

Catálogos

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Troubleshooting Guide



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Version 11
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- Purpose of Documentation** This documentation supports trained maintenance personnel
 - in the rapid identification of faults
 - outlining carefully-directed steps for the quick elimination of faults
 - to quickly and effectively take up contact with either the manufacturer of the machine or Bosch Rexroth customer service

Editing sequence

Document designation of previous editions	Status	Comments
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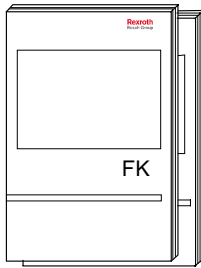
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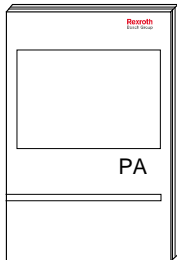
Summary of Documentation - Overview



Functional Description: Interfaces:

Help familiarize the user with SYNAX 200 and the functions of SYNAX 200

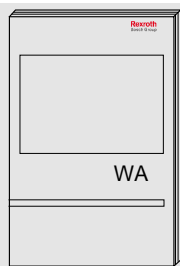
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Parameter Description:

Description of the SYNAX 200 system parameters

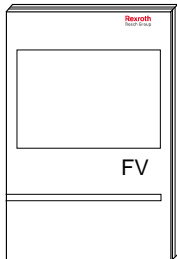
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Trouble Shooting Guide:

Explanation of the diagnostics states
 How to proceed when eliminating faults

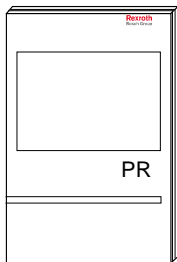
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Firmware Version Notes:

Description of the new and changed functions between SYNAX 200 version 11 and previous version 10

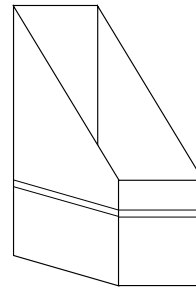
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Project Planning:

Selection of units and hardware components
 Basic control in cabinet construction

Order designation:
 DOK-SYNAX*-SY*-11VRS**-PR01-EN-P



Order designation:
 DOK-SYNAX*-SY*-11VRS**-4001-EN-P

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1 SYNAX 200 diagnosis

1.1 Summary of SYNAX 200 diagnosis

The diagnostic system of the PPC breaks down as follows:

- There are entities (master axes, system management, etc.) that can, independent of each other, identify errors.
- These entities can directly overwrite binary inputs which are **exclusively** allocated to them.
- They can simultaneously send diagnoses to the diagnostic system.

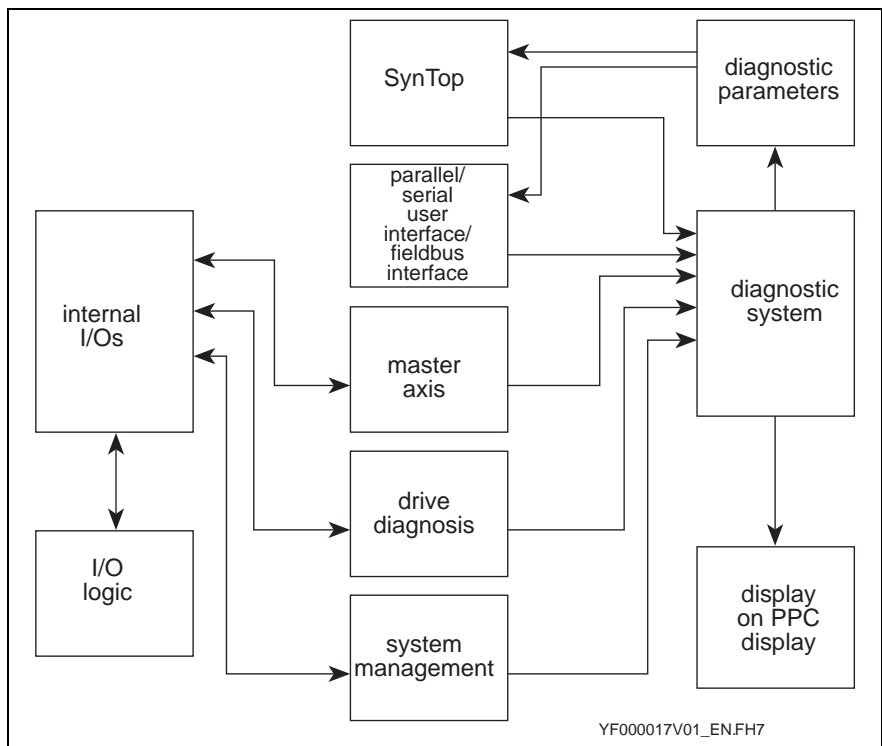


Fig. 1-1: Diagnosis overview on the PPC

1.2 Global SYNAX 200 diagnosis

SynTop: Connection

The standard display in the SYNAX 200 system is the 4 place display. SynTop may have to be connected in order to be able to read diagnostic parameters. This requires a serial cable and a PC (e.g., Notebook).

SynTop: Fault finding

The following is the procedure for finding faults:

1. read display H1 on the PPC
2. read display H1 on the Diax 03/Diax 04/IndraDrive/EcoDrive 03/EcoDrive Cs drive controller
3. locate the relevant entry in diagnosis in section 4.

If the error has not been cleared with steps 1 to 3, then it is necessary to read the diagnostic parameters (see page 1-12) .

Diagnostic system

The diagnostic system is active in every mode of the PPC.

Error messages to the diagnostic system

Every entity that detects an error, signals this to the diagnostic system. An error is a **negative diagnosis**.

A message contains

- an internal diagnostic number
- the drive number (0 = PPC-System, 1..n = drive)
- a diagnostic text

The diagnostic system describes the diagnostic parameters Y-0-0046, Y-0-0047, Y-0-0048 and Y-0-0163 with the relevant entries of the **first error to be generated**. This first error is then also entered into the error storage.

If this error is allocated to a drive, then the address of the drive is entered in parameter "SYNAX - error source" (Y-0-0046).

If this error must be allocated to the PPC system, the diagnostic information always contains the value 10000h.

Further incoming errors do not overwrite the above referenced parameters, but are rather immediately written into the error storage.

Overwriting, i.e., deleting, an entry of the diagnostic parameters is only possible with a positive diagnosis.

Positive diagnosis signaled to the diagnostic system

A positive diagnosis overwrites an existing error message, i.e., the error message is cleared. Various entities produce positive diagnoses, e.g.:

- system management (e.g., "PPC parameterization mode")
- ...

A positive diagnosis is identified in terms of error number 0. A message containing error number 0 means

- a positive operating mode has been achieved
- an error message has been cleared
- a cleared error message

for either an axis or the PPC system.

The diagnostic system then corrects the diagnostic parameters.

Overview of the diagnostic system

The following depicts the logical sequence of the diagnostic system:

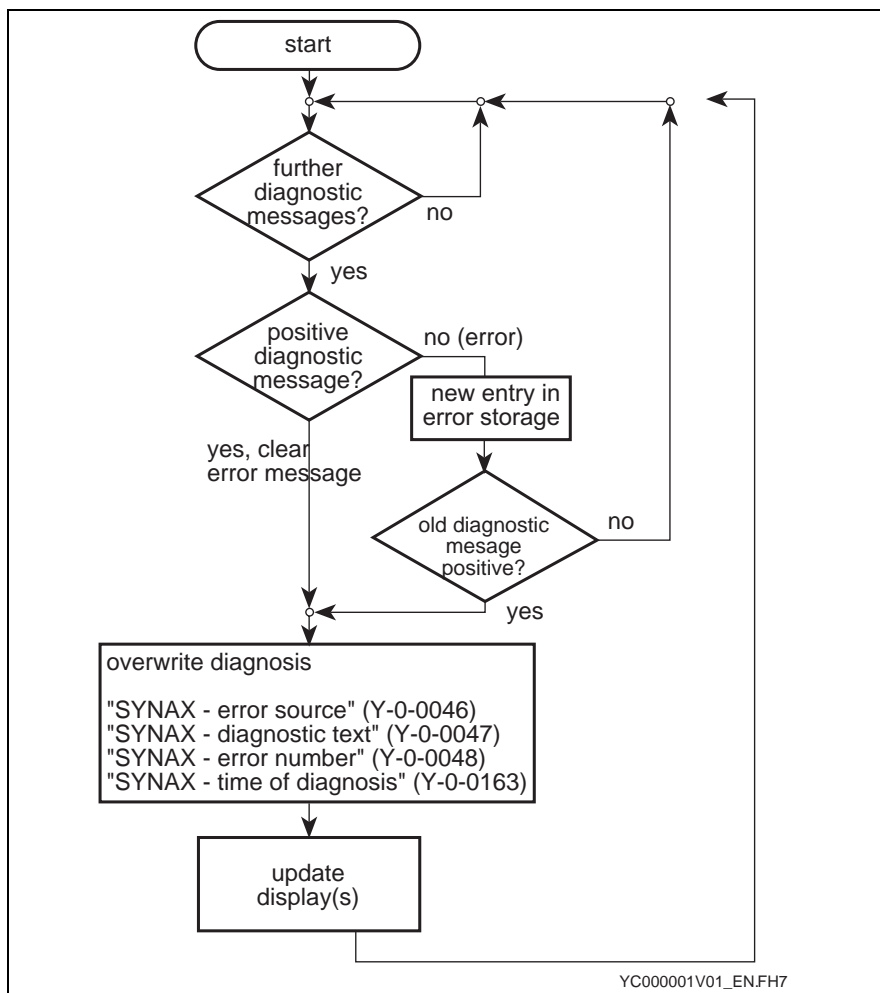


Fig. 1-2: Messages to the diagnostic system

Errors occurring before reaching operating mode

Errors that occur prior to reaching operating mode and can cause the system to fail are primarily configuration errors, for example:

- hardware (connector not attached, no external voltage, etc.)
- parameter (incorrect number of drives or addresses, unacceptable mode, etc.)

This type of error message means that the PPC cannot switch into an operating mode.

The entity which detects the error also signals it to the diagnostic system.

The diagnostic system

- issues an error message using the available display media of the PPC
- describes the diagnostic parameter giving detailed information.

A re-start is necessary once the error is cleared.

Re-start can be initiated by:

- switching supply voltage on and off
- switching into parameter mode and then back into operating mode

If additional configuration errors are still present after the re-start, then these are signaled. Otherwise, the PPC will now assume operating mode.

Error in operating mode

Once in operating mode, the occurrence of an error also means

- a binary output will be set,

in addition to the behavior just described. This can lead to a quick reaction on the part of the entire system.

These outputs are set directly by the relevant entity. Every entity has I/Os on which **exclusively** it may write.

Drive error

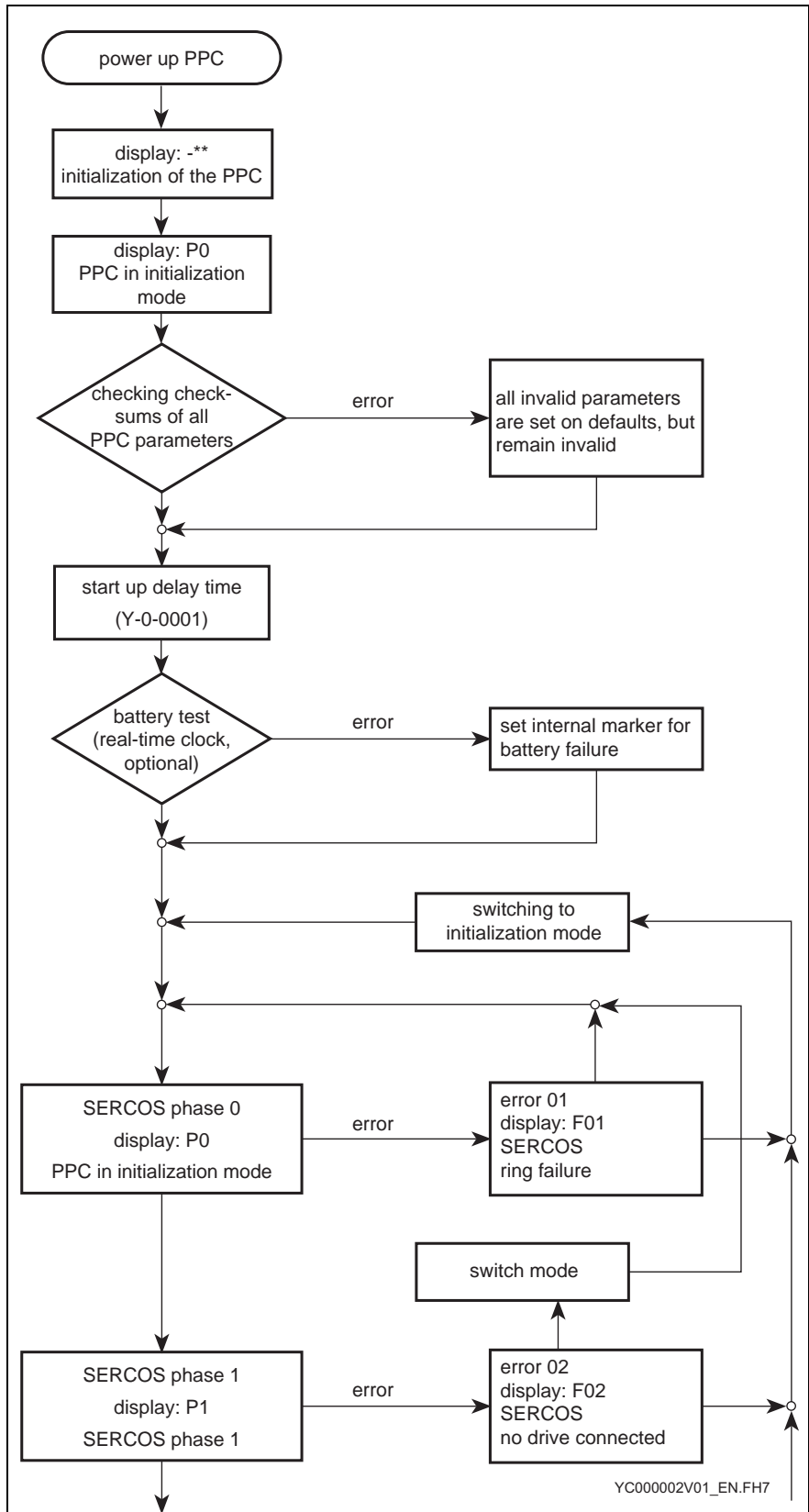
If the drive signals an error, of the SERCOS status class 1, then the following ensues:

- the diagnostic system is activated
- the number of the drive issuing the first error is written into parameter Y-0-0046
- parameter "Diagnostic message" (S-0-0095) of the relevant drive is copied into parameter Y-0-0047
- parameter "Error message number" (P-0-0009) is copied, after receiving an offset of 3000, into parameter Y-0-0048
- system time (Y-0-0159) is written into parameter Y-0-0163
- output drive error is set

Note: Only the error to occur first during fault-free operations is entered into the diagnostic parameter. Only after this error has been cleared a new entry in the diagnostic parameters is possible.

