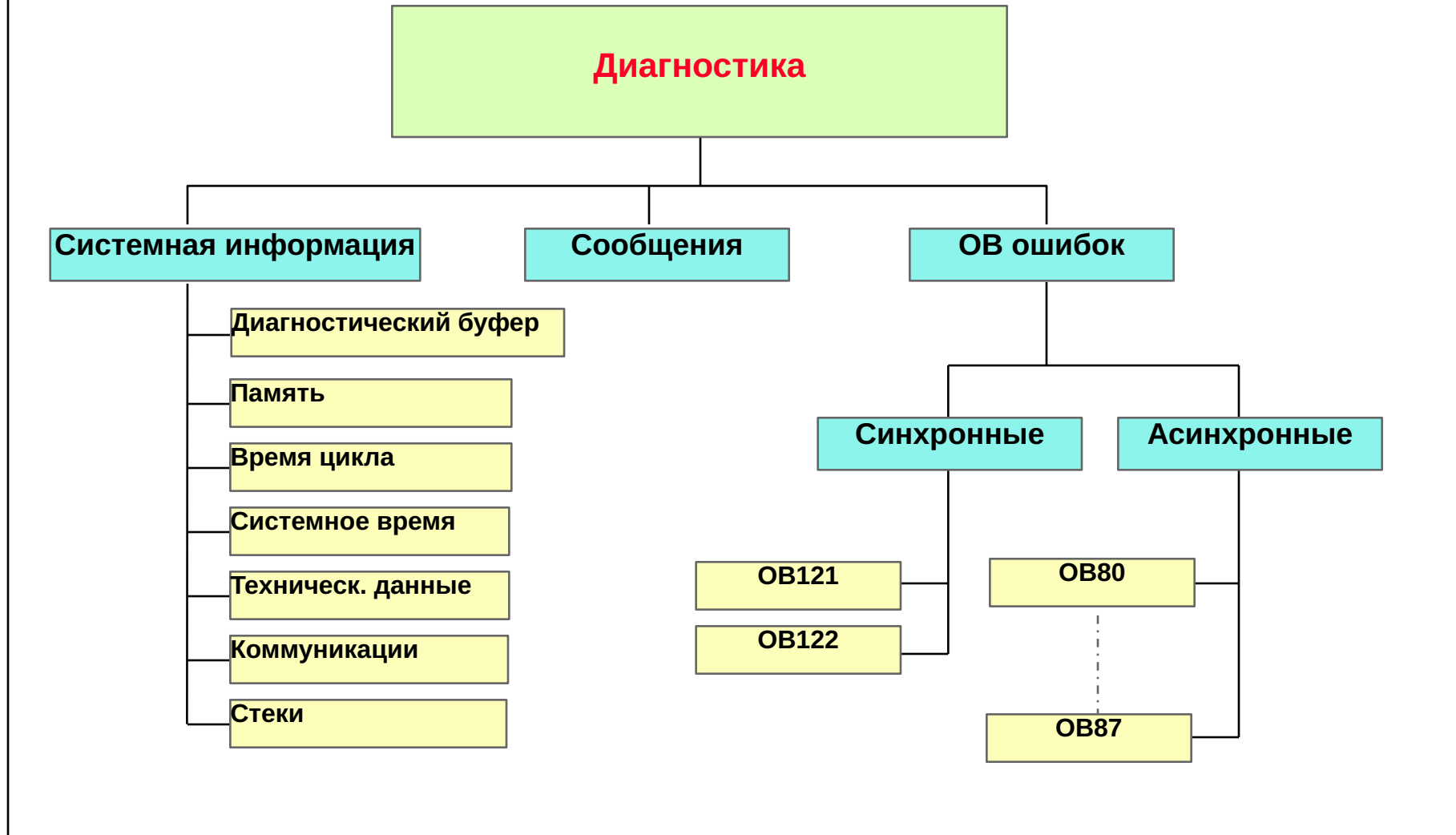


# Системная информация, поиск ошибок, диагностика



# Системная информация - обзор

**SIMATIC Manager - [Accessible Nodes]**

File Edit Insert **PLC** View Options Window Help

Accessible Nodes

- Access Rights...
- Download
- Upload
- Upload Station
- Manage MZ System...
- Display Accessible Nodes
- CPU Messages...
- Display Force Values
- Monitor/Modify Variables
- Module Information...**
- Operating Mode...
- Clear/Reset...
- Set Date and Time...
- Save RAM to ROM...
- Download to EPROM Memory Card on...
- Compare Block Online/Offline...
- Assign PROFIBUS Address...
- Assign PG/PC
- Remove PG/PC Assignment
- Update CPU Operating System...
- Diagnose Hardware

**Module Information - CPU314**

Path: [Accessible Nodes\MPI = 2 (direct)] CPU Operating Mode: RUN  
 Status: OK

Time System	Performance Data	Communication	Stacks
General	Diagnostic Buffer	Memory	Scan Cycle Time

Description: CPU314 System ID: SIMATIC 300

Version:

Order No./Description	Component	Version
6ES7 314-1AE01-0AB0	...	7

Rack: 0 Address: ...  
 Slot: 2 Module Width: 1

Status: Module present and OK.

Close Update Print... Help

Displays the state of the currently selected module (diagnostic buffer, memory, scan cycle times, stacks).

INFO\_T1D



# Функция "Module Information": "Performance Data"

Module Information - CPU314

Path: Project\Station1\CPU\_Conveyor1 CPU Operating Mode: RUN

Status: OK

General Diagnostic Buffer Memory Scan Cycle Time

Time System Performance Data Communication Stacks

Memory Configuration

Work Memory: 24576 Bytes

