuration file
1 2 3	-	PS 407	-		
4	-	TBX 478	-		
5	1	CPU 486-3	IF 961 - DIO	Cabinet messages	
6	1	CPU 486-3	IF 962 - COM	IBS-Terminal	
7	1 2 3	EXM 478	IF 964 - DP IF 964 - DP IF 964 - DP	PROFIBUS-DP (2) PROFIBUS-DP (1) PROFIBUS-AG/AG	DP2.INI DP1.INI AGAG_RUN.INI
8	-	TPM 478	-	CS275 , TM-E/A	

4.2 Migration of AS 488/TM with CPU 486-3 and TM-E/A as well as PROFIBUS Interfaces



Slot	Module box	Module	Interface Module	Use for	Configuration file
1 2 3	-	PS 407	-		
4	-	TBX 478	-		
5	1	CPU 486-3	IF 961 - DIO	Cabinet messages	
6	1	CPU 486-3	IF 962 - COM	IBS-Terminal	
7	1 2 3	EXM 478	IF 964 - DP IF 964 - DP IF 964 - DP	PROFIBUS-DP (2) PROFIBUS-DP (1) PROFIBUS-AG/AG	DP2.INI DP1.INI AGAG_RUN.INI
8	1	EXM 478	IF 964 - DP	System bus PROFIBUS-TM	L2AMPRO.INI
9	-	TPM 478	-	CS275 , TM-E/A	

4.3 AS 488/TM with CPU 486-3 and PROFIBUS Interfaces



Slot	Module box	Module	Interface Module	Use for	Configuration file
1 2	-	PS 407	-		
3	1	CPU 486-3	IF 961 - DIO	Cabinet messages	
4	1	CPU 486-3	IF 962 - COM	IBS-Terminal	
5	1 2 3	EXM 478	IF 964 - DP IF 964 - DP IF 964 - DP	PROFIBUS-DP (2) PROFIBUS-DP (1) PROFIBUS-AG/AG	DP2.INI DP1.INI AGAG_RUN.INI
6	1	EXM 478	IF 964 - DP	System bus PROFIBUS-TM	L2AMPRO.INI

4.4 Instructions on installing the CPU 486-3

- The hardware version of the CPU 486-3 must be at least version 2. Earlier versions can cause serious errors in the functions which use an interface module.
- When using the TPM 478 with a CPU 486-3, the CPU BIOS must be at least version V2.07. This is guaranteed if hardware version 2 of the CPU 486-3 is used.
- When installing the new CPU 486-3 modules, the red INTF LED can illuminate for several seconds during booting. This indicates that the BIOS has found a configuration that does not agree with the last one saved. To stop this procedure, the data with the configuration found by the BIOS when booting up must be saved. This can be achieved when first operating the machine in the following way (for further information please refer to the SIMATIC S7 module manual):
 - a) Connect the terminal / HyperTerminal program to the COM1 port of the AS 488/TM.
 - b) During booting of the AS 488/TM, press the Q key until the BIOS comes up.
 - c) Select the window with the system parameters.
 - d) Leave the window with the system parameters without making any changes.
 - e) Leave the BIOS setup with the SAVE option. This creates, among other things, a new checksum of the BIOS data; the checksum is then saved in the module.
 - f) When the system is booted up in future, the INTF-LED will not illuminate unless there is a further CPU error.
- When booting up the AS 488/TM, the BIOS start-up of the CPU 486-3 lasts about 10 seconds. A criterion for this is that only the red STOP LED of the CPU 486-3 is lit. When the operating system RMOS32 and the AS 488/TM system software are then subsequently loaded, the green SD-LED flashes or is continuously lit. If there is a significant delay before the green SD-LED illuminates, the BIOS settings can be changed to reduce the BIOS start-up time. The following settings in particular should be implemented (for further information please refer to the SIMATIC S7 - module manual /1/):
 - ◆ SETUP page „Hard Disk“: Switch off ‘Auto’ option
 - ◆ SETUP page „Floppy/Card“: Set drive A to MemCard
- With the AS 488/TM, the module slots on the CPU 486-3 must not be fitted with an IF964 interface module. An IF964 module inserted here cannot be addressed by the AS 488/TM system software. It also prevents further IF964 modules in the EXM modules being addressed if the appropriate memory modules are installed in the CPU 486-3.