Initialization sequence of the PPC system

The following figure depicts the initialization sequence of the PPC system. The corresponding diagnosis which appear on the display are also shown:



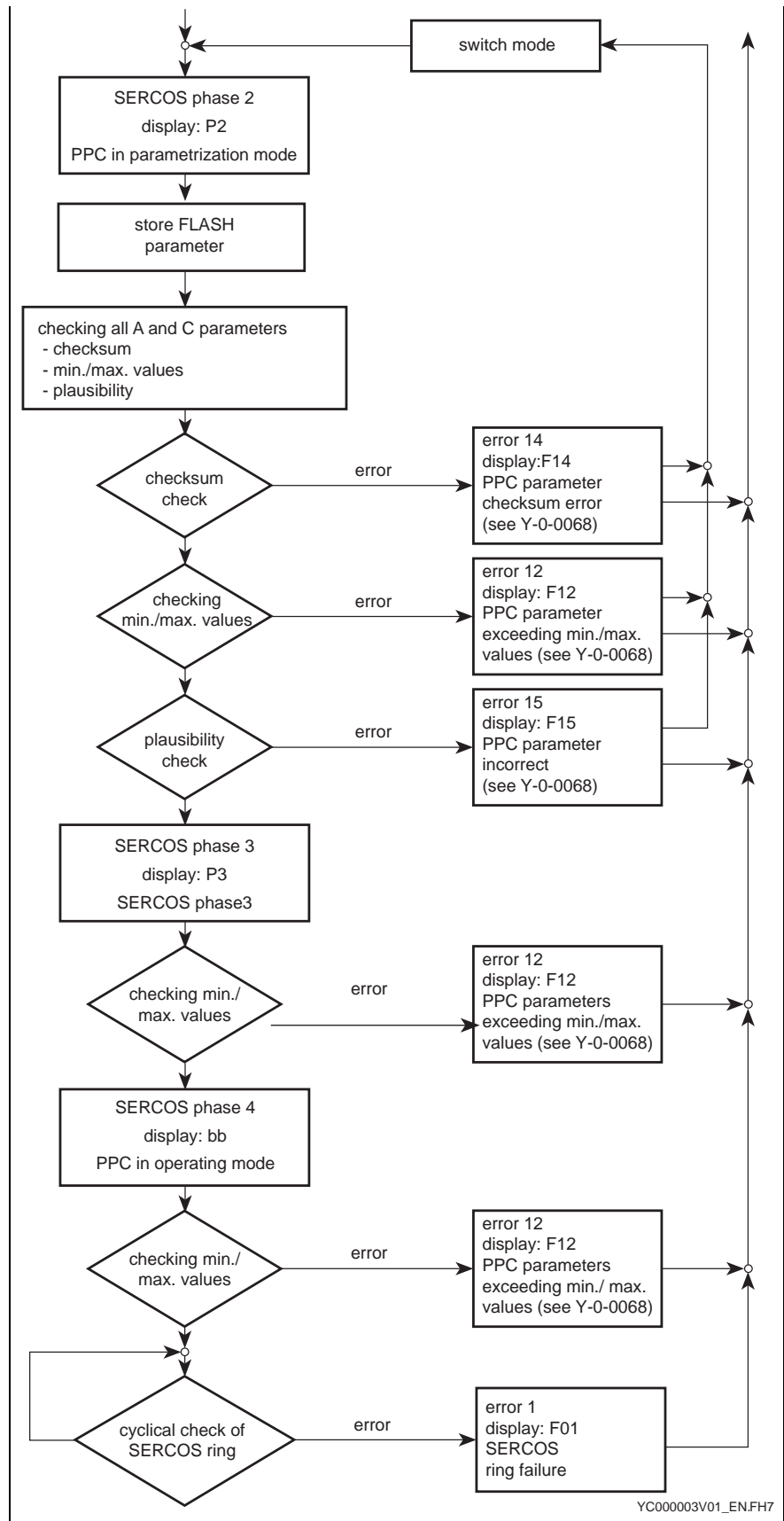


Fig. 1-3: Initialization of a PPC

Overview of the diagnostic displays

The system displays diagnoses at the following positions:

- display H1 on the PPC (four-digit)
- 7-segment display H1 on the DiAx 03/Diax 04/IndraDrive/EcoDrive 03/EcoDrive Cs drive controller (two-digit)
- SYNAX 200 system parameter (visible via various bus systems or auxiliary commissioning aids)

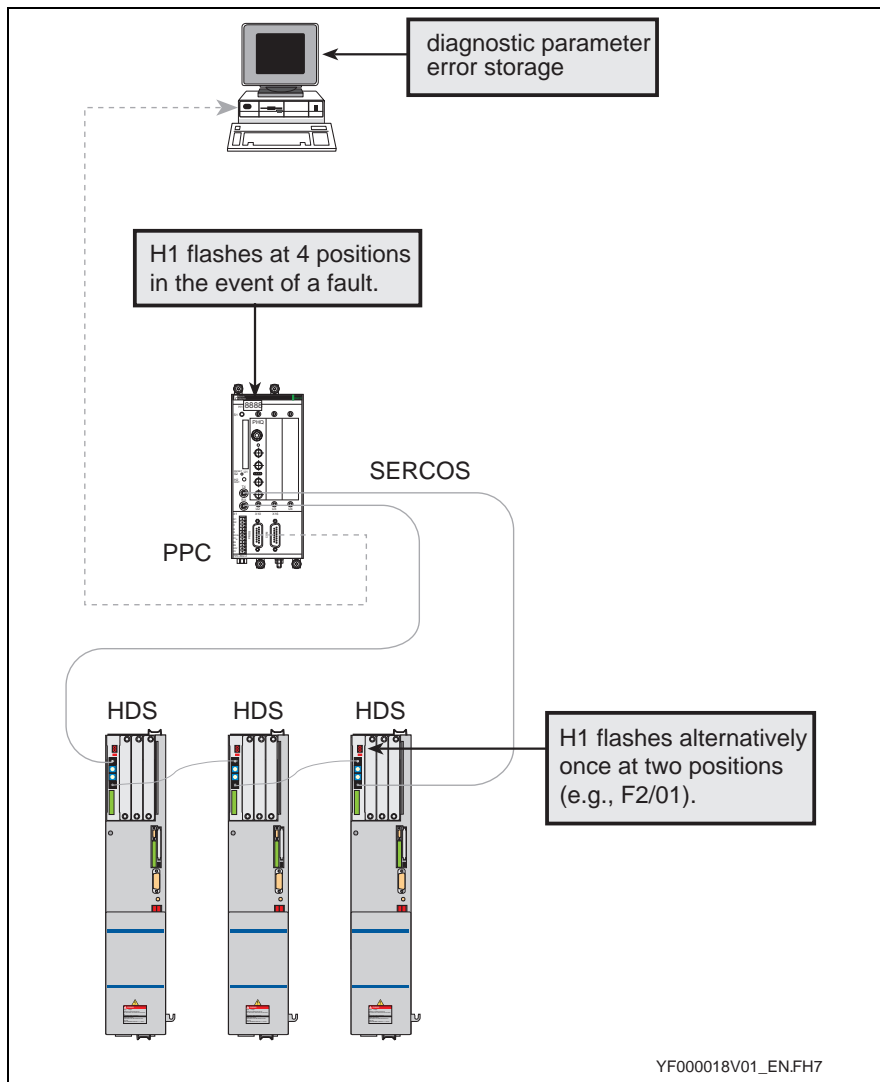


Fig. 1-4: Diagnostic displays

Interpreting the PPC diagnostic parameters

See following figure.

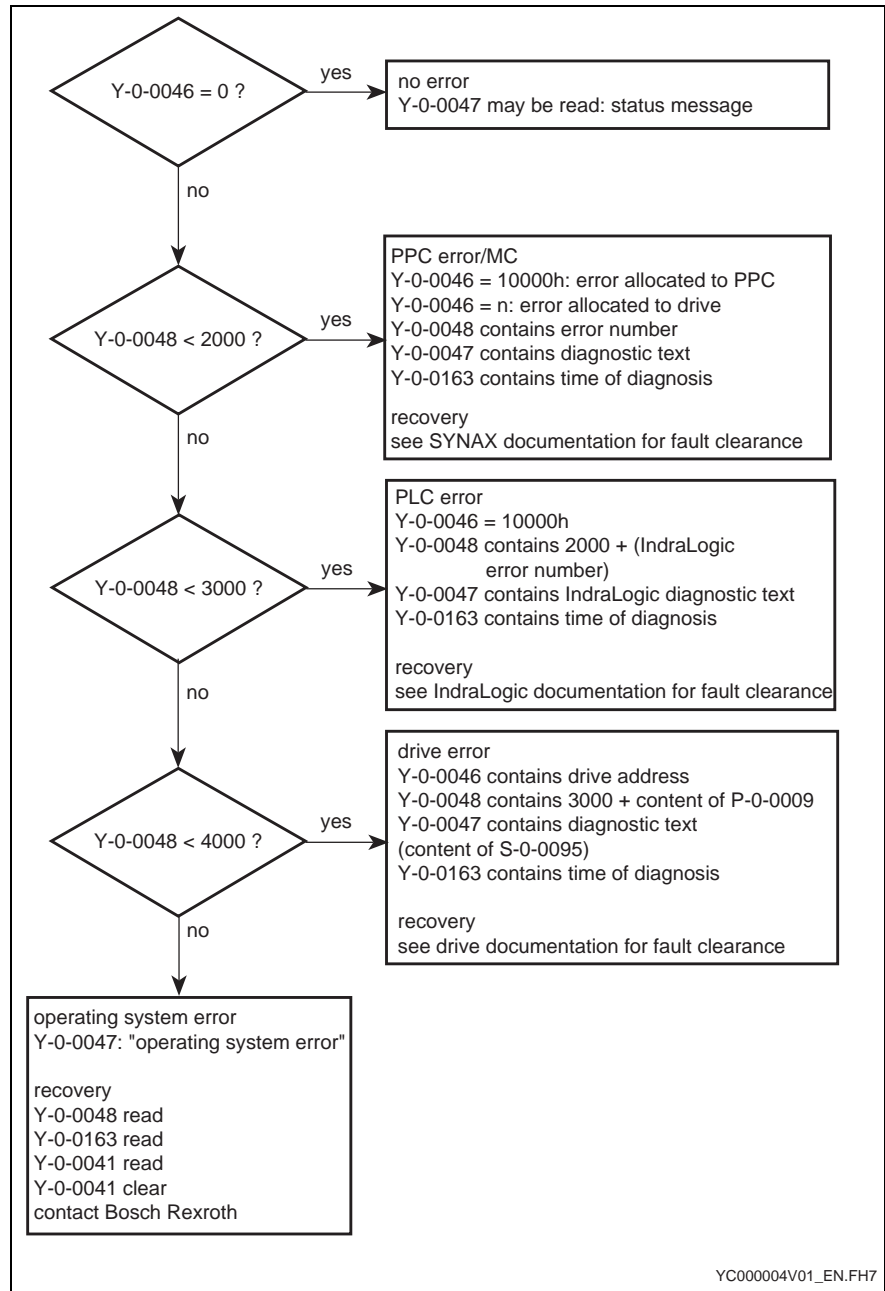


Fig. 1-5: Sequence diagram for PPC diagnosis

Clearing an error

Clearing a configuration error

If a configuration error occurs, then the PPC will not assume operating mode (ready for operation, PPC display "bb").

Depending on the error, the PPC remains

- in initialization,
- in parameterization mode or
- in operating mode, but before the state of ready in operation.

The user must go through the following steps:

- the cause(s) of the configuration error must be eliminated
- with a hardware error, the machine must be turned on and off once
- if a parameter was corrected, then it is necessary to switch into operating mode

Overview:

Causes	Action to be taken
Parameter faulty	- correct parameter - switch into operating mode
Hardware configuration error (cable not connected, etc.)	- eliminate error - switch power on and off

Fig. 1-6: Table overview

Clearing errors with an error in operating mode

If the PPC is in operating mode, then it is certain that a configuration error did not cause the error message.

In operating mode, errors are exclusively cancelled via the relevant clear error inputs which are ready by that entity that signaled the error.

Cause	Clear error input	Procedure
Master axis error	_E:L#.16	Input clears master axis error. If a master axis error was active in the diagnosis, then it is cleared as well.
Drive error	_E:F#.14	Input clears the drive error with address #. If a drive error with address ' was active in the diagnosis, then it is cleared as well.
System error	_E:C01.01	system error see table in section 2
Communication error (interfaces)	_E:C01.03	Errors associated with external communications (e.g., 3964R, fieldbusses) can be cleared via this input.
PPC link	_E:C01.04	This error serves to clear or acknowledge a PPC link error on the PPC.

Fig. 1-7: Table: clearing errors

PPC ready to operate

The system output "**PPC ready timing signal**" ($_A:C01.01$) is on the PPC. It signals when the PPC is ready to operate. This signal is cyclically toggled by the PPC once the PPC is ready to operate.

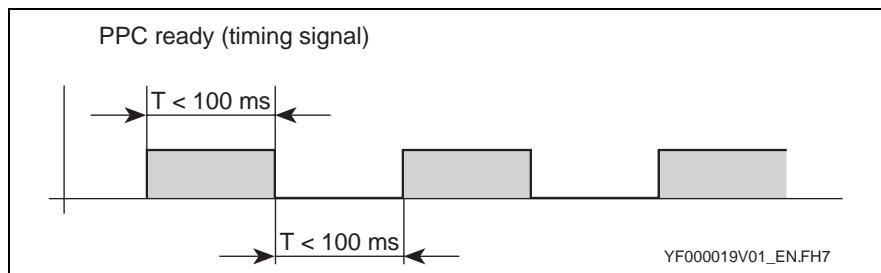


Fig. 1-8: PPC ready to operate (timing signal)

In addition, the potential-free contact of a relay is coming out at X1, pins 8 and 9. As soon as the PPC is ready for operation, the contact is closed.

The toggling of the signal or the contact assembly is interrupted, for example, if:

- the PPC is not in operating mode (PPC display "bb")
- there is a break in the Sercos ring (PPC error reaction F01)
- there is a double drive telegram failure (PPC error reaction F05)
- there is an operating system error (PPC error reaction F95)

A detailed description about when this clocking signal or the contact assembly is deactivated (or not even activated) is outlined in the tables in section 2.

There is a circuit on the DEA04 (starting with circuit board 06) and on the DEA08 which monitors this toggling on the hardware. The output of this circuit is designated **PPC ready to operate**.

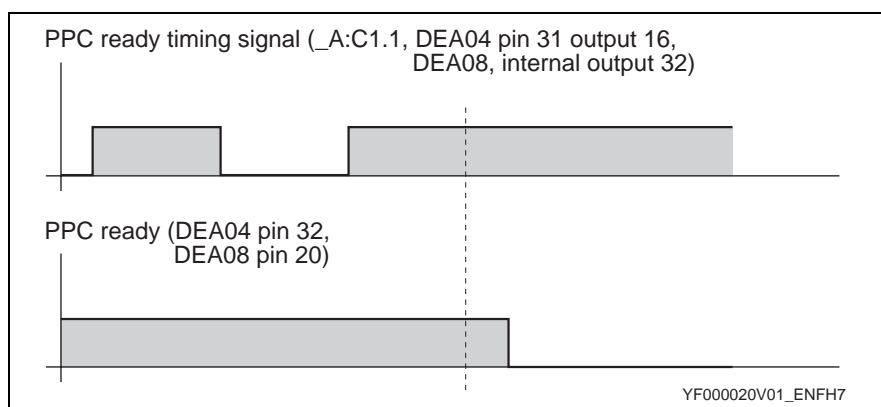


Fig. 1-9: PPC ready to operate (functional principle)

Emergency reaction

Some occurring errors force a SERCOS emergency reaction. It contains:

- Switching SERCOS phase to phase 0
- Opening the ready to operate relay (only if closed before)

Examples for causing the emergency reaction are double AT failure, fibre optic ring break.

Note: After the emergency reaction a warm re-start is executed when switching again, that means after leaving phase 0. The system is completely initialized. This causes a re-initialization of all communication interfaces, that means, it can cause a break down of the communication via fieldbus.

Watchdog

There is a watchdog on the PPC or PPC-P. It monitors microprocessor functions.

PPC If a processor error is signaled from the PPC, then two dots - as seen below - appear on the display:

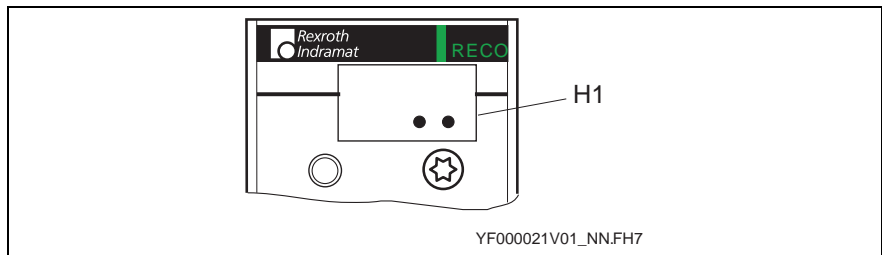


Fig. 1-10: Watchdog message on the PPC

PPC-P If a processor error is signaled on the PPC-P, then a dot - as seen below - appears on the display and the 7-segment display gets dark:

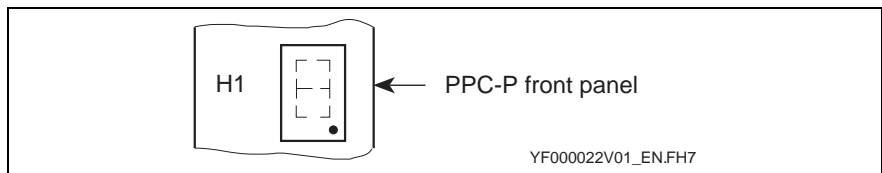


Fig. 1-11: Watchdog message on the PPC-P

1.3 Error storage

How error storage works

All generated error messages are stored on the PPC in a ring-shaped error memory. The maximum number of entries equals 63, this means that the "oldest" error message is always overwritten.

The error storage entries are cleared by loading the base parameters of the PPC or with the help of parameter "Command clear error recorder" (Y-0-0051).

The following describes the structure of the error memory:

No.	Date / time 4 bytes	msec 4 bytes	Error number 4 bytes	Error source 4 bytes	Diagnostic text variable length
63					
62					
...					
2					
1					

The errors are stored chronologically in the ring memory whereby the last signaled error is always in the last line (index no. 1).

Reading the memory contents

Using the commissioning software "SynTop" (from version 04V03) the entire contents of the error storage can be displayed via parameter Y-0-0156.