Integrated Load Memory: 40960 Bytes

Maximum Slot-In Load Memory: 524288 Bytes

Functional Capability

Blocks...

Address Areas:

Address Type	Number	Area From
Process Image Inputs	1024 (Bit)	I0.0
Process Image Outputs	1024 (Bit)	Q0.0
Bit Memory	2048 (Bit)	M0.0
Timers	128	T0
Counters	64	C0
Local Data	1536 (Byte)	

Close Update Print...

... в Simatic Manager:  
 • Папка Blocks  
 -> Object Properties



Properties - Block Container Offline

General Special

Memory Space

Size in Load Memory: 656 Bytes

Size in Work Memory: 370 Bytes

Number of Blocks

OB:	1	SFB:	0
DB:	2	SFC:	0
FB:	2	UDT:	0
FC:	0	VAT:	2

OK Cancel Help

## Режим "Performance Data": Blocks

**Blocks** [X]

User Blocks

OB Number: 13    Max. Length: 8228 Bytes

No.	Function
OB1	Free Cycle - Start Event: Startup, End ...
OB10	Time-Of-Day Interrupt - Start Event: Ti...
OB20	Time-Delay Interrupt - Start Event: Timer ...
OB35	Cyclic Interrupt - Default Time Interv...
OB40	Hardware Interrupt - Start Event: Interr...
OB100	Complete Restart
OB80	Time Error
OB81	Power Supply Failure
OB82	Diagnostic Interrupt
OB85	Priority Class Error
OB87	Communication Error
OB121	Programming Error
OB122	Access Error

FC Number: 128    Max. Length: 8228 Bytes

FB Number: 128    Max. Length: 8228 Bytes

DB Number: 127    Max. Length: 8228 Bytes

System Blocks

SFC Number: 36

No.	Name	Symbol Comment
SFC0	SET_CLK	Set System Clock
SFC1	READ_CLK	Read System Clock
SFC2	SET_RTM	Set Run-Time Meter
SFC3	CTRL_RTM	Start/Stop Run-Time ...
SFC4	READ_RTM	Read Run-Time Meter
SFC20	BLKMOV	Direct Word Move
SFC21	FILL	Fill (Initialize a Memory)