- In the configuration files DP1.INI, DP2.INI, L2AMPRO.INI and (optional) AGAG_RUN.INI, the slot co-ordinates of the IF964 module are set by default to the configuration in Chapter 4.2. For all other configurations, the values must be adapted to the actual configuration of the 'slot' and 'modulbox' parameters in the configuration files mentioned above.

5 Limited operating performance

No safety-relevant faults are currently known; the known faults are assigned to fault class 3 and lower.

AS 488/TM with TELEPERM M I/Os:

The limitations with respect to use of TM I/Os (module types), all TM modules listed in the "AS388/TM and AS488/TM supplementary system documentation" C79000-G8076-C700 or at catalogue PLT 112 and official notes in "TELEPERM M - aktuell" can be used.

Errors/failures/faults of the I/O buses are not displayed by LEDs on the TPM 478; these can be recognized e.g. by failure signals of the drivers.

The module 6DS1607 operates with compatible functions, but the pulses which have been accumulated in the previous cycle are always output when reading. The dead time is reduced if a faster TPM 478 cycle is configured.

Operation of the coupling modules 6DS1318-8AB and 6DS1333-8AB as well as CP581-TM, as far as compatible to S5Kx driver:

When using the firmware TPM 478, IO part, version 2 (Fixed memory package S79300-G196-A900, 1. position = S79300-G196-A903-2, 2. position = S79300-G196-A904-2), only telegrams with a maximum of 32 data words may be configured. Longer telegrams should be split into two shorter ones. From module version 6 onwards, firmware version 3 is used, which allows a maximum of 64 data words to be configured.

AS 488/TM with PROFIBUS-DP I/Os:

The process image length per slave station via PROFIBUS-DP is limited by the IF964-DP to 122 bytes. It is thus possible to operate up to 7 analog modules with 8 channels each in one slave station.

New modules can only be released for operation on the AS 488/TM by publishing them in the PLT 112 Catalog, or as an addendum to TELEPERM M - *aktuell*.

When configuring ET200 I/O modules using COM ET200M, the value for the internal monitoring time is calculated too low by the tool. The result may be that I/O modules are not recognized (removed from COM PROFIBUS V3.0).

Remedy: Increase the value calculated by COM ET200M by a factor of 2.

Further information:

The arithmetic accuracy of the AS 488/TM with floating-point numbers is higher than that of the AS 235. There may therefore be small deviations in the last digits of the mantissa in the case of calculated analog values or floating-point constants in TML.

The CD coupling is not implemented in the AS 488/TM.

Any attempt to register a CD coupling from OS or AS 235 will be rejected.

Remedy: When importing structures, CD couplings must be replaced by DI couplings before loading.

Loading a filed structure from AS to AS using the command "LAB,name;" is only possible from an AS 235 with a diskette drive. Saving from AS to AS on diskette using the command "ARB,name;" is only possible on an AS 235 with diskette drive. Use of an AS 488/TM as the central configuring station is not envisaged, i.e. the LABR and ARBR commands are not possible from the AS 488/TM and may lead to malfunctions.

When using the function "Read RAM" by PROGRAF AS+ from an AS 488/TM, the number of transmit telegrams per cycle in the AS is limited by the parameter settings of FSA,ORPA in the AS 488/TM (A,FSA,ORPA; F; P,26,10;).

Structuring of I/O modules with STRUK-EA via the system bus (CS 275 or PROFIBUS-TM) has not been released for AS 488/TM.

Time after network is switched on:

On rare occasions it may be the case that, despite the battery memory, the time on the AS 488/TM is reset to 01.01.94 / 00:00:00 when turned on.

Correction (offline):

Start a terminal program (e.g. windows terminal or HyperTerminal) on the IBS terminal PC, which is connected to the serial port COM1.

Settings: 19200 Baud, no parity, 8 data bits, 1 stop bit.

Then call up the BIOS setup (press Q and switch on the CPU).

Set the correct date in the setup menu and save the settings.

After this has been set once, the battery memory will function for the date and the time.

Caution:

When working on initialization files (*.INI), tabs (09H) should not be used. Spaces (20H) should be used instead. Failure to comply could lead to interpretation errors.