The contents of the memory can be read out a line at a time via the PLC as well. The following parameters can be used for this purpose:

- "Error recorder - index" (Y-0-0153)
- "Error recorder - diagnostic message" (Y-0-0154)
- "Error recorder - diagnostic text" (Y-0-0155)

The data in parameter Y-0-0153 determines the line to be read. Index "1" always is the most recent entry, index "63" the oldest. The structure of a line looks like this:

Y-0-0153	Y-0-0154				Y-0-0155
Index-no.	Date / time	msec	Error number	Error source	Diagnostic text

For detailed information on the format of stored data, see document "SYNAX 200 Parameter Description", DOK-SYNAX*-SY*-11VRS**-PA01-EN-P.

System time

In diagnostic parameter Y-0-0163 and in error storage, the system time of the PPC is supplied in addition to the error message.

This system time can be read or set via parameter Y-0-0159 by the higher-ranking PLC or via SynTop. The date and time formats correspond to the time format of MS-Windows:

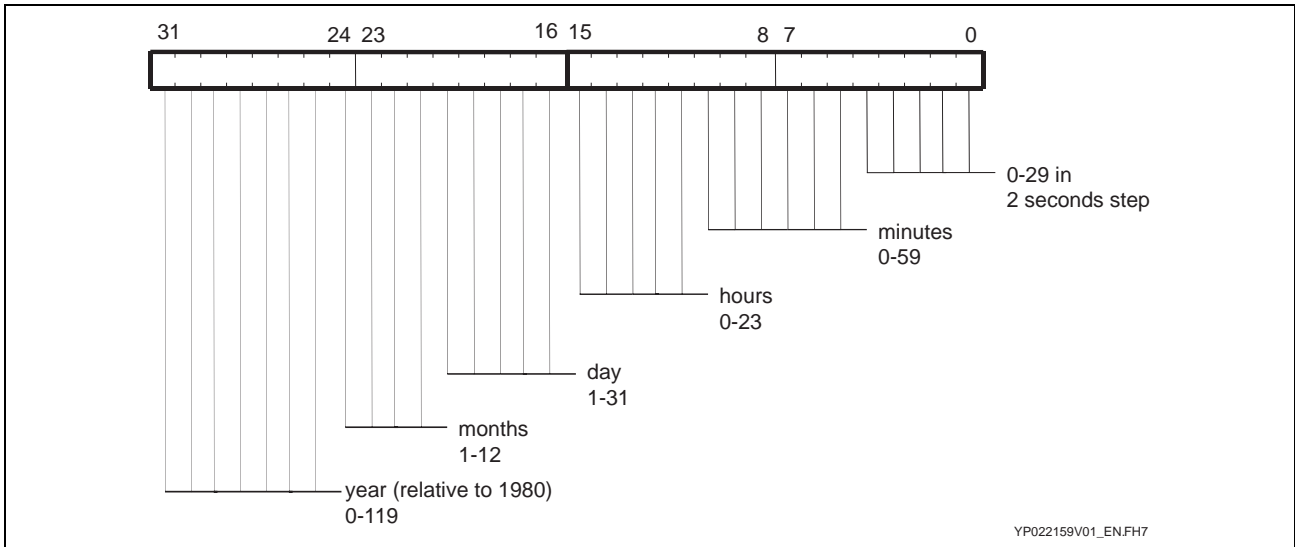


Fig. 1-12: Structure Y-0-0159

As a result of this format, the resolution of the inputs and outputs is limited to 2 seconds.

The PPC internal resolution equals:

Standalone PPC:	2 ms
PPC link:	8 ms

Given a PPC link, the "SYNAX - system time" (Y-0-0159) can only be changed or set in the link master. All link slaves then automatically synchronize to this time.

Switching the PPC on and off

With a shutdown, the PPC (master and slaves) stores the system time, i.e., there is no real-time clock function with a shutdown.

PPC link

With the next powering up, all PPCs first generate an internal system time which is asynchronous to the link. With the first valid MDT of the link master, the slave PPCs synchronize to the system time of the link master.

Note: As soon as the PPC is switched off the system time stands still. The system time can be updated after powering up by a higher-ranking PLC real time clock as needed.

PPC clock pulse in seconds (_A:C01.09)

SYNAX 200 uses an internal clock to record events. It can be read with the help of parameter "SYNAX - system time" (Y-0-0159) in Windows time format.

As the transmission of the time value read by the PPC comes time delayed to a higher ranking control via a fieldbus connection by 2 second steps (Windows time format), this output "PPC clock pulse in seconds" (_A:C01.09) can be used to follow the actual course of the SYNAX 200 system clock. Given an uneven number of seconds, the PPC output is set, in the reverse case it is deleted.

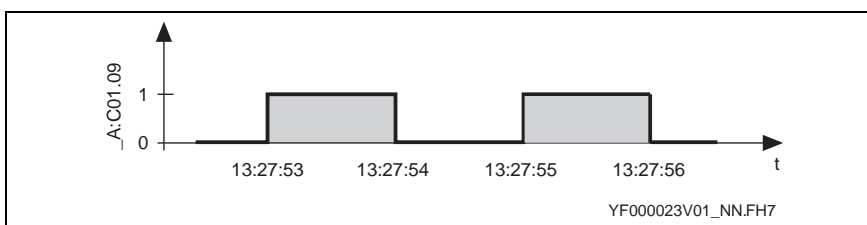


Fig. 1-13: PPC clock in seconds (functional principle)

1.4 Diagnostic display on the PPC or PPC-P

Display

There is a display (H1) on the PPC or PPC-P. It displays the current operating state.

Display PPC

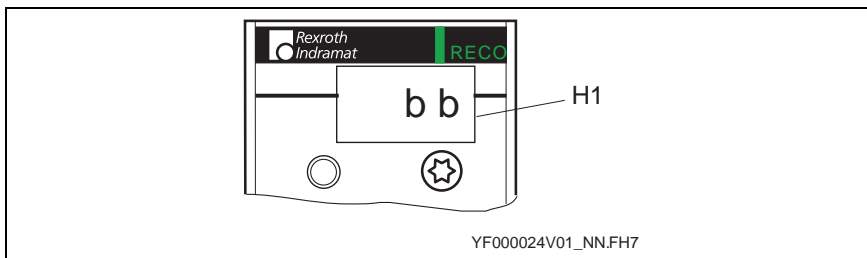


Fig. 1-14: Display on the PPC

Operating states PPC

A differentiation is made between two types of displays which depict the current operating state:

- the display of a static, **four**-digit display (normal operating state)
- the display of a flashing, **four**-digit display (error state)

Display PPC-P

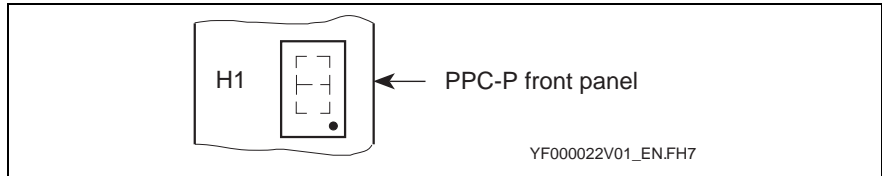


Fig. 1-15: Display on the PPC-P

Operating states PPC-P

A differentiation is made between two types of displays which depict the current operating state:

- the display of a static, **one**-digit display (normal operating state)
- the display of a flashing, **two**-digit display (error state)

Normal operating mode display

If the PPC is in a normal operating state, then there are four positions in the display which

- does not flash but remains static.

Example:

Display PPC	Display PPC-P	Definition
P0	0	PPC in initialization mode
P1	1	SERCOS interface - phase 1
P2	P	PPC in parameterization mode
P3	3	SERCOS interface - phase 3
bb	b	PPC in operating mode (ready for operation)

Fig. 1-16: Table of a normal operating state

Displaying a faulty operating mode

The PPC indicates an error by issuing a **four**-digit error number on the display.

The displays are listed in the tables in section 2.

1.5 Diagnosis on the serial interface

Diagnosis on 3964R

The interface 3964R represents a point-to-point connection between the PPC and an external NC control unit. A reaction telegram follows every command telegram.

Local error message on 3964R

There is no global error message on the PPC in the presence of a communications error at the 3964R interface. There is an error number in each reaction telegram (byte no. 4). The error is signaled to the external NC control.

This error number is stored in parameter Y-0-0057 for diagnostic purposes. This parameter is cleared upon successful completion of transmission

In this case, the display of the PPC does not display an error.

Error number 3964R (local error)

Y-0-0057 Error	Cause
1	the telegram head does not agree with the specification
2	a following telegram was received, but not expected or a following telegram was expected but a normal telegram received
3	the number of usable data does not agree with: the anticipated number (as is the case with following telegrams) or the block length signaled (as is the case with normal telegrams)
4	the following applies to the demand specified in the usable data head: the demand is unknown or it is not yet supported
5	the demand cannot presently be performed, as the required data queue is occupied
6	error upon accessing A/C parameters
7	error upon accessing S/P parameters
9	the data block indicated is not available
10	the length of the data block does not agree with the specification
14	error when writing I/O data (too man inputs)

Fig. 1-17: Error number 3964R (local error)

Global error messages on 3964R

If the communication is disturbed on the hardware level, the parameter "Host communication error counter transmission line" (Y-0-0147) is incremented by 1 whenever an error is detected. At the same time, an error message is emitted if the following conditions are fulfilled.

- Overrun error** An overrun of the character buffer of the serial interface immediately causes emission of the error message "3964R Serial interface overrun".
- Parity error, frame error** In case of failures on the serial line, one of the following error messages is displayed if at least two failures have occurred within 200 ms: "3964R Serial interface parity error" or "3964R Serial interface transmission error (frame)".
- No interface error** To be able to recognize a global error via the serial interface, which has not affected serial communications (e.g., a drive error), it is necessary
- to read parameter Y-0-0046 cyclically or after every transmission or
 - to read error outputs via the serial interface.
- If an error has occurred, then further information can be obtained via the diagnostic parameter, after parameter Y-0-0046 has been analyzed.

Diagnosis on ARCNET

ARCNET interface has a bus structure. In other words, the arrival of received data is immediately either positively or negatively acknowledged by the PPC. This makes the bus immediately available again.

Local error messages on ARCNET

If errors occur in the sequence, then these are stored in parameter "Serial interface error number" (Y-0-0057). This parameter always contains the status of the most recent transmission. It can also be read by the external NC control unit.

It does not, however, have to be read.

- If the telegram received is correct, then there is a response telegram with positive acknowledgement or, if necessary, with the requested data.
⇒ Y-0-0057 = 0
- If the telegram received is not correct, then there is no response telegram.
⇒ Y-0-0057 ≠ 0
- If a following error is discovered after a write command (e.g., S or P parameters write protected), then there is no message.
⇒ Parameter Y-0-0057 is set to ≠ 0.

Error number ARCNET (local error)

Y-0-0057 Error	Cause
4	the following applies to the demand specified in the user data head, namely, the demand is unknown or it is not supported
5	the demand cannot presently be executed because the queue is full
6	error upon accessing Y/C/A parameters
7	error upon accessing S/P parameters
8	switch mode not successful
9	the data block given is not available
10	data block length does not agree with the specification
14	error when writing I/O data (too many inputs)
21	the telegram header does not agree with the specification
22	a following telegram was received, but not expected or a following telegram was expected but a normal telegram received (Note: support of following telegrams)
23	the number of usable data does not agree with the expected number (as is the case with following telegrams) or the expected block (note: presently no support of following telegrams)
24	the ARCNET partner is sending excessive NAKs
25	the selected partner is not an ARCNET participant

Fig. 1-18: ARCNET error number (local error)

Global error messages on ARCNET

If the ARCNET node of the PPC is an active participant in the bus, the "Fieldbus - real-time channel active" ($_A:C01.08$) PPC output indicates the state of the ARCNET interface. This output is cleared in case of failures on the transmission line.

This output can be used to selectively switch off the drive enable signal of individual axes in case of fatal failures in the combinational logic system.

Reconfiguration

If there is a failure in the communication on the hardware level, the ARCNET bus is reconfigured. The degree of the failure can be measured on the basis of the reconfigurations within a defined time interval.

Measurement method for failure analysis

If there is a permanent failure, such as a cable that has been pulled off, the ARCNET controller runs through a reconfiguration cycle. The controller triggers a reconfiguration every 840 μ s.

The measurement method for failure analysis takes a fixed time interval of 8 reconfiguration cycles (6720 μ s) into consideration and counts the number of reconfigurations within this time interval.

The following three failure states are generated:

- uncritical (1-2 reconfigurations)
- critical (3-4 reconfigurations)
- fatal (5-8 reconfigurations)

Uncritical failure	<p>If no more than 2 reconfigurations are occurring during the measurement, this state is considered to be uncritical. This state neither affects error messages nor error counters.</p> <p>This type of failure can be detected only by the toggling PPC output "Fieldbus - real-time channel active" (_A:C01.08).</p>
Critical failure	<p>Whenever a critical failure of 3 to 4 reconfigurations per measurement is detected, the error counter "Host communication error counter transmission line" (Y-0-0147) is incremented by 1.</p>
Fatal failure	<p>If more than 4 reconfigurations are occurring during the measurement, the transmission line is seriously disturbed. In addition to the error counter Y-0-0147 being incremented, SYNAX 200 generates the error message "ARCNET - excessive bus reconfiguration".</p>
No interface error	<p>To be able to recognize a global error via the serial interface, which has not affected serial communications (e.g., a drive error), it is necessary</p> <ul style="list-style-type: none"> • to read parameter Y-0-0046 cyclically or after every transmission or • to read error outputs via the serial interface. <p>If an error has occurred, then further information can be obtained via the diagnostic parameters, after parameter Y-0-0046 has been analyzed.</p>

Diagnosis on the fieldbus

The PPC diagnoses the following failures and errors, which may occur in connection with the fieldbus interface, thus permanently preventing the bus communication:

PPC output "Fieldbus - real-time channel active"

If the PPC is in the operating mode and data is not received via the fieldbus within the fieldbus timeout, the PPC clears the output "Fieldbus - real-time channel active" (_A:C01.08).

This output can be used to selectively switch off the drive enable signal of individual axes in case of a bus failure in the combinational logic system.

Initialization error

The PPC monitors the initialization of the fieldbus communication task and the device driver, in order to detect a fatal failure of the fieldbus interface.

If problems arise during the initialization of the fieldbus communication task, which prevent the fieldbus slave connection from functioning properly, the PPC displays the following diagnosis after a waiting time of no more than 12 seconds:

F33 (150) "Communication via the fieldbus is impossible"

Thereafter, the run-up will be stopped; the PPC remains in the parameterization mode.

After the fieldbus communication task has been started successfully, the PPC continues to run up until it enters the operating mode. Here, it is checked whether the device driver of the slave connection is able to correctly access the hardware. If the address or interrupt setting on the fieldbus board is not correct, the PPC displays the following diagnosis:

F33 (151) "Fieldbus: incorrect jumper setting on fieldbus board"

In either case, it is not possible to operate the SYNAX 200 application via the fieldbus interface. It is not possible to clear the diagnostic messages. Please contact the Bosch Rexroth Service to eliminate the failure.

Errors in the configuration of the process data

If the configuration of the process data is impermissible, the PPC displays one of the following diagnoses:

F15 (148) "List of UDP ports in Y-0-0194 is too short (see Y-0-0129)"

F15 (149) "Y-0-0194: UDP port number exists twice"

F15 (152) "Interbus: Process data length is not supported (Y-127/128)"

F15 (153) "Parameter channel: Is supported by Profibus only (Y-33/129)"

F15 (154) "PCP channel: Is supported by Interbus only (Y-33/129)"

F15 (280) "Parameter Y-0-0127 not correct. Line nbr.: xxx"

F15 (281) "Parameter Y-0-0188 not correct. Line nbr.: xxx"

F15 (282) "Parameter Y-0-0189 not correct. Line nbr.: xxx"

F15 (283) "Parameter Y-0-0190 not correct. Line nbr.: xxx"

F15 (284) "Parameter Y-0-0128 not correct. Line nbr.: xxx"

F15 (285) "Parameter Y-0-0185 not correct. Line nbr.: xxx"

F15 (286) "Parameter Y-0-0186 not correct. Line nbr.: xxx"

F15 (287) "Parameter Y-0-0187 not correct. Line nbr.: xxx"

The PPC stops running up and remains in the parameterization mode until the configuration is a permissible one.

Note: This error state can also be detected by the fieldbus master by evaluating the diagnostic objects 5FF5 and 5FF6.