SFB Number: 0

No.	Name	Symbol Comment
-----	------	----------------

Close    Print...    Help

# Функция "Module Information" : "Memory"

The screenshot shows the 'Module Information - CPU314' window with the following details:

- Path:** Project\Station1\CPU\_Conveyor1\S7 Program(1)
- CPU Operating Mode:** RUN
- Status:** OK
- Navigation Tabs:** Time System, Performance Data, Communication, Stacks, General, Diagnostic Buffer, **Memory**, Scan Cycle Time

The 'Memory' section is divided into two main areas:

- Work Memory - Read/Write Memory (RAM):**
  - Usage: 4% (indicated by a bar chart)
  - Maximum: 24576 Bytes
  - Used: 980 Bytes
  - Free: 23596 Bytes
- Load Memory - Read/Write Memory (RAM) and Read-Only Memory (ROM):**
  - Usage: 4% (indicated by a bar chart)
  - Maximum: 40960 Bytes
  - Used: 1634 Bytes
  - Free: 39326 Bytes
  - Read-Only Memory (ROM) statistics:
    - Maximum: 0 Bytes
    - Used: 0 Bytes
    - Free: 0 Bytes

Buttons at the bottom include: Compress, Close, Update, Print..., and Help.



# Функция "Module Information": "Time System"

Module Information - CPU314

Path: [Project\Station1\CPU\_Conveyor1\S7 Program(1)] CPU Operating Mode: RUN  
Status: OK

General		Diagnostic Buffer		Memory		Scan Cycle Time	
Time System		Performance Data		Communication		Stacks	
Clock:				Clock Synchronization:			
Time on Module:	10:00:04 am	Interval	Master/Slave				
Date on Module:	05/18/98	in PLC:	---				
Correction Factor:	0	on MPI:	---				
Resolution:	1 ms	on MFI:	---				
Time-Of-Day Format:	BCD						
Real-Time Clock:	Present						
Run-Time Meter:							
No.	Elapsed Hours	Status	Overflow				
0	0	Not Running	No				

Buttons: Close, Update, Print..., Help

... в Simatic Manager:  
PLC -> Set Date and Time



Set Date and Time

Path: [Project\Station1\CPU\_Conveyor1\S7 Program(1)]

Date and Time on:

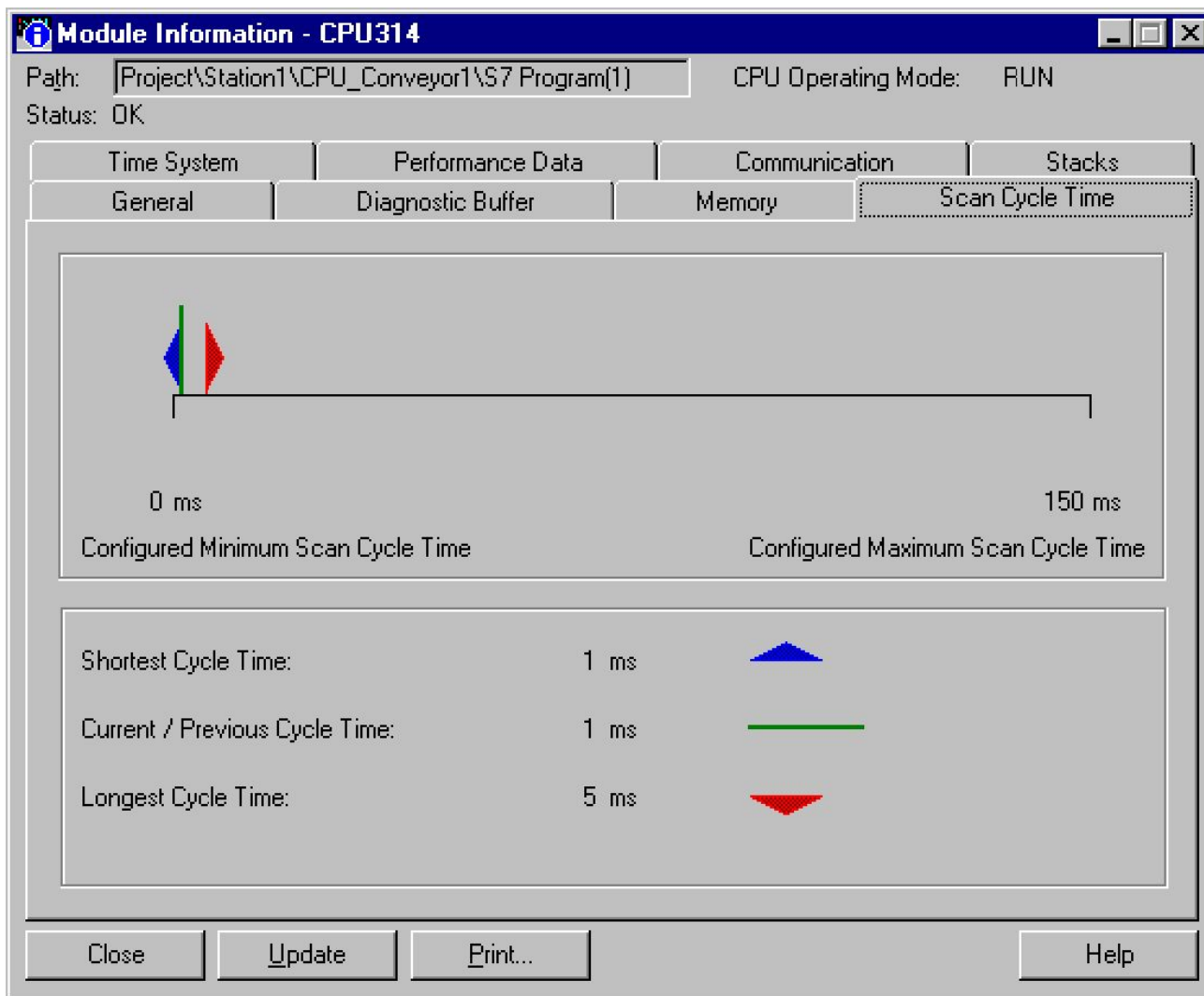
	PG/PC	Module
Time:	11:02:29 am	10:01:23 am
Date:	05/18/98	05/18/98