Recording of messages during changeover from 1999 to the year 2000

Appearance:

For one-line messages that are generated before midnight 31/12/1999, but can only be recorded after the changeover to 01/01/2000, an incorrect year number will be output for the date on the printer ("31.12.?y" instead of "31.12.99").

Correction:

Correct printer protocol by hand.

The error will be corrected in the next version of the system software (approx. 9/98).

Calculation of date / time using SYSTEM.SUBR during changeover of date

Appearance:

The „System date“ function of the system sub-program SYSTEM.SUBR sporadically outputs the date of the previous day just around midnight (approximately from 23:59:50 to 00:00:10).

Correction:

Before calling up SYSTEM.SUBR, call up the function SYSTEM.TIME.

Example:

```
CALL SYSTEM.ZEIT;  
TAKE;  
  
CALL SYSTEM.SUBR;  
GIVE 10;  
TAKE LA6, LA7, LA8, LA9;
```

The error will be corrected in the next version of the system software (approx. 9/98).

6 Removed Errors (M01.03 to M01.04)

- F: Function concerned
A: Appearance
M: Modification
- F: Access hangs if memory card is changed when system is running.
A: If the memory card is changed, the access sometime hangs (SD-LED statically illuminated) when an attempt is made to write to the card,
M: Access to memory card corrected.
 - F: DIO input/output
A: No cabinet signals are correctly input/output via the DIO interface module (digital input/output)
In addition to this, no inversion was possible using the parameter in SYS_PAR.INI.
M: Access to DIO corrected (from patch M01.03.01)
 - F: Key switch position takes priority over RESTART setting
A: This characteristic is incompatible with AS 235.
M: Reaction to key switch setting corrected:
Key switch at STOP: AS reverts to STO (during start-up and while running)
Key switch at RUN: AS goes to STA/STO depending on how the loaded user structure was archived. No reaction while running.
Key switch at RUN_P: AS goes to STA (during start-up and while running)
I.e. the currently set operating state cannot be recognized from the position of the key switch, but only from the LED indicators.
RUN-LED statically on → STA, RUN-LED blinking slowly → STO).
 - F: ANMS
A: The "ANMS,bus,tnr;" remains hanging if no bus is present, or if the bus connector has been pulled.
M: The command is now rejected with F469 or F494.
 - F: OS coupling
A: When an OS requests a data transfer to an AS using the "ZP" (general) keyword, a CD coupling is registered and acknowledged as good, although the CD mode is not realized in the AS x88/TM.
M: The general request is automatically converted to DI.
 - F: Telegram repeats via PROFIBUS-TM system bus
A: If an OS negatively acknowledges (RR) a telegram sent by an AS via PROFIBUS-TM, this telegram is repeated rapidly ten times until the transfer is successful. This results in an overload on the PROFIBUS-TM system bus.
M: As with the CS 275 a participant reject list was introduced so that this repetition occurs only once and then switches off until the participant registers again.

- F: Bus operating connection blocked by "DI;"
A: When displaying the directory contents of the memory card via the bus (online structuring in PROGRAF AS) using the "DI" command, the bus operating connection can become blocked (workaround: couple with an IBS terminal).
M: Query of operating station corrected.
- F: QF command via the bus
A: If control system messages are canceled and released with QF via the bus, the next message (e.g. on the OS) is first displayed after approx. 2 minutes, if no IBS terminal is connected.
Workaround: Turn off the printer output of control system messages with GE,0,3.
M: The AS system software acknowledges internally control system message output to a nonexistent printer, i.e. if no IBS terminal is connected.
- F: Access to GT-, GM-, GB- and GA blocks in the AS
A: In TML, if these data blocks are accessed with an index that is exactly 1 too large, the header of the following block is overwritten.
M: Length check in TML corrected (from patch M01.03.01)
- F: Start up of user structure
A: When a structure that is archived under STA is loaded with the key switch set to STOP, cycle 2 runs exactly once before the STO state is reached.
M: Start up of TML sequencing system corrected (from patch M01.03.01)
- F: STEP block (2nd page)
A: If a STEP block is opened under NEMO, no status or link results are displayed from page 2 onwards.
M: PAGE command corrected (from patch M01.03.01)
- F: STEP block (link results)
A: If a STEP block is opened under NEMO, when the link results are displayed, the query itself with links is displayed.
M: VKE query corrected (from patch M01.03.03)
- F: "AE;" with STEP block
A: After closing a STEP block with "AE;" under NEMO, an error S302 could be issued and an cycle overload might occur on the AS.
M: Internal command processing corrected (from patch M01.03.03)
- F: VZ block
A: With a delay time that roughly corresponds to the cycle time, sporadic failures occur.
M: Timer functioning corrected.