1.6 Diagnostic parameters

Parameter number	Parameter name
Y-0-0041	Indramat service information
Y-0-0046	SYNAX - error source
Y-0-0047	SYNAX - diagnostic text
Y-0-0048	SYNAX - error number
Y-0-0057	Serial interface error number
Y-0-0068	List of invalid A, C and Y parameters
Y-0-0071	SYNAX - current mode
Y-0-0105	PPC link - MDT error counter
Y-0-0126	Operation time counter
Y-0-0147	Host communication: error counter transmission line
Y-0-0153	Error recorder - index
Y-0-0154	Error recorder - diagnostic message
Y-0-0155	Error recorder - diagnostic text
Y-0-0156	Error recorder
Y-0-0159	SYNAX - system time
Y-0-0160	Operation time counter
Y-0-0163	SYNAX - time of diagnosis
Y-0-0175	PPC - control unit temperature
Y-0-0176	PPC - maximum control unit temperature
Y-0-0297	Fieldbus - diagnostic message
Y-0-0298	Ethernet-HMI - diagnostic message
A-0-0095	Drive type
A-0-0108	AT error counter
S-0-0021	IDN-list of invalid op. data for comm. ph. 2
S-0-0022	IDN-list of invalid op. data for comm. ph. 3
S-0-0095	Diagnostic message
S-0-0390	Diagnostic message number
P-0-0009	Error message number

Fig. 1-19: Diagnostic parameters

2 Diagnoses and fault numbers arranged as per the display on the PPC

2.1 Overview

Display	Y-0-0048 error number	Y-0-0047 diagnostic text of PPC system	Y-0-0046 Diagnostic info	Binary output	Clear with
-01	--	"FLASH check sum test"	--	--	--
-02	--	"SDRAM test"	--	--	--
-04	--	"Extended check sum test (CRC32)"	--	--	--
-05	--	"Copying the firmware from Flash to SDRAM"	--	--	--
-06	--	"Initialization of the hardware"	--	--	--
-07	--	"Initialization of the operation system"	--	--	--
-10 to -1x	--	"Initializations of the bootloader"	--	--	--
-20 to -2x	--	"Initializations of the SYNAX system"	--	--	--
IFS	--	"Initialization file system/integrated PLC"	--	--	--
P0	0	"PPC in initialization mode"	0	 A:C01.01 _A:C01.02	--
P1	0	"SERCOS interface - phase 1"	0	 A:C01.01 _A:C01.02	--
P2	0	"PPC in parameter mode"	0	 A:C01.01 _A:C01.02	--
P3	0	"SERCOS interface - phase 3"	0	 A:C01.01 _A:C01.02	--
bb	0	"PPC in operation mode"	0	 A:C01.01	--
¥01¥ to ¥14¥	--	"Hardware error"	--	--	--
F HW	18	"PPC/DAQ Hardware defective: CON_CYC-Signal faulty"	10000h	 A:C01.01 _A:C01.02	--
F HW	19	"PPC hardware defective"	10000h	--	--
F TN	25	"PPC in test mode zero bit stream"	10000h	 A:C01.01 _A:C01.02	--
F ON	26	"PPC in test mode continuous light"	10000h	 A:C01.01 _A:C01.02	--
F01	01	"SERCOS interface - ring break"	10000h	 A:C01.01 _A:C01.02	--
F02	02	"SERCOS interface - no drive connected"	10000h	 A:C01.01 _A:C01.02	--
F03	03	"Error on switching to phase 3"	n = address	 A:C01.01 _A:C01.02	--
F04	04	"Error on switching into operating mode"	n = address	 A:C01.01 _A:C01.02	--
F05	05	"SERCOS interface - double drive telegram failure"	n = address	 A:C01.01 _A:C01.02	--
F06	06	"Fiber optic ring not closed"	10000h	 A:C01.01 _A:C01.02	--

F07	07	"Drive addresses not correct (see Y-0-0002, Y-0-0086)"	10000h	DK A:C01.01 _A:C01.02	--
F08	08	"Max. number of drives exceeded"	10000h	DK A:C01.01 _A:C01.02	--
F09	09	"Fatal error occurred - PPC reset necessary"	10000h	DK A:C01.01 _A:C01.02	--
F10	10	"PPC-internal memory error"	10000h	_A:C01.02	--
F12	12	"PPC parameter exceeds min/max value (see Y-0-0068)"	10000h	DK A:C01.01 _A:C01.02	--
F13	11	"RTC buffering empty, standstill of the system time"	10000h	_A:C01.02	--
F13	13	"PPC battery defective"	10000h	_A:C01.02	--
F14	14	"PPC checksum error" (see Y-0-0068)"	10000h	DK A:C01.01 _A:C01.02	--
F15	15	"PPC parameter not correct (see Y-0-0068)"	10000h	DK A:C01.01 _A:C01.02	--
F15	22	"Parameter value limits: min-limit > max-limit (see Y-0-0068)"	n = address	--	--
F15	34	"Y-0-0013: Local bus input module missing. Slot-nr: xx"	10000h	--	--
F15	35	"Y-0-0013: Local bus output module missing. Slot-nr: xx"	10000h	--	--
F15	144	"Y-0-0157/Y-0-0158: Number of entries not equal"	10000h	--	--
F15	145	"Y-0-0157: Ident-number exists twice"	10000h	--	--
F15	148	"List of UDP ports in Y-0-0194 is too short (see Y-0-0129)"	10000h	--	--
F15	149	"Y-0-0194: UDP port number exists twice"	10000h	--	--
F15	152	"Interbus: Process data length is not supported (Y-127/128)"	10000h	DK A:C01.01 _A:C01.02	--
F15	153	"Parameter channel: Is supported by Profibus only (Y-33/129)"	10000h	DK A:C01.01 _A:C01.02	--
F15	154	"PCP channel: Is supported by Interbus only (Y-33/129)"	10000h	DK A:C01.01 _A:C01.02	--
F15	155	"Register controller, master axis - no master address (A-169)"	n = address	--	--
F15	156	"Register controller, master axis - no drive addresses (A-87)"	n = address	--	--
F15	157	"Register controller, drive axis - no master addresses (A-169)"	n = address	--	--
F15	158	"Register controller, drive axis - no drive addresses (A-87)"	n = address	--	--
F15	159	"More than 1 register controller per master axis not possible"	n = address	--	--
F15	160	"More than one register controller per axis not possible"	n = address	--	--
F15	161	"Winding axis must be in speed synchronization (A-0-0003, A-0-0146)"	n = address	--	--
F15	164	"A-0-0008: At IndraDrive one analogue channel exists only"	n = address	DK A:C01.01 _A:C01.02	--
F15	165	"Y-0-0039/Y-0-0040: Number of entries not equal"	10000h	DK A:C01.01 _A:C01.02	--
F15	166	"A-0-0008/Y-0-0039: Activated analogue channel not linked"	n = address	DK A:C01.01 _A:C01.02	--
F15	167	"More than one process controller per axis not possible"	n = address	--	--

F15	168	"Y-0-0040: Multiple entries of target parameter in list"	10000h	DK A:C01.01 _A:C01.02	--
F15	170	"A-0-0027: Ambiguous configuration of the actual value source"	n = address	DK A:C01.01 _A:C01.02	--
F15	171	"Tension controller target address and -value wrong (A-146)"	n = address	--	--
F15	172	"Dancer controlled axis must be speed synchron"	n = address	--	--
F15	173	"More than one tension controller per master not possible"	n = address	--	--
F15	175	"A-0-0030: Process control P-Gain too high"	n = address	DK A:C01.01 _A:C01.02	--
F15	176	"A-0-0146: Analogue channel for process control not defined"	n = address	DK A:C01.01 _A:C01.02	--
F15	177	"A-0-0146: Analogue channel for process control not activated"	n = address	DK A:C01.01 _A:C01.02	--
F15	178	"Tension controlled axis must be speed or phase synchron"	n = address	--	--
F15	179	"More than one tension controller per axis not possible"	n = address	--	--
F15	180	"Parameter A-0-0038 not correct"	n = address	DK A:C01.01 _A:C01.02	--
F15	181	"Y-0-0013: Non-permissible DEA address (see Y-0-0002)"	n = address	DK A:C01.01 _A:C01.02	--
F15	182	"Y-0-0013: Synchronization mode not permissible (A-0-0003)"	n = address	DK A:C01.01 _A:C01.02	--
F15	183	"Y-0-0013: Addressed X-I/O not permissible (see Y-0-0024/Y-0-0033)"	10000h	DK A:C01.01 _A:C01.02	--
F15	184	"Y-0-0013: Idle mode not permissible (see A-0-0009)"	n = address	DK A:C01.01 _A:C01.02	--
F15	185	"Y-0-0013: Positioning mode not permissible (see A-0-0009)"	n = address	DK A:C01.01 _A:C01.02	--
F15	186	"Y-0-0013: Special mode not permissible (see A-0-0070)"	n = address	DK A:C01.01 _A:C01.02	--
F15	187	"Y-0-0013: Non-permissible version of PARA.EXE"	10000 h	DK A:C01.01 _A:C01.02	--
F15	188	"Y-0-0013: Data integrity violated"	10000 h	DK A:C01.01 _A:C01.02	--
F15	189	"Y-0-0013: Non-permissible DEA address (e.g. EcoDrive)"	n = address	DK A:C01.01 _A:C01.02	--
F15	190	"PPC link - other link master already active"	10000 h	DK A:C01.01 _A:C01.02	--
F15	192	"Y-0-0013: PLC-interface not allowed on MC without PLC"	10000h	DK A:C01.01 _A:C01.02	--
F15	193	"No different feedbacks selectable (A-0-0003/A-0-0009/A-0-0070)"	n = address	DK A:C01.01 _A:C01.02	--
F15	194	"Phase synchr. & absolute format not possible (see A-0-0001/A-0-0003)"	n = address	DK A:C01.01 _A:C01.02	--
F15	195	"A-0-0003: Drive does not support selected sync. mode"	n = address	DK A:C01.01 _A:C01.02	--
F15	196	"A-0-0070: Drive does not support selected special mode"	n = address	DK A:C01.01 _A:C01.02	--
F15	198	"Special mode only with PPC-P possible (A-0-0070/A-0-0071/A-0-0072/A-0-0073)"	n = address	DK A:C01.01 _A:C01.02	--

F15	205	"Address of side register controller missing (A-25/A-40)"	n = address	--	--
F15	206	"Probe detection for the side register controller missing"	n = address	--	--
F15	207	"Side register controller is not parameterized"	n = address	--	--
F15	217	"Too many parameters in MDT configured"	n = address	DK A:C01.01 _A:C01.02	--
F15	218	"Too many parameters in AT configured"	n = address	DK A:C01.01 _A:C01.02	--
F15	220	"A-0-0025: Too many register controllers activated"	n = address	DK A:C01.01 _A:C01.02	--
F15	221	"Serial port A (X10) multiple assigned (Y-0-0005/Y-0-0033)"	10000 h	DK A:C01.01 _A:C01.02	--
F15	222	"Serial port B (X16) multiple assigned (Y-0-0010/Y-0-0033)"	10000 h	DK A:C01.01 _A:C01.02	--
F15	223	"Cam and register control not possible (see A-0-0003/A-0-0025)"	n = address	DK A:C01.01 _A:C01.02	--
F15	224	"Register cont. and oscilloscope not possible (see A-0-0025/Y-0-0107)"	n = address	DK A:C01.01 _A:C01.02	--
F15	225	"Cam/register/osci. not possible (see A-0-0003/A-0-0025/Y-0-0107)"	n = address	DK A:C01.01 _A:C01.02	--
F15	226	"Drive does not support oscilloscope-function"	n = address	DK A:C01.01 _A:C01.02	--
F15	232	"A-0-0009: Drive does not support selected positioning mode"	n = address	DK A:C01.01 _A:C01.02	--
F15	233	"Drive locked with password (S-0-0267)"	n = address	--	--
F15	236	"Register control only possible with modulo axis (A-0-0001, A-0-0025)"	n = address	--	--
F15	237	"Register controlled axis without synchronization (see A-0-0003)"	n = address	--	--
F15	240	"Cam switches and I/O to DEA4.1 not possible (Y-0-0013, C-0-0049, A-0-0036)"	n = address	--	--
F15	241	"Cam switches and I/O not possible (Y-0-0013, C-0-0049) slot-nr: xx"	n = address	DK A:C01.01 _A:C01.02	--
F15	243	"Drive does not support DEA8.1 card"	n = address	--	--
F15	244	"Combination of used functions not possible (relative bits)"	n = address	--	--
F15	245	"Y-0-0013: Drive waypoints not possible (e. g. EcoDrive)"	n = address	--	--
F15	246	"Signal status word: conf. parameter/bit selection not valid"	n = address	DK A:C01.01 _A:C01.02	--
F15	247	"Signal control word: conf. parameter/bit selection not valid"	n = address	DK A:C01.01 _A:C01.02	--
F15	250	"Target axis must be synchronous axis (A-0-0133, A-0-0156)"	n = address	--	--
F15	251	"Too many group parameters of one group per axis"	n = address	--	--
F15	263	"Parameter Y-0-0131 not correct. Line nbr.: xxx"	10000h	DK A:C01.01 _A:C01.02	--
F15	264	"Parameter Y-0-0132 not correct. Line nbr.: xxx"	10000h	DK A:C01.01 _A:C01.02	--
F15	280	"Parameter Y-0-0127 not correct. Line nbr.: xxx"	10000h	DK A:C01.01 _A:C01.02	--

F15	281	"Parameter Y-0-0188 not correct. Line nbr.: xxx"	10000h	OK A:C01.01 _A:C01.02	--
F15	282	"Parameter Y-0-0189 not correct. Line nbr.: xxx"	10000h	OK A:C01.01 _A:C01.02	--
F15	283	"Parameter Y-0-0190 not correct. Line nbr.: xxx"	10000h	OK A:C01.01 _A:C01.02	--
F15	284	"Parameter Y-0-0128 not correct. Line nbr.: xxx"	10000h	OK A:C01.01 _A:C01.02	--
F15	285	"Parameter Y-0-0185 not correct. Line nbr.: xxx"	10000h	OK A:C01.01 _A:C01.02	--
F15	286	"Parameter Y-0-0186 not correct. Line nbr.: xxx"	10000h	OK A:C01.01 _A:C01.02	--
F15	287	"Parameter Y-0-0187 not correct. Line nbr.: xxx"	10000h	OK A:C01.01 _A:C01.02	--
F16	20	"Non-supported drive type "	n = address	OK A:C01.01 _A:C01.02	--
F16	21	"Non-supported drive firmware"	n = address	OK A:C01.01 _A:C01.02	--
F17	105	"Master position value corrupted. Master axis: xx"	10000h	_A:L#.03 _A:L#.01	_E:L#.16
F17	106	"Master speed limit to high (C-30, C-31). Master axis: xx"	10000h	--	--
F17	107	"Master speed limit to high (C-55, C-56). Master axis: xx"	10000h	--	--
F17	109	"C-76, C-2, C-5: Different cycles of master axes"	10000h	OK A:C01.01 _A:C01.02	--
F17	110	"Too many local IO's for cam switches 2 activated (C-0-0049)"	n = address	--	--
F17	111	"Too many DEA cards for cam switches 2 activated (C-49, A-36)"	n = address	OK A:C01.01 _A:C01.02	--
F17	112	"Cam switch 2 - parameters C-49 and A-36 not ok"	n = address	OK A:C01.01 _A:C01.02	--
F18	99	"RM - Master encoder range exceeded (C76 * C144 > Max{P765})"	n = address	OK A:C01.01 _A:C01.02	--
F18	100	"Real master axis - master encoder error"	n = address	_A:C01.02	_E:L#.16
F18	101	"Real master axis - redundant encoder error"	n = address	_A:C01.02	_E:L#.16
F18	102	"RM - Drive with master axis encoder is missing"	n = address	--	--
F18	103	"RM - External encoder feedback need to configure"	n = address	--	--
F18	104	"RM - Redundant ext. encoder feedback need to configure"	n = address	--	--
F21	230	"SERCOS transmission error (no drive responds)"	10000h	OK A:C01.01 _A:C01.02	--
F21	231	"SERCOS interface - transmission error during initialization"	n = address	OK A:C01.01 _A:C01.02	--
F22	199	"Switching to uninitialized operation mode"	n = address	--	_E:F#.14
F23	23	"PPC-parameter inconsistent. Command 'Restore' (Y-0-0014)?"	10000h	--	--
F24	24	"Reinitialization necessary - Reset when changing the phase!"	10000h	--	--
F27	27	"Reset PC interface. Reinitialization DPRAM took place."	10000h	--	--
F32	140	"3964R serial interface overrun"	10000h	_A:C01.03	_E:C01.03