Use Settings from Programming Device/PC

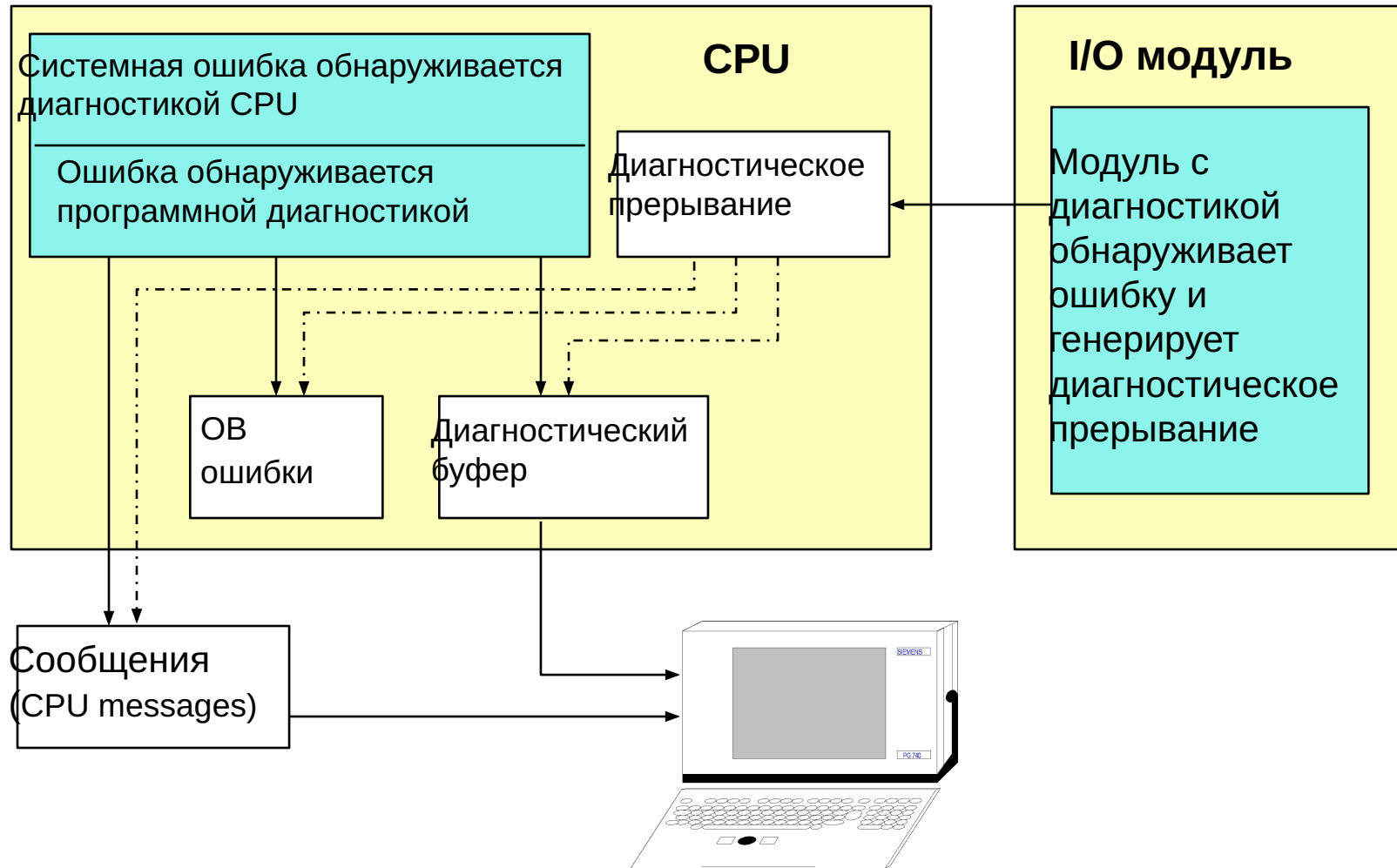
Buttons: Apply, Cancel, Help



## Функция "Module Information": "Scan Cycle Time"



# Системная диагностика - обзор





## Функция "Module Information": "Diagnostic Buffer"

**Module Information - CPU314**

Path:  CPU Operating Mode: RUN  
 Status: OK

Time System | Performance Data | Communication | Stacks  
 General | **Diagnostic Buffer** | Memory | Scan Cycle Time

Events:  Display All Entries (may affect the scan cycle time)

No.	Time	Date	Event
1	09:56:04:855 am	05/07/98	Mode transition from STARTUP to RUN
2	09:56:04:854 am	05/07/98	Request for manual complete restart
3	09:56:04:833 am	05/07/98	Mode transition from STOP to STARTUP
4	09:43:12:303 am	05/07/98	STOP caused by programming error (OB not loaded or ...
5	09:43:12:303 am	05/07/98	Area error when reading
6	08:05:19:645 am	05/06/98	Mode transition from STARTUP to RUN
7	08:05:19:644 am	05/06/98	Request for automatic complete restart
8	08:05:19:624 am	05/06/98	Mode transition from STOP to STARTUP

Details on Event: 1 of 10 Event ID: 16# 4302

Mode transition from STARTUP to RUN  
 Startup information:  
 - Startup without modified system configuration  
 - No difference between setpoint and actual configuration  
 - Time for time stamp at the last backed up power on  
 - Single processor operation

Save As... | Open Block | Help on Event

Close | Update | Print... | Help

## Функция “Module Information” : “Stacks”

**Module Information - CPU314**

Path:  CPU Operating Mode: STOP  
 Status: OK

General Diagnostic Buffer Memory Scan Cycle Time  
 Time System Performance Data Communication Stacks

B Stack:

Block	Symbol	1st DB	2nd DB
OB1	---	---	---
FC40	---	---	DB1

[ Stack...    L Stack...    Nesting Stack...    **Open Block**

Close    Update    Print...