- F: S5KE block
A: When a longer telegram is sent from the S5 and exceeds the maximum permissible 128 bytes, the following data are overwritten in the target GB block.
M: Length limit corrected.
- F: Coupling with S5-AG135U
A: With this coupling, frequent faults occurred with the error messages 4200 and 4002 (time out).
M: Wait time in the S5KS block increased.
- F: Consistency of I/O data with PROFIBUS-DP
A: With longer telegrams, erroneous values can occur in the process image (e.g. when connecting IP262 regulating modules).
M: Access to the DPRAM of the IF964-DP secured (from patch M01.03.02)
- F: DP drivers
A: The installation program for the new DP driver does not check whether the type number specified already exists, i.e. a block type could be deleted.
M: If the type numbers are already allocated to other blocks, the setup is rejected with F410.
- F: DPAE driver
A: With TYP3=3 erroneous data is transferred after the third value.
M: Driver block corrected (installation must be repeated !)
- F: Configuring the PROFIBUS-DP peripherals
A: When, in addition to the xxx.2BF binary parameter file specified in DP1.INI, a file with the default name TM0.2BF exists on the memory card, a false interpretation occurred at start up, which results in double allocations in the process image.
M: Interpretation of the configuration data during start-up corrected.
Note: with PROFIBUS-DP each slave occupies two module numbers !
- F: State of the decentral peripherals with an STO state on the AS
A: With an STO state on the AS, the last values are still output to the PROFIBUS-DP peripherals. This results in intelligent modules (e.g. IP262 regulator) not reverting to the backup state.
M: The parameter "odis" has been included in the DP1.INI initialization file. This parameter can be used to configure whether the peripherals continue to receive the last value, or whether they revert to the backup or safe state. Refer to the configuration description DP_PRO_E.doc !
- F: Configuring the TM modules in SYST.WART
A: When a module is deleted with "L=1", NR=0 is then displayed without the associated data. Furthermore, with coupling modules, the subordinate S5 modules are not completely deleted.
M: Function "L=1;" corrected. Complete deletion of the subordinate S5 modules by entering "TY= ;" (space).
Complete description in PERPRO_E.doc !

- F: Configuring 6DS1327
 - A: If this module, which occupies 16 module numbers, is configured with BGNR=48, internal data is overwritten.
 - M: The configuration of modules with allocated numbers that exceed 60 is rejected.
Note: These coupling modules should be configured with a replacement configuration (6DS1310), that each only occupies one BGNR.
Refer to the configuration guide PERPRO_E.doc !

- F: Configuration of the TM coupling modules 6DS1321 and 6DS1327
 - A: When configuring the subordinate S5 modules, no output module could be configured for BGNR=0 on Channel no. 0.
 - M: Configuration of subordinate S5 modules in SYST.WART corrected so that output modules on Channel 0 are possible.

- F: Configuration of the TM coupling modules 6DS1321 and 6DS1327
 - A: When directly entering the module types 6DS1321 and 6DS1327, the parameter channel "KA=" could only be configured in the range 0...255.
 - M: Configuration of subordinate S5 modules in SYST.WART corrected so that channel numbers up to 511 resp. 1023 can also be configured.

- F: IBS terminal (service terminal for commissioning)
 - A: When the connection to AS is broken, the AS must sometimes be switched of and on again in order to re-establish the coupling.
 - M: After 12 seconds at the latest, a timer in the AS expires, after which it is possible for the IBS terminal to recouple.
Operation of the IBS terminal is now possible in continuous operation. If used under Windows, the DOS box must be opened in full screen mode. Do not use any other screen saver than the one integrated into ASBEDIEN.

- F: COPY_TM command via the IBS terminal
 - A: If an error occurs when transferring files from the PC to the memory card, the original target files were deleted. This can lead to a situation where a restart (boot) is not possible.
Furthermore, if the transfer is terminated, the internal flags are not reset, which results in the following transfer being rejected.
 - M: The file is first transferred to a temporary file (as long as there is enough space on the memory card) and is first renamed after the transfer is successfully completed. If the transfer is terminated, all internal flags are reset.