F32	141	"3964R serial interface parity error"	10000h	_A:C01.03	_E:C01.03
F32	142	"3964R serial interface transmission error (frame)"	10000h	_A:C01.03	_E:C01.03
F32	143	"ARCNET - excessive bus reconfiguration"	10000h	_A:C01.03	_E:C01.03
F32	146	"ARCNET telegram buffer: overrun error"	10000h	_A:C01.03	_E:C01.03
F32	147	"Buffer overrun: parameter are changed too fast in sequence!"	10000h	_A:C01.03	_E:C01.03
F33	150	"Communication via the fieldbus is impossible"	10000h	_A:C01.03	--
F33	151	"Fieldbus: Incorrect jumper setting on fieldbus board"	10000h	_A:C01.03	--
F36	36	"Local bus module - External power supply error. Slot-nr: xx"	10000h	--	--
F40	40	"PPC link - link defective"	10000h	_A:C01.04 _A:C01.05	_E:C01.04
F42	42	"PPC link - master position fault (MDT)"	10000h	_A:C01.04	_E:C01.04
F43	43	"PPC link - master position fault (AT)"	n = address	_A:C01.04	_E:C01.04
F44	44	"PPC link - selected link address not permitted"	10000h	DK A:C01.01 _A:C01.02	--
F81	81	"DAQ-board not correct (address-mapping)"	10000h	--	--
F91	91	"SERCOS interface - ASIC: Initialization error"	10000h	DK A:C01.01 _A:C01.02	--
F92	92	"PPC DUAL PORT RAM error"	10000h	DK A:C01.01 _A:C01.02	--
F93	93	"DAQ: SERCOS interface - ASIC: initialization error"	10000h	DK A:C01.01 _A:C01.02	--
F94	94	"PPC hardware version incorrect"	10000h	DK A:C01.01 _A:C01.02	_E:C01.01
F95	4000 + x	"Operating system error" (x = error number)	10000h	DK A:C01.01 _A:C01.02	--
F97	260	"PLC - Firmware version incompatible"	10000h	DK A:C01.01 _A:C01.02	--
F97	261	"PLC - Cycle-counter is dead"	10000h	DK A:C01.01 _A:C01.02	--
F97	262	"PLC reports an error"	10000h	DK A:C01.01 _A:C01.02	--
F97	265	"Timeout PLC task external event 'SERCOS cyclic'"	10000h	DK A:C01.01 _A:C01.02	--
F97	2000 + z	"PLC error"	10000h	DK A:C01.01 _A:C01.02	--
F98	3000 + y	"Drive error"	n = address	_A:F#.10	_E:F#.14

Comments:















~~DK~~A:C01.01: PPC operating ready timing signal does not toggle (= 0 or = 1 static)

~~DK~~A:C01.01: PPC operating ready timing signal toggles

(PPC ready on DEA responds, if _A:C01.01 is on the DEA output _A:D#.16)

3 Diagnoses and fault numbers arranged as per fault number (parameter Y-0-0048)

3.1 Overview

Y-0-0048 error number	Display	Y-0-0047 diagnostic text of PPC system	Y-0-0046 diagnostic info	Binary output	Clear with
--	-01	"FLASH check sum test"	--	--	--
--	-02	"SDRAM test"	--	--	--
--	-04	"Extended check sum test (CRC32)"	--	--	--
--	-05	"Copying the firmware from Flash to SDRAM"	--	--	--
--	-06	"Initialization of the hardware"	--	--	--
--	-07	"Initialization of the operation system"	--	--	--
--	-10 to -1x	"Initializations of the bootloader"	--	--	--
--	-20 to -2x	"Initializations of the SYNAX system"	--	--	--
--	IFS	"Initialization file system/integrated PLC"	--	--	--
0	P0	"PPC in initialization mode"	0	 A:C01.01 _A:C01.02	--
0	P1	"SERCOS interface - phase 1"	0	 A:C01.01 _A:C01.02	--
0	P2	"PPC in parameter mode"	0	 A:C01.01 _A:C01.02	--
0	P3	"SERCOS interface - phase 3"	0	 A:C01.01 _A:C01.02	--
0	bb	"PPC in operation mode"	0	 A:C01.01	--
--	¥01¥ to ¥14¥	"Hardware error"	--	--	--
01	F01	"SERCOS interface - ring break"	10000h	 A:C01.01 _A:C01.02	--
02	F02	"SERCOS interface - no drive connected"	10000h	 A:C01.01 _A:C01.02	--
03	F03	"Error on switching to phase 3"	n = address	 A:C01.01 _A:C01.02	--
04	F04	"Error on switching into operating mode"	n = address	 A:C01.01 _A:C01.02	--
05	F05	"SERCOS interface - double drive telegram failure"	n = address	 A:C01.01 _A:C01.02	--
06	F06	"Fiber optic ring not closed"	10000h	 A:C01.01 _A:C01.02	--
07	F07	"Drive addresses not correct (see Y-0-0002, Y-0-0086)"	10000h	 A:C01.01 _A:C01.02	--
08	F08	"Max. number of drives exceeded"	10000h	 A:C01.01 _A:C01.02	--
09	F09	"Fatal error occurred - PPC reset necessary"	10000h	 A:C01.01	--
10	F10	"PPC-internal memory error"	10000h	_A:C01.02	--
11	F13	"RTC buffering empty, standstill of the system time"	10000h	_A:C01.02	--

3-2 Diagnoses and fault numbers arranged as per fault number (parameter Y-0-0048)Rexroth SYNAX 200

12	F12	"PPC parameter exceeds min/max value (see Y-0-0068)"	10000h	DK A:C01.01 _A:C01.02	--
13	F13	"PPC battery defective"	10000h	_A:C01.02	--
14	F14	"PPC checksum error (see Y-0-0068)"	10000h	DK A:C01.01	--
15	F15	"PPC Parameter not correct (see Y-0-0068)"	10000h	DK A:C01.01 _A:C01.02	--
18	F HW	"PPC/DAQ Hardware defective: CON_CYC-Signal faulty"	10000h	DK A:C01.01 _A:C01.02	--
19	F HW	"PPC hardware defective"	10000h	--	--
20	F16	"Non-supported drive type "	n = address	DK A:C01.01 _A:C01.02	--
21	F16	"Non-supported drive firmware"	n = address	DK A:C01.01 _A:C01.02	--
22	F15	"Parameter value limits: min-limit > max-limit (see Y-0-0068)"	n = address	--	--
23	F23	"PPC-parameter inconsistent. Command 'Restore' (Y-0-0014)?"	10000h	--	--
24	F24	"Reinitialization necessary - Reset when changing the phase!"	10000h	--	--
25	F TN	"PPC in test mode zero bit stream"	10000h	DK A:C01.01 _A:C01.02	--
26	F ON	"PPC in test mode continuous light"	10000h	DK A:C01.01 _A:C01.02	--
27	F27	"Reset PC interface. Reinitialization DPRAM took place."	10000h	--	--
34	F15	"Y-0-0013: Local bus input module missing. Slot-nr: xx"	10000h	--	--
35	F15	"Y-0-0013: Local bus output module missing. Slot-nr: xx"	10000h	--	--
36	F36	"Local bus module - External power supply error. Slot-nr: xx"	10000h	--	--
40	F40	"PPC link - link defective"	10000h	_A:C01.04 _A:C01.05	_E:C01.04
42	F42	"PPC link - master position fault (MDT)"	10000h	_A:C01.04	_E:C01.04
43	F43	"PPC link - master position fault (AT)"	n = address	_A:C01.04	_E:C01.04
44	F44	"PPC link - selected link address not permitted"	10000h	DK A:C01.01 _A:C01.02	--
81	F81	"DAQ-board not correct (address-mapping)"	10000h	--	--
91	F91	"SERCOS interface - ASIC: Initialization error"	10000h	DK A:C01.01 _A:C01.02	--
92	F92	"PPC DUAL PORT RAM error"	10000h	DK A:C01.01 _A:C01.02	--
93	F93	"DAQ: SERCOS interface - ASIC: initialization error"	10000h	DK A:C01.01 _A:C01.02	--
94	F94	"PPC hardware version incorrect"	10000h	DK A:C01.01 _A:C01.02	_E:C01.01
99	F18	"RM - Master encoder range exceeded (C76 * C144 > Max{P765})"	n = address	DK A:C01.01 _A:C01.02	--
100	F18	"Real master axis - master encoder error"	n = address	_A:C01.02	_E:L#.16
101	F18	"Real master axis - redundant encoder error"	n = address	_A:C01.02	_E:L#.16
102	F18	"RM - Drive with master axis encoder is missing"	n = address	--	--
103	F18	"RM - External encoder feedback need to configure"	n = address	--	--

104	F18	"RM - Redundant ext. encoder feedback need to configure"	n = address	--	--
105	F17	"Master position value corrupted. Master axis: xx"	10000h	_A:L#.03 _A:L#.01	_E:L#.16
106	F17	"Master speed limit to high (C-30, C-31). Master axis: xx"	10000h	--	--
107	F17	"Master speed limit to high (C-55, C-56). Master axis: xx"	10000h	--	--
109	F17	"C-76, C-2, C-5: Different cycles of master axes"	10000h	DK A:C01.01 _A:C01.02	--
110	F17	"Too many local IO's for cam switches 2 activated (C-0-0049)"	n = address	--	--
111	F17	"Too many DEA cards for cam switches 2 activated (C-49, A-36)"	n = address	DK A:C01.01 _A:C01.02	--
112	F17	"Cam switch 2 - parameters C-49 and A-36 not ok"	n = address	DK A:C01.01 _A:C01.02	--
140	F32	"3964R serial interface overrun"	10000h	_A:C01.03	_E:C01.03
141	F32	"3964R serial interface parity error"	10000h	_A:C01.03	_E:C01.03
142	F32	"3964R serial interface transmission error (frame)"	10000h	_A:C01.03	_E:C01.03
143	F32	"ARCNET - excessive bus reconfiguration"	10000h	_A:C01.03	_E:C01.03
144	F15	"Y-0-0157/Y-0-0158: Number of entries not equal"	10000h	--	--
145	F15	"Y-0-0157: Ident-number exists twice"	10000h	--	--
146	F15	"ARCNET telegram buffer: overrun error"	10000h	_A:C01.03	_E:C01.03
147	F32	"Buffer overrun: parameter are changed too fast in sequence!"	10000h	_A:C01.03	_E:C01.03
148	F15	"List of UDP ports in Y-0-0194 is too short (see Y-0-0129)"	10000h	--	--
149	F15	"Y-0-0194: UDP port number exists twice"	10000h	--	--
150	F33	"Communication via the fieldbus is impossible"	10000h	_A:C01.03	--
151	F33	"Fieldbus: Incorrect jumper setting on fieldbus board"	10000h	_A:C01.03	--
152	F15	"Interbus: Process data length is not supported (Y-127/128)"	10000h	DK A:C01.01 _A:C01.02	--
153	F15	"Parameter channel: Is supported by Profibus only (Y-33/129)"	10000h	DK A:C01.01 _A:C01.02	--
154	F15	"PCP channel: Is supported by Interbus only (Y-33/129)"	10000h	DK A:C01.01 _A:C01.02	--
155	F15	"Register controller, master axis - no master address (A-169)"	n = address	--	--
156	F15	"Register controller, master axis - no drive addresses (A-87)"	n = address	--	--
157	F15	"Register controller, drive axis - no master addresses (A-169)"	n = address	--	--
158	F15	"Register controller, drive axis - no drive addresses (A-87)"	n = address	--	--
159	F15	"More than 1 register controller per master axis not possible"	n = address	--	--
160	F15	"More than one register controller per axis not possible"	n = address	--	--

3-4 Diagnoses and fault numbers arranged as per fault number (parameter Y-0-0048)Rexroth SYNAX 200

161	F15	"Winding axis must be in speed synchronization (A-0-0003, A-0-0146)"	n = address	--	--
164	F15	"A-0-0008: At IndraDrive one analogue channel exists only"	n = address	DK A:C01.01 _A:C01.02	--
165	F15	"Y-0-0039/Y-0-0040: Number of entries not equal"	10000h	DK A:C01.01 _A:C01.02	--
166	F15	"A-0-0008/Y-0-0039: Activated analogue channel not linked"	n = address	DK A:C01.01 _A:C01.02	--
167	F15	"More than one process controller per axis not possible"	n = address	--	--
168	F15	"Y-0-0040: Multiple entries of target parameter in list"	10000h	DK A:C01.01 _A:C01.02	--
170	F15	"A-0-0027: Ambiguous configuration of the actual value source"	n = address	DK A:C01.01 _A:C01.02	--
171	F15	"Tension controller target address and -value wrong (A-146)"	n = address	--	--
172	F15	"Dancer controlled axis must be speed synchron"	n = address	--	--
173	F15	"More than one tension controller per master not possible"	n = address	--	--
175	F15	"A-0-0030: Process control P-Gain too high"	n = address	DK A:C01.01 _A:C01.02	--
176	F15	"A-0-0146: Analogue channel for process control not defined"	n = address	DK A:C01.01 _A:C01.02	--
177	F15	"A-0-0146: Analogue channel for process control not activated"	n = address	DK A:C01.01 _A:C01.02	--
178	F15	"Tension controlled axis must be speed or phase synchron"	n = address	--	--
179	F15	"More than one tension controller per axis not possible"	n = address	--	--
180	F15	"Parameter A-0-0038 not correct"	n = address	DK A:C01.01 _A:C01.02	--
181	F15	"Y-0-0013: Non-permissible DEA address (see Y-0-0002)"	n = address	DK A:C01.01 _A:C01.02	--
182	F15	"Y-0-0013: Synchronization mode not permissible (A-0-0003)"	n = address	DK A:C01.01 _A:C01.02	--
183	F15	"Y-0-0013: Addressed X-I/O not permissible (see Y-0-0024/Y-0-0033)"	10000h	DK A:C01.01 _A:C01.02	--
184	F15	"Y-0-0013: Idle mode not permissible (see A-0-0009)"	n = address	DK A:C01.01 _A:C01.02	--
185	F15	"Y-0-0013: Positioning mode not permissible (see A-0-0009)"	n = address	DK A:C01.01 _A:C01.02	--
186	F15	"Y-0-0013: Special mode not permissible (see A-0-0070)"	n = address	DK A:C01.01 _A:C01.02	--
187	F15	"Y-0-0013: Non-permissible version of PARA.EXE"	10000 h	DK A:C01.01 _A:C01.02	--
188	F15	"Y-0-0013: Data integrity violated"	10000 h	DK A:C01.01 _A:C01.02	--
189	F15	"Y-0-0013: Non-permissible DEA address (e.g. EcoDrive)"	n = address	DK A:C01.01 _A:C01.02	--
190	F15	"PPC link - other link master already active"	10000 h	DK A:C01.01 _A:C01.02	--
192	F15	"Y-0-0013: PLC-interface not allowed on MC without PLC"	10000h	DK A:C01.01	--

Rexroth SYNAX 200Diagnoses and fault numbers arranged as per fault number (parameter Y-0-0048) 3-5

193	F15	"No different feedbacks selectable (A-0-0003/A-0-0009/A-0-0070)"	n = address	DK A:C01.01 _A:C01.02	--
194	F15	"Phase synchr. & absolute format not possible (see A-0-0001/A-0-0003)"	n = address	DK A:C01.01 _A:C01.02	--
195	F15	"A-0-0003: Drive does not support selected sync. Mode"	n = address	DK A:C01.01 _A:C01.02	--
196	F15	"A-0-0070: Drive does not support selected special mode"	n = address	DK A:C01.01 _A:C01.02	--
198	F15	"Special mode only with PPC-P possible (A-0-0070/A-0-0071/A-0-0072/A-0-0073)"	n = address	DK A:C01.01 _A:C01.02	--
199	F22	"Switching to uninitialized operation mode"	n = address	--	_E:F#.14
205	F15	"Address of side register controller missing (A-25/A-40)"	n = address	--	
206	F15	"Probe detection for the side register controller missing"	n = address	--	--
207	F15	"Side register controller is not parameterized"	n = address	--	--
217	F15	"Too many parameters in MDT configured"	n = address	DK A:C01.01 _A:C01.02	--
218	F15	"Too many parameters in AT configured"	n = address	DK A:C01.01 _A:C01.02	--
220	F15	"A-0-0025: Too many register controllers activated"	n = address	DK A:C01.01 _A:C01.02	--
221	F15	"Serial port A (X10) multiple assigned (Y-0-0005/Y-0-0033)"	10000 h	DK A:C01.01 _A:C01.02	--
222	F15	"Serial port B (X16) multiple assigned (Y-0-0010/Y-0-0033)"	10000 h	DK A:C01.01 _A:C01.02	--
223	F15	"Cam and register control not possible (see A-0-0003/A-0-0025)"	n = address	DK A:C01.01 _A:C01.02	--
224	F15	"Register cont. And oscilloscope not possible (see A-0-0025/Y-0-0107)"	n = address	DK A:C01.01 _A:C01.02	--
225	F15	"Cam/register/osci. Not possible (see A-0-0003/A-0-0025/Y-0-0107)"	n = address	DK A:C01.01 _A:C01.02	--
226	F15	"Drive does not support oscilloscope-function"	n = address	DK A:C01.01 _A:C01.02	--
230	F21	"SERCOS transmission error (no drive responds)"	10000h	_A:C01.02 DK A:C01.01 _A:C01.02	--
231	F21	"SERCOS interface - transmission error during initialization"	n = address	DK A:C01.01 _A:C01.02	--
232	F15	"A-0-0009: Drive does not support selected positioning mode"	n = address	DK A:C01.01 _A:C01.02	--
233	F15	"Drive locked with password (S-0-0267)"	n = address	--	--
236	F15	"Register control only possible with modulo axis (A-0-0001, A-0-0025)"	n = address	--	--
237	F15	"Register controlled axis without synchronization (see A-0-0003)"	n = address	--	--
240	F15	"Cam switches and I/O to DEA4.1 not possible (Y-0-0013, C-0-0049, A-0-0036)"	n = address	--	
241	F15	"Cam switches and I/O not possible (Y-0-0013, C-0-0049) slot-nr: xx"	n = address	DK A:C01.01 _A:C01.02	--
243	F15	"Drive does not support DEA8.1 card"	n = address	--	--
244	F15	"Combination of used functions not possible (relative bits)"	n = address	--	--