**LAD/STL/FBD - [Project\Station1\CPU\_Conveyor1\... \FC40 - <Online>]**

File Edit Insert PLC Debug View Options Window Help

Network 1: Title:  
 Comment:

```

CALL "FB_PLANT_ON" , "DB_PLANT_ON"      FB 1
IN0 :=128
IN1 :=129
IN2 :=130
OUT3:=MW130
CALL "FB_PLANT_ON" , DB2                FB 1
IN0 :=256
IN1 :=257
IN2 :=258
OUT3:=MW230
CALL "FB_PLANT_ON" , DB3                FB 1
IN0 :=512
IN1 :=513
IN2 :=514
OUT3:=MW150
  
```

Press F1 for help    Connected    IEC 1.1    Insert



# I - CTeK

**Module Information - CPU314**

Path:  CPU Operating Mode: STOP  
 Status: OK

General Diagnostic Buffer Memory Scan Cycle Time  
 Time System Performance Data Communication Stacks

B Stack:

Block	Symbol
OB1	...
FC40	...

I Stack...

**I Stack: Register Contents in Priority Class (OB1)**

Register Values at Point of Interruption

Accumulator 1: 0000 0082  
 Accumulator 2: 0000 0081  
 Accumulator 3:  
 Accumulator 4:

Display Format:

Addr. Register 1: 0.0  
 Addr. Register 2: 0.0

Display Format:

Status Word: BR CC1 CC0 OV OS OR STA RLD FC  
 0 1 0 0 0 0 0 0 0

Point of Interruption

Interrupted Block: FC 40

Continue in Block: FC 40

Priority Class: 1

Open Data Blocks: 1st DB 2nd DB  
 Number: DB 1  
 Size: 4



# L - Cтек

**Module Information - CPU314**

Path: Project\Station1\CPU\_Conveyor1 CPU Operating Mode: STOP  
 Status: OK

General Diagnostic Buffer Memory Scan Cycle Time  
 Time System Performance Data Communication Stacks

B Stack:

Block	Symbol	1st DB	2nd DB
OB1	---	---	---
FC40	---	---	DB1

**L Stack: Local Data of FC40**

Local Data Bytes (in hexadecimal format):

```

0 - 5: 00 00 00 00 32 00
    
```

Buttons: I Stack... L Stack... (highlighted with yellow arrow) Close Update Print... (main window); Close Print... Help (popup window)