- F: AR_PC command
 - A: In the AS screen on the IBS terminal, it is not possible to differentiate between archiving to memory card (AR, ...) and archiving to PC (AR_PC ...).
 - M: Display in command line changed from "AR;" to "AR_PC;".

- F: Coupling with an IBS terminal with an active computer coupling
 - A: If the connection of the IBS terminal to the AS is broken, it is not possible to recouple when a computer (GE,6,6; or GE,7,6;) is still active.
 - M: While the message "Establishing connection..." is blinking on the IBS terminal, the computer coupling can be switched off by entering Alt-A (GE,0,6;).

7 Extended Functions (M01.03 to M01.04)

Configuring the I/O peripherals with SYST.WART:

The configuration function has been extended by two new items:

- Using the command string "AN=0; AN=5;", the entire configuration data of the AS can be deleted, i.e. all modules on all I/O busses (TM, PROFIBUS-DP, etc.) and all subordinate S5 modules are completely deleted.
- Using the IBS terminal, the complete I/P configuration can be recorded in a report. The report is output in a form where, with little modification with an ASCII editor, it can be used as a loading sequence for PROGRAF AS+ and the IBS terminal (load command).

Output to monitor	Output to printer (IBS terminal)	Output to file (IBS terminal)
PR=1; F=1; : as long as *	GE,1,0; PR=1; GE,5,0; important !	Esc R datei PR=1; Esc R END

Archiving for PROGRAF AS+:

The user structures archived from the IBS terminal using the AR_PC command are now archived in a format that can be further processed by PROGRAF AS+ (e.g. for de-compiling).

A complete description of this command is contained in ASBEDI_E.doc.

Emergency input:

From variant M01.02 the AS software has been extended by an emergency input level which still permits file transfers between the commissioning terminal and the AS system in the event of faults in the execution system. This emergency input level is either accessed automatically when faulty states are recognized, or manually using the following input sequence: Switch off AS, hold keyswitch at MRES and switch on AS.

This operating state is signalled by fast flashing of the three LEDs STOP, RUN and USR1. Only the commands DIR_TM, COPY_PC, COPY_TM and DEL_TM are possible in this operating state.

Fault Diagnosis:

In order to provide further fault diagnosis/location for serious AS failures, the following actions result in diagnosis data being written to the memory card:

- for a SW reset: i.e. when task monitoring occurs. This is only effective when it is activated by the parameter [BT=29 in STARTER.INI. This means that if an internal failure occurs, a reboot will be initiated after a certain period of time.
- when a reboot is initiated with the key switch (MRES).
- If the new command "DIAGNOSE" is entered at the IBS terminal.

The diagnosis data is stored in a file with the name DIAGNOSE.DAT. This file is overwritten whenever diagnosis data is stored.

The file can be read on the IBS terminal by entering the command:

```
COPY_PC DIAGNOSE.DAT
```

Because the diagnosis data is stored as pure binary data, an analysis can only be made by your responsible customer service office, or by A&D SE PL 1S.

Evaluation of the binary parameter file for PROFIBUS-DP with RSOF:

The binary COM ET200 parameter file (*.2BF) containing the configuration data for the ET200, and the parameter sets for which I/O modules are stored, are now not only read at boot time, but also with RSOF. This invokes a complete reset of the DP master, the effectivity of the response monitoring of the DP slaves, and finally, a new setup for the DP slaves.

This means that when a configuration change occurs on an PROFIBUS-DP line, the AS does not need to be rebooted. As with the TM peripherals, RSOF (either entered or with the key switch) will suffice.

Pull&Plug with PROFIBUS-DP:

If the I/O modules of the ET200M are operated on an active backplane bus, the bus switching unit IM153-1AA02 generates alarm messages when modules are pulled or plugged. These can be (optionally) stored in an AS buffer and called up and evaluated with a TML system call.

Refer to the configuration description DP_PRO_E.doc !

Diagnosis with ET200M:

The bus switching unit IM153 and the I/O modules on the ET200M can deliver standard and device-specific diagnosis information. This can be (optionally) stored in an AS buffer and called up and evaluated with a TML system call.

Refer to the configuration description DP_PRO_E.doc !