3-6 Diagnoses and fault numbers arranged as per fault number (parameter Y-0-0048)Rexroth SYNAX 200

245	F15	"Y-0-0013: Drive waypoints not possible (e. g. EcoDrive)"	n = address	--	--
246	F15	"Signal status word: conf. parameter/bit selection not valid"	n = address	DK A:C01.01 _A:C01.02	--
247	F15	"Signal control word: conf. parameter/bit selection not valid"	n = address	DK A:C01.01 _A:C01.02	--
250	F15	"Target axis must be synchronous axis (A-0-0133, A-0-0156)"	n = address	--	--
251	F15	"Too many group parameters of one group per axis"	n = address	--	--
260	F97	"PLC - Firmware-version incompatible"	10000h	DK A:C01.01 _A:C01.02	--
261	F97	"PLC - Cycle-counter is dead"	10000h	DK A:C01.01 _A:C01.02	--
262	F97	"PLC reports an error"	10000h	DK A:C01.01 _A:C01.02	--
263	F15	"Parameter Y-0-0131 not correct. Line nbr.: xxx"	10000h	DK A:C01.01 _A:C01.02	--
264	F15	"Parameter Y-0-0132 not correct. Line nbr.: xxx"	10000h	DK A:C01.01 _A:C01.02	--
265	F97	"Timeout PLC task external event 'SERCOS cyclic'"	10000h	DK A:C01.01 _A:C01.02	--
280	F15	"Parameter Y-0-0127 not correct. Line nbr.: xxx"	10000h	DK A:C01.01 _A:C01.02	--
281	F15	"Parameter Y-0-0188 not correct. Line nbr.: xxx"	10000h	DK A:C01.01 _A:C01.02	--
282	F15	"Parameter Y-0-0189 not correct. Line nbr.: xxx"	10000h	DK A:C01.01 _A:C01.02	--
283	F15	"Parameter Y-0-0190 not correct. Line nbr.: xxx"	10000h	DK A:C01.01 _A:C01.02	--
284	F15	"Parameter Y-0-0128 not correct. Line nbr.: xxx"	10000h	DK A:C01.01 _A:C01.02	--
285	F15	"Parameter Y-0-0185 not correct. Line nbr.: xxx"	10000h	DK A:C01.01 _A:C01.02	--
286	F15	"Parameter Y-0-0186 not correct. Line nbr.: xxx"	10000h	DK A:C01.01 _A:C01.02	--
287	F15	"Parameter Y-0-0187 not correct. Line nbr.: xxx"	10000h	DK A:C01.01 _A:C01.02	--
2000 + z	F97	"PLC error"	10000h	DK A:C01.01 _A:C01.02	--
3000 + y	F98	"Drive error"	n = address	_A:F#.10	_E:F#.14
4000 + x	F95	"Operating system error" (x = error number)	10000h	DK A:C01.01 _A:C01.02	--

Comments:

~~DK~~ A:C01.01: PPC operating ready timing signal does not toggle (= 0 or = 1 static)

~~DK~~ A:C01.01: PPC operating ready timing signal toggles

(PPC ready on DEA responds, if _A:C01.01 is on the DEA output _A:D#.16)

4 Definition of the error messages

-01 to -2x Initialization messages

During initialization of the PPC, the numbers -01 to -2x are run through. If an error occurs during the initialization, the initialization message remains on the display.

Remedy:

- Contact Bosch Rexroth customer service.

¥01¥ to ¥14¥ Hardware error

Remedy:

- Replace PPC or PSM and send it to Bosch Rexroth customer service.

F HW (18) "PPC/DAQ Hardware defective: CON_CYC-Signal faulty"

Y-0-0048: 18 During the internal hardware check, the PPC detected that the CON_CYC signal was incorrect.

Cause:

- Hardware defective.

Remedy:

- Replace PPC and DAQ and send it to Bosch Rexroth customer service.

F HW (19) "PPC hardware defective"

Y-0-0048: 19 The hardware test of the PPC resulted in an error.

Remedy:

- Replace PPC and send it to Bosch Rexroth customer service.

F TN (25) "PPC in test mode zero bit stream"

Y-0-0048: 25 The test mode "zero bit stream" was selected in parameter "SERCOS interface - configuration" (Y-0-0038). The PPC then sends zero bit current and prevents progression.

Remedy:

- Correct Y-0-0038 and enter initialization mode.

F ON (26) "PPC in test mode continuous light"

Y-0-0048: 26 The test mode "continuous light" was selected in parameter "SERCOS interface - configuration" (Y-0-0038). The PPC then generates a steady light and thus prevents progression.

Remedy:

- Correct Y-0-0038 and enter initialization mode.

F01 (01) "SERCOS interface - ring break"

Y-0-0048: 01 There is a break in the SERCOS interface fiber optic cable ring.

Remedy:

- Switch machine off
- Repair SERCOS interface ring
- Switch machine on

F02 (02) "SERCOS interface - no drives connected"

Y-0-0048: 02 After powering up or progression into operating mode, the PPC attempts to contact the drives via the SERCOS interface (LWL) ring. In this case, the attempt was not successful. The LWL ring is, however, closed.

Cause:

- there is no drive in the LWL ring
- drive address(es) is (are) set to "0"

F03 (03) "Error on switching to phase 3"

Y-0-0048: 03 *Example:* "Parameter incomplete (-> S-0-0021)":

An error occurred when running up the LWL (fiber optic cable) ring prior to reaching an intermediate stage of communications phase 3. The drive diagnoses the error and signals this diagnosis to its parameter "Diagnostic message" (S-0-0095). The PPC then reads this parameter and copies it into parameter "SYNAX - diagnostic text" (Y-0-0047).

Note: "Error on switching to phase 3" is then in parameter "SYNAX - diagnostic text" (Y-0-0047) instead of, e.g., "parameter incomplete" (-> S-0-0021)".

Remedy:

- See drive command error C1/xx

F04 (04) "Error on switching into operating mode"

Y-0-0048: 04 *Example:* "Error master encoder":

An error occurred when running up the LWL ring prior to reaching operating mode. The drive affected diagnosis of the error and signals it to its parameter "Diagnostic message" (S-0-0095). The PPC reads this parameter and copies it into parameter "SYNAX - diagnostic text" (Y-0-0047).

Remedy:

- See drive command error C2/xx.

Note: "Error when switching into operating mode" will be in parameter "SYNAX - diagnostic text" (Y-0-0047) instead of, e.g., "error master encoder".

F05 (05) "SERCOS interface - double drive telegram failure"

Y-0-0048: 05 The telegram of a drive has failed at least twice.

Cause:

- LWL ring is defective
- drive is defective

Remedy:

- repair SERCOS interface ring or
- replace the respective drive

F06 (06) "Fiber optic ring not closed"

Y-0-0048: 06 SYNAX 200 checks, prior to phase progression, whether the LWL (fiber optic cable) ring is closed or not. This diagnosis can only take place during phase progression. SYNAX 200 waits until (without timeout) the LWL ring is closed.

If the LWL ring has closed once, then a break is evaluated as a failure. In this case, the error message "SERCOS interface - ring break" (01) is generated.

Cause:

- The LWL ring is not closed.

Remedy:

- Drive controller not on, check power supply unit.
- Check fiber optic cable ring, make necessary adjustments.

F07 (07) "Drive addresses not correct (see Y-0-0002, Y-0-0086)"

Y-0-0048: 07 The list of drive addresses in Y-0-0002 does not agree with the addresses of the drive that are in the ring.

Cause:

- The connected drive addresses do not correspond to the projected drive addresses (Y-0-0002).
- All projected drive addresses (Y-0-0002) were deactivated (Y-0-0086).

Remedy:

- Correct the number of drives of the drive addresses set.
- Correct the drive addresses set in Y-0-0002.
- Check the addresses set in Y-0-0086 (generally an empty list!)
- Switch into initialization mode.
- Switch into operating mode.

F08 (08) "Max. number of drives exceeded"

Y-0-0048: 08 The parameterization has brought about a state where even an increase in the SERCOS interface cycle time does not suffice to operate the number of drives with the functions which have been set.

Remedy:

- Reduce the number of drives or
- reduce the functions of the drive, i.e., no positioning mode, no tension controller, no idle, fewer analogue channels, fewer process controllers, etc.).

F09 (09) "Fatal error occurred - PPC reset necessary"

Y-0-0048: 09 A serious SERCOS interface error or an operating system error has previously occurred. Any further SYNAX 200 mode progressions are not possible.

A progression is now only possible by switching the PPC off and on or reset the PPC.

Cause:

- SERCOS interface - ring interrupt
- SERCOS interface - double drive telegram failure (e.g., due to loose fiber optic cable connection, a too tight bend radius or a fiber optic cable that is too long and so on.)
- operating system error

Remedy:

- See error 01, error 05 or error 95
- PPC must be turned off and on or reset!

F10 (10) "PPC-internal memory error"

Y-0-0048: 10 The PPC monitors the areas of the RAM on a cyclical basis when in operation mode. This error message is set when an invalid storage entry is detected.

Cause:

- The PPC internal storage monitor detects an invalid entry in the RAM.

Remedy:

- Replace PPC and send it to Bosch Rexroth customer service.

F12 (12) "PPC parameter exceeds min./max. value (see Y-0-0068)"

Y-0-0048: 12 The value of a parameter exceeds its defined min./max. input value. The affected parameters will be entered into the "List of invalid A, C and Y parameters" (Y-0-0068).

Remedy:

- Read out parameter Y-0-0068
- Correct the input value of the respective parameter.

F13 (11) "RTC buffering empty, standstill of the system time"

Y-0-0048: 11 The internal buffering of the PPC real time clock (RTC) is exhausted. The PPC was switched off for more than 5 days (or less with not full loaded buffering).

The system time (Y-0-0159) stopped during switch off time.

This diagnosis only occurs:

1. with PPC-R2x hardware.
2. If the use of the RTC is activated in parameter "PPC - configured options" (Y-0-0531).
3. If the PPC is not configured as link slave.

Remedy:

- Reset the system time Y-0-0159.
- Leave the PPC switched on for several hours to reload the buffering.

F13 (13) "PPC battery defective"

Y-0-0048: 13 The buffer battery of the PPC real time clock (RTC) has reached the end of the life cycle.

If the PPC is switched off, the RTC stands still or is set to the default value of Y-0-0159.

This diagnosis only occurs:

1. with PPC-R0x hardware.
2. If the use of the RTC and the buffer battery is activated in parameter "PPC - configured options" (Y-0-0531).

Remedy:

- Leave the PPC switched on. Change the buffer battery on the top side of the PPC (order designation: battery lithium 3,5V pre-assembled, part no. 226 423).

F14 (14) "PPC checksum error (see Y-0-0068)"

Y-0-0048: 14 The PPC checks the validity of all A/C parameters by means of a checksum. Every parameter that is challenged during this sum is entered in the "List of invalid A, C and Y parameters" (Y-0-0068).

Cause:

- New programming module PSM, parameter was not yet inscribed.
- Parameter loss.

Remedy:

- Load the parameter.
- Write into the challenged parameter, e.g., via SynTop.

F15 General procedure with this PPC display

A list of errors indicating faulty parameterization is a series of subdisplays to this display.

In this case, it is necessary to alter one or more parameters. To do so requires connecting a user interface, e.g., SynTop.

The diagnostic parameters Y-0-0046 through Y-0-0048 specify those parameters which must be changed.

F15 (15) "PPC parameter not correct (see Y-0-0068)"

Y-0-0048: 15 A number of parameters are acknowledged as invalid during the plausibility check. The relevant parameters are entered into the "List of invalid A, C and Y parameters" (Y-0-0068).

Remedy:

- Read out parameter Y-0-0068.
- Correct the input value of the relevant parameter.

F15 (22) "Parameter value limits: min-limit > max-limit (see Y-0-0068)"

Y-0-0048: 22 The parameter value for the minimum limit value exceeds the value for the maximum limit value.

Remedy:

- Minimum and maximum limit values must be changed.

F15 (34) "Y-0-0013: Local bus input module missing. Slot-no: xx"

Y-0-0048: 34 In the I/O logic, the inputs (e.g., _E:Zxx.01) of a non-existent local input modules are used. "xx" are the slot numbers 1 through 15.

Remedy:

- Insert the local bus input module or
- remove the relevant instruction out of the I/O logic.

F15 (35) "Y-0-0013: Local bus output module missing. Slot-nr: xx"

Y-0-0048: 35 In the I/O logic, outputs (e.g., _A:Zxx.01) of a non-existent local bus output module are used. "xx" are the slot numbers 1 through 15.

Remedy:

- Insert the local bus output module or
- remove the relevant instructions out of the I/O logic

F15 (144) "Y-0-0157/Y-0-0158: Number of entries not equal"

Y-0-0048: 144 For the transmission of data blocks accessing drive parameters of deactivated drives, the user can extend the PPC-internal S/P priority list using the parameters Y-0-0157 and Y-0-0158.

While switching from phase 2 to 3, the PPC checks the number of entries in Y-0-0157 and Y-0-0158. Given an unequal number of entries, this error message is generated.

Cause:

- Number of entries in Y-0-0157 and Y-0-0158 not equal.

Remedy:

- To each in Y-0-0157 entered ID number, the corresponding data length must be entered in Y-0-0158 and converted.

F15 (145) "Y-0-0157: Ident-number exists twice"

Y-0-0048: 145 For the transmission of data blocks accessing drive parameters of deactivated drives, the user can extend the PPC-internal S/P priority list using the parameters Y-0-0157 and Y-0-0158.

While switching from phase to 3 the PPC internally sorts the number of entries in "Data blocks - configurable S-/P-parameters, ID-number" (Y-0-0157). If the PPC discovers a double number of ID numbers, then this error message is generated.

Cause:

- ID number double in Y-0-0157.

Remedy:

- Clear the double ID numbers in Y-0-0157.
- If needed, match number and allocation of entries in "Data blocks - configurable S-/P-parameters, ID-number" (Y-0-0157).

F15 (148) "List of UDP ports in Y-0-0194 is too short (see Y-0-0129)"

Y-0-0048: 148 The Ethernet interface supports up to four master. These masters can communicate cyclically with SYNAX as a slave via separate UDP ports as well as acyclically via a shared TCP port.

SYNAX checks during switching from parameterization to operating mode before powering up, if the number of supported Ethernet masters (see "Fieldbus - control bits", Y-0-0129) is not greater than the number of the configured UDP port numbers in the list of the UDP ports (see "PPC - UDP ports", Y-0-0194). Otherwise diagnosis 148 is signaled.

Remedy:

- The number of the configured UDP port numbers (see Y-0-0194) must be increased and the number of the supported Ethernet masters (see Y-0-0129) must be adjusted.

F15 (149) "Y-0-0194: UDP port number exists twice"

Y-0-0048: 149 The Ethernet interface supports up to four master. These masters can communicate cyclically with SYNAX as a slave via separate UDP ports as well as acyclically via a shared TCP port.

SYNAX checks during switching from parameterization to operating mode before powering up, if none of the configured UDP port numbers in the list of the UDP ports (see "PPC - UDP ports", Y-0-0194) exist several times. Otherwise diagnosis 149 is signaled.

Remedy:

- The configured UDP port numbers (see Y-0-0194) must all be different.

F15 (152) "Interbus: Process data length is not supported (Y-127/128)"

Y-0-0048: 152 The established lengths for the process input (Y-0-0127) and output data (Y-0-0128) are not permissible for the Interbus interface.

According to the Interbus standard, the following is not permissible:

- Unequal lengths of process input and output data
- Process data lengths of:
 - 0 words
 - 11 words
 - 13 words
 - 15 words
- more than 16 words (not possible because of the IBS hardware)

Remedy:

- The process data lengths in Y-0-0127 and Y-0-0128 must be configured under observation of the permissible values.

F15 (153) "Parameter channel: Is supported by Profibus only (Y-33/129)"

Y-0-0048: 153 In the "Fieldbus - control bits" (Y-0-0129), the parameter channel is configured though no Profibus interface has been parameterized in the "Host communication - control word" (Y-0-0033).

Remedy:

- The parameters Y-0-0033 and Y-0-0129 must be tuned to each other.

F15 (154) "PCP channel: Is supported by Interbus only (Y-33/129)"

Y-0-0048: 154 In the "Fieldbus - control bits" (Y-0-0129), the PCP channel is configured though no Interbus interface has been parameterized in the "Host communication - control word" (Y-0-0033).