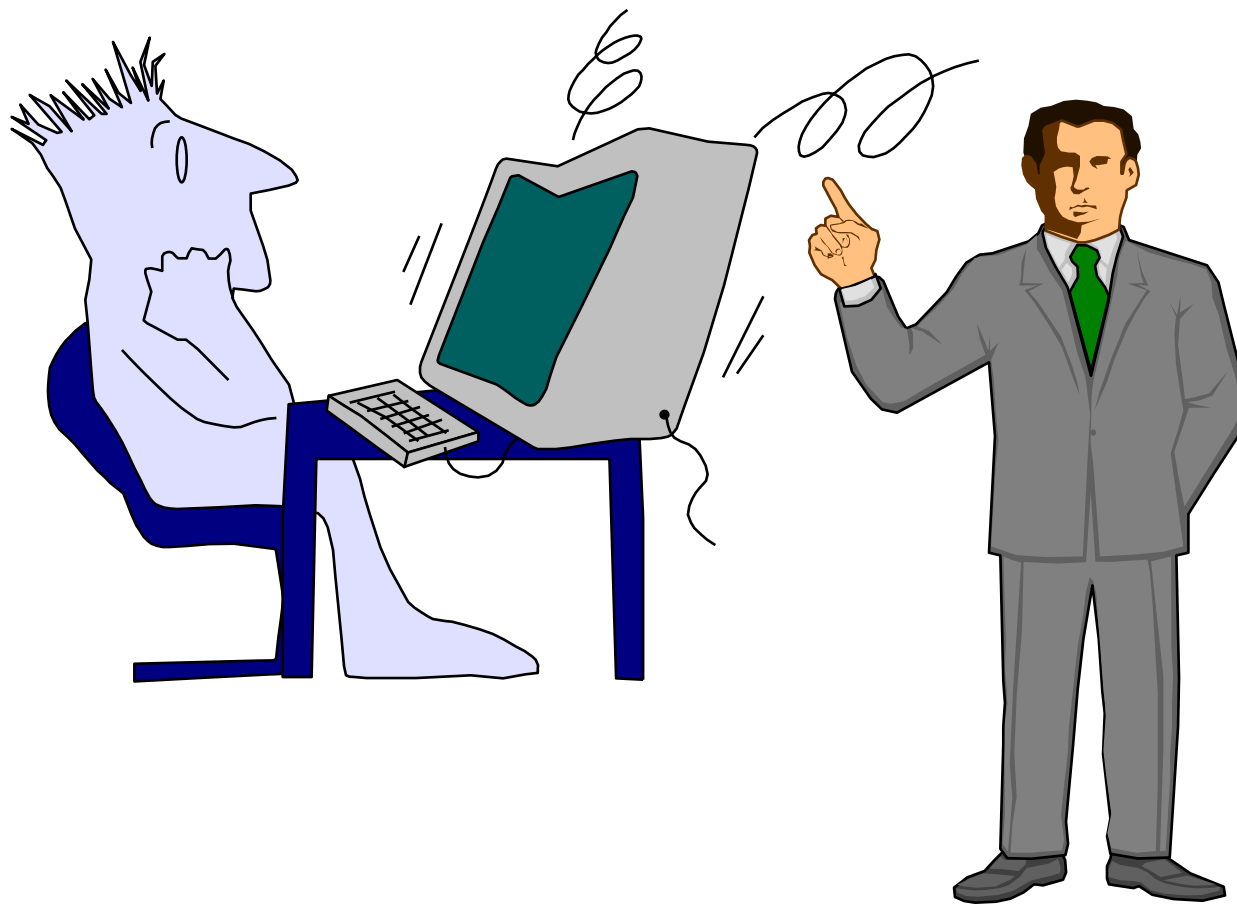


## Отображение сообщений CPU

The screenshot illustrates the process of configuring CPU messages in SIMATIC Manager. The main window shows the 'PLC' menu with 'CPU Messages...' selected. A yellow arrow points from this menu item to the 'Customize' dialog box, which is open to the 'Registered Modules' tab. In this dialog, the 'PRO1\_ALCONFIGURATION' module is checked. A red arrow points from the 'CPU Messages...' menu item to the 'CPU Messages' taskbar icon. A yellow arrow points from the 'Archive' button in the 'Customize' dialog to the 'Archive Settings' dialog box, which is open to the 'Archive Settings' tab. The 'Archive Settings' dialog shows a size of 100 and an 'Empty Archive' button.

Start SIMATIC Manager - Test-1 CPU Messages

## Демонстрация: обнаружение ошибок



## Упражнение 12.1 : чтение системной информации

Module Information - CPU314

Path: PRO1\_AL\MATHE CPU Operating Mode: RUN

Status: OK

Time System Performance Data Communication Stacks

General Diagnostic Buffer Memory Scan Cycle Time

Description: CPU314 System ID: SIMATIC 300

Version:

Order No./Description	Component	Version
6ES7 314-1AE01-0AB0	---	7

Rack: 0 Address: ---

Slot: 2 Module Width: 1

Status: Module present and OK.

Close Update Print... Help

## Упражнение 12.2: диагностика ошибок в программе

Загрузите S7 программу  
"Error\_A (Error\_B)"  
из проекта "PRO1\_E"  
в контроллер



Когда CPU  
перейдет в STOP,  
найдите ошибку  
(PLC ->  
*Module Information*).