Remedy:

- The parameters Y-0-0033 and Y-0-0129 must be adjusted to each other

F15 (155) "Register controller, master axis - no master address (A-169)"

Y-0-0048: 155 Register controller affects master axis is set in parameter A-0-0107. But there are no master addresses entered in parameter "Process control - master axis addresses" (A-0-0169).

Remedy:

- Enter the address of the master axis to control in parameter "Process control - master axis addresses" (A-0-0169).

F15 (156) "Register controller, master axis - no drive addresses (A-87)"

Y-0-0048: 156 Register controller affects master axis is set in parameter A-0-0107. But there are addresses entered for the control affects following axis in parameter "Process control - drive addresses" (A-0-0087).

Remedy:

- Clear drive addresses in parameter "Process control - drive addresses" (A-0-0087).

F15 (157) "Register controller, drive axis - no master addresses (A-169)"

Y-0-0048: 157 Register controller affects following axis is set in parameter A-0-0107. But there are addresses entered for the control affects master axis in parameter "Process control - master axis addresses" (A-0-0169).

Remedy:

- Clear master axis addresses in parameter "Process control - master axis addresses" (A-0-0169).

F15 (158) "Register controller, drive axis - no drive addresses (A-87)"

Y-0-0048: 158 Register controller affects following axis is set in parameter A-0-0107. But there are no drive addresses entered for the controller affects following axis in parameter "Process control - drive addresses" (A-0-0087).

Remedy:

- Enter drive addresses of the axis to control in parameter "Process control - drive addresses" (A-0-0087).

F15 (159) "More than 1 register controller per master axis not possible"

Y-0-0048: 159 More than one register controller is working the specified master axis or one master axis is entered several times in parameter A-0-0169.

Remedy:

- Deactivate register controller (A-0-0025)
- Correct register controlled axes (A-0-0169)

F15 (160) "More than one register controller per axis not possible"

Y-0-0048: 160 More than one register controller is working the specified axis.

Remedy:

- Deactivate register controller (A-0-0025)
- Correct register controlled axes (A-0-0087)

F15 (161) "Winding axis must be in speed synchronization (A-0-0003, A-0-0146)"

C-0-0048: 161 The winding function (see "Process control - control word 2", A-0-0146) for the specified axis (see Y-0-0046) is activated.

This winding axis must be speed synchronous.

Remedy:

- Deactivate the winding ("Process control - control word 2", A-0-0146) or
- parameterize the winding axis as a speed synchronous axis ("Synchronization mode", A-0-0003).

F15 (164) "A-0-0008: At IndraDrive one analogue channel exists only"

Y-0-0048: 164 It was tried to activate analogue channel 2 (A-0-0008 "Analogue channels - analogue input control word", bit 1) at an IndraDrive. But only the analogue channel 1 is available.

Remedy:

- Do not activate analogue channel 2.

F15 (165) "Y-0-0039/Y-0-0040: Number of entries not equal"

Y-0-0048: 165 The parameters
"Analogue channels - select source parameters" (Y-0-0039) and
"Analogue channels - select target parameters" (Y-0-0040)
are of unequal length.

Remedy:

- Correct the input value of the parameter.

F15 (166) "A-0-0008/Y-0-0039: Activated analogue channel not linked"

Y-0-0048: 166 An analogue input activated in parameter "Analogue channels - analogue input control word" (A-0-0008) is not linked to parameter "Analogue channels - select source parameters" (Y-0-0039).

Remedy:

- Deactivate the channel in "Analogue channels - analogue input control word" (A-0-0008) or
- Change "Analogue channels - select source parameters" (Y-0-0039).

F15 (167) "More than one process controller per axis not possible"

Y-0-0048: 167 More than one process controller has been activated, see "Process control - control word 1" (A-0-0025) or "Process control - control word 2" (A-0-0146).

Each slave axis may only activate one process controller.

Remedy:

- Deactivate process controller ("Process control - control word 1" (A-0-0025) or "Process control - control word 2" (A-0-0146)).

F15 (168) "Y-0-0040: Multiple entries of target parameter in list"

Y-0-0048: 168 When checking the list "Analogue channels - select target parameters" (Y-0-0040) at least one double available target parameter was found.

Remedy:

- Remove double available target parameters from the list.

F15 (170) "A-0-0027: Ambiguous configuration of the actual value source"

Y-0-0048: 170 The actual values (A-0-0027) of a process controller with sensor (tension controller with load cell, dancer controller, winding controller with load cell or dancer) can be written either via the analog channels or via the communication interfaces. The selection of the actual value source must be determined clearly.

In parameter "Process control - control word 2" (A-0-0146) bit 9 is available for the selection of the actual value source.

With analog channels as actual value source (bit 9 = 0) the "Process actual value" (A-0-0027) must be configured in the list "Analogue channels - select target parameters" (Y-0-0040) and an analog channel must be activated in "Analogue channels - analogue input control word" (A-0-0008) to activate the process controller.

With the communication interfaces as actual value source (bit 9 = 1) the parameter A-0-0027 may not be entered in the selection list Y-0-0040 for the analog channels and no analog channel may be active in A-0-0008, because otherwise the source for the actual values of the process controller is not identified clearly.

In this case SYNAX error 170 is displayed and the run-up to parameterization mode is terminated.

Remedy:

- Either clear bit 9 in "Process control - control word 2" (for the selection of the analog channels) or delete parameter A-0-0027 from "Analogue channels - select target parameters" and deactivate the analog channels in "Analogue channels - analogue input control word" (for the selection of the communication interfaces).

F15 (171) "Tension controller target address and -value wrong (A-146)"

Y-0-0048: 171 A tension controller with load cell is parameterized, but the parameterization in parameter "Process control - control word 2" (A-0-0146) for the selection of the target address (bit 6,7) and for the selection of the target value (bit 8) does not match.

Cause:

- Parameter "Process control - control word 2" (A-0-0146) is parameterized wrong.

Remedy:

- Reparameterize bits 6, 7 and 8 in parameter A-0-0146.

F15 (172) "Dancer controlled axis must be speed synchron"

Y-0-0048: 172 The specified axis (see A-0-0146) is parameterized as a dancer controlled axis (see "Process control - control word 2", A-0-0146). This dancer controlled axis must be speed synchronous.

Remedy:

- Deactivate tension controller with dancer ("Process control - control word 2", A-0-0146)
- Parameterize the tension controller with dancer as a speed synchronous axis.

F15 (173) "More than one tension controller per master not possible"

Y-0-0048: 173 More than one tension controller is working the specified master axis, or one master axis address is entered several time in parameter A-0-0169.

Remedy:

- Deactivate tension controller (A-0-0146).
- Correct tension controlled axis (A-0-0169).

F15 (175) "A-0-0030: Process control P-gain too high"

Y-0-0048: 175 An error in calculation would result from the value set in "Process controller - proportional gain 1" (A-0-0030) (value too big).

Remedy:

- Reduce parameter "Process controller - proportional gain 1" (A-0-0030).

F15 (176) "A-0-0146: Analogue channel for process control not defined"

Y-0-0048: 176 A process controller has been set in the relevant axis (for address see "SYNAX - error source" (Y-0-0046)).

Via parameter "Analogue channels - select target parameters" (Y-0-0040) the actual value for the process controller "Process actual value" (A-0-0027) must be allocated to an analogue input.

Remedy:

- Define an analogue input for the parameter "Process actual value" (A-0-0027) or
- Deactivate the process controller in "Process control - control word 2" (A-0-0146).

F15 (177) "A-0-0146: Analogue channel for the process control not activated"

Y-0-0048: 177 A process controller has been set in the relevant axis (for address see "SYNAX - error source" (Y-0-0046)).

An analogue channel must be activated via parameter

- "Analogue channels - analogue input control word" (A-0-0008),
- "Analogue channels - select source parameters" (Y-0-0039) or
- "Analogue channels - select target parameters" (Y-0-0040).

Remedy:

- Activate an analogue input for parameter "Process actual value" (A-0-0027) or
- Deactivate process controller in "Process control - control word 2" (A-0-0146).

F15 (178) "Tension controlled axis must be speed or phase synchron"

Y-0-0048: 178 A tension controller (see "Process control - control word 2", A-0-0146) is activated for the specified address (see Y-0-0046). The axes controlled by this tension controller must be speed or phase synchronous.

Remedy:

- Deactivate tension controller ("Process control - control word 2", A-0-0146)
- Parameterize the tension-controlled axes as speed or phase synchronous axes ("Synchronization mode", A-0-0003)

F15 (179) "More than one tension controller per axis not possible"

Y-0-0048: 179 More than one tension controller is working the specified axis.

Remedy:

- Deactivate tension controller ("Process control - control word 2", A-0-0146)
- Correct tension controlled axes ("Process control - drive addresses", A-0-0087)

F15 (180) "Parameter A-0-0038 not correct"

Y-0-0048: 180 When switching from parameterization into operating mode, the PPC transmits the parameter "Bipolar torque limit" (A-0-0038) into the drive parameter "Bipolar torque/force limit value" (S-0-0092). If this should fail, then the above error message is generated.

Remedy:

- Read out parameter "Bipolar torque/force limit value" (S-0-0092) from drive.
- If parameter S-0-0092 is in the drive, then note the min./max. of this value. Correct operating data of A-0-0038 and "Bipolar torque limit - reduced" (A-0-0037).
- If parameter S-0-0092 is not in drive, then contact Bosch Rexroth customer service.

F15 (181) "Y-0-0013: Non-permissible DEA address (see Y-0-0002)"

Y-0-0048: 181 There are inputs and outputs of the DEA in the I/O logic, e.g., `_E:D03.01`) which point to addresses of drives not accommodated for in the ring, see "Addresses projected drives" (Y-0-0002).

Remedy:

- Remove the respective inputs in the I/O logic.
- Generate a configuration which contains the required addresses.

F15 (182) "Y-0-0013: Synchronization mode not permissible (A-0-0003)"

Y-0-0048: 182 Input "Synchronization mode" (`_E:F#.05`) is not in the I/O logic, but the synchronization mode of the relevant drive is deactivated (A-0-0003).

Remedy:

- Remove the respective inputs from the I/O logic.
- Activate synchronization mode.

F15 (183) "Y-0-0013: Addressed X-I/O not permissible (see Y-0-0024/Y-0-0033)"

Y-0-0048: 183 X I/Os have been used in the I/O logic, but none of the following conditions have been met:

- The PPC is a PC plug-in card (PPC-P). The X I/Os, in this case, are on the dual port RAM.
- Transmission via a serial interface (legal only with PPC-R) has been set in "Host communication - control word" (Y-0-0033). The X I/Os, in this case, are on the serial interface.

Parameter "PPC - hardware version" (Y-0-0024) will tell whether this is a PPC-P or PPC-R.

Remedy:

- Remove the relevant inputs from the I/O logic.
- If necessary, correct parameter "Host communication - control word" (Y-0-0033).
- Contact Bosch Rexroth customer service.

F15 (184) "Y-0-0013: Idle mode not permissible (see A-0-0009)"

Y-0-0048: 184 The input "Idle mode" (`_E:F#.06`) is in the I/O logic, but the idle mode of the relevant drive has been deactivated (A-0-0009).

Remedy:

- Remove the relevant input in the I/O logic.
- Activate idle mode.

F15 (185) "Y-0-0013: Positioning mode not permissible (see A-0-0009)"

Y-0-0048: 185 Input "Positioning mode" (_E:F#.04) is in the I/O logic, but the positioning mode of the relevant drive has been deactivated (A-0-0009).

Remedy:

- Remove the respective input in the I/O logic.
- Activate positioning mode.

F15 (186) "Y-0-0013: Special mode not permissible (see A-0-0070)"

Y-0-0048: 186 Input "Special operation mode" (_E:F#.23) is in the I/O logic, but no special mode has been set for the relevant drive (A-0-0070 = 0).

Remedy:

- Remove the relevant input in the I/O logic.
- Activate special mode.

F15 (187) "Y-0-0013: Non-permissible version of PARA.EXE"

Y-0-0048: 187 The source file of the I/O logic (*.TXT) was translated with the wrong program (PARA.EXE). The file thus translated (*.ASC) will not run.

Remedy:

- Use the correct PARA.EXE version.

F15 (188) "Y-0-0013: Data integrity violated"

Y-0-0048: 188 The I/O logic contains false data and cannot run.

Cause:

- The I/O logic was not successfully loaded.
- Parameter "I/O assignment of internal/external I/Os" (Y-0-0013) was manually altered.

Remedy:

- Retranslate the I/O logic (*.TXT) with PARA.EXE.
- Load the translated I/O logic (*.ASC).

F15 (189) "Y-0-0013: Non-permissible DEA address (e.g., EcoDrive)"

Y-0-0048: 189 Inputs and outputs are in the I/O logic, e.g., _E:D03.01 which point to addresses of drives which do not contain a DEA.

Remedy:

- Remove the relevant inputs in the I/O logic or
- generate a configuration with a drive with DEA at the respective address.

F15 (190) "PPC-link - other link master already active"

Y-0-0048: 190 There are several link masters in the master axis link.

Cause:

- Each link participant parameterized as a link master checks whether another link master is already present or not. If there is, then this error message is generated and the PPC remains passive within the PPC link.

Remedy:

- Check parameter Y-0-0102 of all the PPCs. The LED H11 and H12 displays whether a DAQ has been configured as a link master or slave.

F15 (192) "Y-0-0013: PLC-Interface not allowed on MC without PLC"

Y-0-0048: 192 **Cause:**
The functions are only available if the MC is linked to an PLC.

Remedy:

- Change the I/O logic: Y-0-0013 renew load.

F15 (193) "No different feedbacks selectable (A-0-0003/A-0-0009/A-0-0070)"

Y-0-0048: 193 It is not permitted to use different encoders to position control the drive.
Example: phase synchronization on the external encoder (A-0-0003 = 0x900B) and positioning on the motor controller (A-0-0009 = 0x13)

Remedy:

- Correct A-0-0003, A-0-0009 and A-0-0070.

F15 (194) "Phase synchronization & absolute format not possible (see A-0-0001/A-0-0003)"

Y-0-0048: 194 Combining phase synchronization and absolute format is illegal.

Remedy:

- Change parameter "Axis type" (A-0-0001) or "Synchronization mode" (A-0-0003).

F15 (195) "A-0-0003: Drive does not support selected sync. mode"

Y-0-0048: 195 The relevant drive will not support the synchronization mode specified in A-0-0003 although the value parameterized in A-0-0003 was acknowledged as correct by the PPC.

Example: An application of the external encoder was parameterized although there is no external encoder.

Remedy:

- Check and change parameter "Synchronization mode" (A-0-0003).

F15 (196) "A-0-0070: Drive does not support selected special mode"

Y-0-0048: 196 The relevant drive does not support the special mode entered in A-0-0070 although the parameterized value in A-0-0070 was acknowledged as correct by the PPC.

Example: An application of the external encoder was parameterized although there is no external encoder.

Remedy:

- Check and change parameter "Special operation mode" (A-0-0070).

F15 (198) "Special mode only with PPC-P possible (A-0-0070/A-0-0071/A-0-0072/A-0-0073)"

Y-0-0048: 198 A PPC-P is needed for the selected configuration of the special operating modes.

Cause:

- If special operating modes with real-time data exchange are parameterized via the DUAL port RAM, then a PPC-P is needed.

Remedy:

- Correct parameters A-0-0070, A-0-0071, A-0-0072 and A-0-0073.
- Use a PPC-P.

F15 (205) "Address of side register controller missing (A-25/A-40)"

Y-0-0048: 205 A circumferential register controller with side register controller or a probe detection for a side register controller were parameterized in parameter "Process control - control word 1" (A-0-0025). There was no drive address parameterized for the corresponding side register in parameter "Drive address side register controller" (A-0-0040).

Remedy:

- Enter the drive address for the corresponding side register controller in parameter "Drive address side register controller" (A-0-0040).

F15 (206) "Probe detection for the side register controller missing"

Y-0-0048: 206 A side register controller was parameterized in parameter "Process control - control word 1" (A-0-0025). There was no circumferential register controller or a relating probe detection parameterized on any other axis.

Remedy:

- Parameterize a circumferential register controller or a probe detection in parameter "Process control - control word 1" (A-0-0025) at the axis where the probe sensor was connected and parameterize the address of the side register controller on this axis in parameter "Drive address side register controller" (A-0-0040).

F15 (207) "Side register controller is not parameterized"

Y-0-0048: 207 A circumferential register controller with corresponding side register controller or a probe detection were parameterized in parameter "Process control - control word 1" (A-0-0025). There was no side register controller parameterized on the side register controller axis.

Remedy:

- Parameterize a side register controller on the side register controller axis in parameter "Process control - control word 1" (A-0-0025).

F15 (217) "Too many parameters in MDT configured"

Y-0-0048: 217 The number of the parameters configured in the MDT (S-0-0024) is too big.

Cause:

- Too many functions have been activated for this axis.

Remedy:

Minimize configuration of this axis with the following functions:

- register control
- winding control
- operating mode selection
- DEA04/DEA08

F15 (218) "Too many parameters in AT configured"

Y-0-0048: 218 The number of the parameters configured in the AT (S-0-0016) is too big.

Cause:

- Too many functions have been activated for this axis.

Remedy:

Minimize configuration of this axis with the following functions:

- register control
- winding control
- analog channels
- drive cams
- DEA04/DEA08

F15 (220) "A-0-0025: Too many register controllers activated"

Y-0-0048: 220 Too many register controllers have been activated.

Remedy:

- Deactivate register controller (see A-0-0025).
- Runup into operating mode again.

F15 (221) "Serial port A (X10) multiple assigned (Y-0-0005/Y-0-0033)"

Y-0-0048: 221 There is a multiple allocation of serial port A (X10) due to incorrect parameterization.

Note: Settings of the serial port can also be made via jumper S1 and display H1 of the PPC.

Note: Pressing and holding the S1 button after the PPC (after -10) has been switched on will cause a default setting of the communication parameters Y-0-0005 and Y-0-0033. As a result, SynTop communicates at X10 with RS232 and at 19200 baud. The parameters Y-0-0005 and Y-0-0033 must then be reparameterized using SynTop.

Remedy:

Change the parameters:

- "Serial Port A device type" (Y-0-0005) or
- "Host communication - control word" (Y-0-0033).

F15 (222) "Serial port B (X16) multiple assigned (Y-0-0010/Y-0-0033)"

Y-0-0048: 222 There is multiple allocation of serial interface B (X16) due to faulty parameterization.

Note: Settings of the serial port can also be made via jumper S1 and display H1 of the PPC.

Remedy:

Change parameters:

- "Serial Port B device type" (Y-0-0010) or
- "Host communication - control word" (Y-0-0033).

F15 (223) "Cam and register control not possible (see A-0-0003/A-0-0025)"

Y-0-0048: 223 The functions cam and register controller with time measurement cannot be conducted simultaneously.

Remedy:

Change parameter:

- "Operating mode" (A-0-0003) and
- "Process control - control word 1" (A-0-0025).

**F15 (224) "Register cont. and oscilloscope not possible
(see A-0-0025/Y-0-0107)"**

Y-0-0048: 224 The functions register controller with time measurement and oscilloscope function cannot be conducted simultaneously.

Remedy:

Change parameters:

- "Process control - control word 1" (A-0-0025) and
- "Oscilloscope function - control word" (Y-0-0107)

**F15 (225) "Cam/register/osci. not possible
(see A-0-0003/A-0-0025/Y-0-0107)"**

Y-0-0048: 225 The functions cam, register controller and oscilloscope cannot be conducted simultaneously.

Remedy:

Change parameters:

- "Synchronization mode" (A-0-0003)
- "Process control - control word 1" (A-0-0025)
- "Oscilloscope function - control word" (Y-0-0107)
- "Oscilloscope function - drive addresses" (Y-0-0108)

F15 (226) "Drive does not support oscilloscope function"

Y-0-0048: 226 A drive was configured in parameter "Oscilloscope function - drive addresses" (Y-0-0108) which does not support the oscilloscope function.

Remedy:

- Remove the address entered in "SYNAX - error source" (Y-0-0046) from the parameter "Oscilloscope function - drive addresses" (Y-0-0108).

F15 (232) "A-0-0009: Drive does not support selected positioning mode"

Y-0-0048: 232 The relevant drive does not support the positioning parameterized in A-0-0009.

Remedy:

- Check and change parameter "Configuration idle mode / positioning mode" (A-0-0009).

F15 (233) "Drive locked with password (S-0-0267)"

Y-0-0048: 233 Using parameter "Password" (S-0-0267) the drive can be locked against parameter changes.
SYNAX 200 needs drives that are not locked.

Remedy:

- Unlock password, see "Password" (S-0-0267).
- Call Bosch Rexroth.

F15 (236) "Register control only possible with modulo axis (see A-0-0001, A-0-0025)"

Y-0-0048: 236 A register controller axis (see A-0-0025) must be a modulo axis (see A-0-0001).

Remedy:

- A-0-0001 or A-0-0025 must be re-parameterized

F15 (237) "Register controlled axis without synchronization (see A-0-0003)"

Y-0-0048: 237 The specified axis is controlled by the register controller. This necessitates the parameterization of a synchronization operating mode.

Remedy:

- Change the "Process control - drive addresses" (A-0-0087) of the register controller axis.
- Change the "Synchronization mode" (A-0-0003) of the specified axis.

F15 (240) "Cam switches and I/O to DEA4.1 not possible (Y-0-0013, C-0-0049, A-0-0036)"

Y-0-0048: 240 Cams and I/O logic outputs were used on the same DEA04 drive.

Remedy:

- Deactivate cam switch 2 (parameter "Cam switch group 2 - control word", C-0-0049).
- Output cam switch 2 at different DEA04, DEA08 or local RECO I/Os (parameter "DEA - Configuration as cam switches for master axis", A-0-0036; parameter "Cam switch group 2 - control word", C-0-0049).
- Output I/O logic outputs to different DEA04, DEA08 or local RECO I/Os (parameter "I/O - assignment of internal/external I/Os", Y-0-0013).

F15 (241) "Cam switches and I/O not possible. (Y-0-0013, C-0-0049) slot-nr: xx"

Y-0-0048: 241 Cams and I/O logic outputs were used on the local bus output module. "xx" are the slot numbers 1 through 15.

Remedy:

- Deactivate cam switch 2 (parameter "Cam switch group 2 - control word", C-0-0049).
- Output the outputs of the cam switch 2 on a different local bus output module (parameter "Cam switch group 2 - control word", C-0-0049).
- Output the outputs of the cam switch 2 on drive DEA (parameter "DEA - Configuration as cam switches for master axis", A-0-0036; parameter "Cam switch group 2 - control word", C-0-0049).
- Output the outputs of the I/O logic on other DEA04, DEA08 or a different local output module (parameter "I/O - assignment of internal/external I/Os", Y-0-0013).

F15 (243) "Drive does not support DEA8.1 card"

Y-0-0048: 243 A DEA08 card was used for the specified drive in the I/O logic or in the cam switch 2.

The drive does not support this DEA08 however.

Remedy:

- Change I/O logic (e.g., DEA04) or
- do not parameterize the cam switch 2 to the DEA08.

F15 (244) "Combination of used functions not possible (real time bits)"

Y-0-0048: 244 So called real-time bits are needed via functions

- cam axis (A-0-0003)
- oscilloscope functions (Y-0-0108)
- register controller (A-0-0025)
- relative positioning (A-0-0070)

Of these, only two are present.

Too many of the listed functions were activated for the specified drive address.

Only a maximum of two functions may be activated.

Remedy:

- Deactivate functions not required.

F15 (245) "Y-0-0013: Drive waypoints not possible (e. g. EcoDrive)"

Y-0-0048: 245 The I/O logic (VKL) is trying to actuate drive cams (A:Wxx.yy). They are not available in the drive (P-0-0135).

Remedy:

- Change VKL.

F15 (246) "Signal status word: conf. parameter/bit selection not valid"

- Y-0-0048: 246 With an IndraDrive it was tried,
- either -
- to configure a parameter in "Configuration list signal status word (IndraDrive-M)" (A-0-0051) that is not contained in "IDN list of configurable data in the signal status word" (S-0-0398),
- or (and)-
- to switch to operating mode with different length configured in the correlating parameters "Configuration list signal status word (IndraDrive-M)" (A-0-0051) and "Assign list signal status word (IndraDrive-M)" (A-0-0052) .

In this case with phase switching to operating mode the diagnostic message is displayed.

Remedy:

- Enter permissible parameters only from the selection list S-0-0398 to the configuration list A-0-0051.
- Adjust the length of the correlating lists A-0-0051 and A-0-0052.

F15 (247) "Signal control word: conf. parameter/bit selection not valid"

- Y-0-0048: 247 With an IndraDrive it was tried,
- either -
- to configure a parameter in "Configuration list signal control word (IndraDrive-M)" (A-0-0053) that is not contained in "IDN list of configurable data in the signal control word" (S-0-0399),
- or (and)-
- to switch to operating mode with different length configured in the correlating parameters "Configuration list signal control word (IndraDrive-M)" (A-0-0053) and "Assign list signal control word (IndraDrive-M)" (A-0-0054).

In this case with phase switching to operating mode the diagnostic message is displayed.

Note: If a bit is configured in "Assign list signal control word (IndraDrive-M)" (A-0-0054) that is already allocated (fix by SYNAX or free by the user) in the corresponding parameter (from the configuration list A-0-0053), SYNAX cancels the run-up to operating mode in phase 3 with drive error "Multiple configuration of a parameter (-> S-0-0022)" (C0242).

Remedy:

- Enter permissible parameters only from the selection list S-0-0399 to the configuration list A-0-0053.
- Adjust the length of the correlating lists A-0-0053 and A-0-0054.
- The individual bits of a configured parameter may not be allocated multiple.

F15 (250) "Target axis must be synchronous axis (A-0-0133, A-0-0156)"

Y-0-0048: 250 The group command value additive 1 (A-0-0132) or the group command value additive 2 (A-0-0155) can only affect synchronous (speed synchronous, phase-synchronous and cam) axes.

Axes have, however, been entered in parameter "Group command value 1 - drive addresses" (A-0-0133) or "Group command value 2 - drive addresses" (A-0-0156) that do not meet this condition.

Remedy:

- Correct the addresses in A-0-0133 or A-0-0156 or
- change synchronization mode in A-0-0003.

F15 (251) "Too many group parameters of one group per axis"

Y-0-0048: 251 Only one group parameter per group can effect an axis.

More than one group parameter link per group (one or two) is, however, present for the specified drive address.

Remedy:

- Check parameter "Group command value 1 - drive addresses" (A-0-0133) and "Group command value 2 - drive addresses" (A-0-0156) of all axes and ensure that no drive address has been entered or is listed twice.

There are group parameters of group 1 and group 2 at one axis possible.

F15 (263) "Parameter Y-0-0131 not correct. Line nbr.: xxx"

Y-0-0048: 263 There's a parameter entered in Y-0-0131 that is not permissible for the following reasons:

3. list parameter ,
4. using S or P parameters the data length must be known by the PPC internal preferred list or by parameters Y-0-0157/Y-0-0158,
5. the configuration of the parameters Y-0-0200 to Y-0-0463 is not useful and therefore not permitted.

"xxx" in the error number stands for the line number in parameter Y-0-0131

Remedy:

- Parameterize Y-0-0131 correctly or make the data length known with Y-0-0157/Y-0-0158 when using S and P parameters.

F15 (264) "Parameter Y-0-0132 not correct. Line nbr.: xxx"

Y-0-0048: 264 There's a parameter entered in Y-0-0132 that is not permissible for the following reasons:

1. list parameters,
2. parameter write protected in operating mode,
3. using S or P parameters the data length must be known by the PPC internal preferred list or by parameters Y-0-0157/Y-0-0158.
4. the configuration of the parameters Y-0-0200 to Y-0-0463 is not useful and therefore not permitted.

"xxx" in the error number stands for the line number in parameter Y-0-0132.

Remedy:

- Parameterize Y-0-0132 correctly or make the data length known with Y-0-0157/Y-0-0158 when using S and P parameters.

F15 (280) "Parameter Y-0-0127 not correct. Line nbr.: xxx"

Y-0-0048: 280 The content of the configuration list Y-0-0127 for the process input data is not correct. The fault identified first appears in line xxx. The following faults can occur:

- **No line number xxx is shown:**
The process data length is greater than the permissible 32 words.
- **Line number xxx points out the element behind the last list entry:**
The configuration element for the end of the static part (Y-0-0197) or the end of a multiplex level (Y-0-0198) as termination of the configuration list is missing.
- **Configuration element Y-0-0197 is shown in line xxx:**
In the parameter list for the static part of the process data channel, there is already a configuration element for the end of a multiplex level (Y-0-0198).
- **Configuration element Y-0-0198 is shown in line xxx :**
Too many multiplex levels have been configured.
- **In line xxx, a parameter (and no configuration element) is shown**
The parameter configured in line xxx does not exist or is not permissible (e.g. list parameter). With S and P parameters, the data length must be known via the PPC-internal preferred list, or by means of Y-0-0157/Y-0-0158.

Remedy:

- Parameterize Y-0-0127 correctly, respectively with S or P parameters, make known the data lengths by the user-defined lists Y-0-0157 and Y-0-0158.

F15 (281) "Parameter Y-0-0188 not correct. Line nbr.: xxx"

Y-0-0048: 281 The content of the configuration list Y-0-0188 for the process input data is not correct. The fault identified first appears in line xxx. The following faults can occur:

- **No line number xxx is shown:**
The process data length is greater than the permissible 32 words.
- **Line number xxx points out the element behind the last list entry:**
The configuration element for the end of the static part (Y-0-0197) or the end of a multiplex level (Y-0-0198) as termination of the configuration list is missing.
- **Configuration element Y-0-0197 is shown in line xxx:**
In the parameter list for the static part of the process data channel, there is already a configuration element for the end of a multiplex level (Y-0-0198).
- **Configuration element Y-0-0198 is shown in line xxx :**
Too many multiplex levels have been configured.
- **In line xxx, a parameter (and no configuration element) is shown**
The parameter configured in line xxx does not exist or is not permissible (e.g. list parameter). With S and P parameters, the data length must be known via the PPC-internal preferred list, or by means of Y-0-0157/Y-0-0158.

Remedy:

- Parameterize Y-0-0188 correctly, respectively with S or P parameters, make known the data lengths by the user-defined lists Y-0-0157 and Y-0-0158.

F15 (282) "Parameter Y-0-0189 not correct. Line nbr.: xxx"

Y-0-0048: 282 The content of the configuration list Y-0-0189 for the process input data is not correct. The fault identified first appears in line xxx. The following faults can occur:

- **No line number xxx is shown:**
The process data length is greater than the permissible 32 words.
- **Line number xxx points out the element behind the last list entry:**
The configuration element for the end of the static part (Y-0-0197) or the end of a multiplex level (Y-0-0198) as termination of the configuration list is missing.
- **Configuration element Y-0-0197 is shown in line xxx:**
In the parameter list for the static part of the process data channel, there is already a configuration element for the end of a multiplex level (Y-0-0198).
- **Configuration element Y-0-0198 is shown in line xxx :**
Too many multiplex levels have been configured.
- **In line xxx, a parameter (and no configuration element) is shown**
The parameter configured in line xxx does not exist or is not permissible (e.g. list parameter). With S and P parameters, the data length must be known via the PPC-internal preferred list, or by means of Y-0-0157/Y-0-0158.

Remedy:

- Parameterize Y-0-0189 correctly, respectively with S or P parameters, make known the data lengths by the user-defined lists Y-0-0157 and Y-0-0158.

F15 (283) "Parameter Y-0-0190 not correct. Line nbr: xxx"

Y-0-0048: 283 The content of the configuration list Y-0-0190 for the process input data is not correct. The fault identified first appears in line xxx. The following faults can occur:

- **No line number xxx is shown:**
The process data length is greater than the permissible 32 words.
- **Line number xxx points out the element behind the last list entry:**
The configuration element for the end of the static part (Y-0-0197) or the end of a multiplex level (Y-0-0198) as termination of the configuration list is missing.
- **Configuration element Y-0-0197 is shown in line xxx:**
In the parameter list for the static part of the process data channel, there is already a configuration element for the end of a multiplex level (Y-0-0198).
- **Configuration element Y-0-0198 is shown in line xxx :**
Too many multiplex levels have been configured.
- **In line xxx, a parameter (and no configuration element) is shown**
The parameter configured in line xxx does not exist or is not permissible (e.g. list parameter). With S and P parameters, the data length must be known via the PPC-internal preferred list, or by means of Y-0-0157/Y-0-0158.

Remedy:

- Parameterize Y-0-0190 correctly, respectively with S or P parameters, make known the data lengths by the user-defined lists Y-0-0157 and Y-0-0158.

F15 (284) "Parameter Y-0-0128 not correct. Line nbr.: xxx"

Y-0-0048: 284 The content of the configuration list Y-0-0128 for the process output data is not correct. The fault identified first appears in line xxx. The following faults can occur:

- **No line number xxx is shown:**
The process data length is greater than the permissible 32 words.
- **Line number xxx points out the element behind the last list entry:**
The configuration element for the end of the static part (Y-0-0197) or the end of a multiplex level (Y-0-0198) as termination of the configuration list is missing.
- **Configuration element Y-0-0197 is shown in line xxx:**
In the parameter list for the static part of the process data channel, there is already a configuration element for the end of a multiplex level (Y-0-0198).
- **Configuration element Y-0-0198 is shown in line xxx :**
Too many multiplex levels have been configured.
- **In line xxx, a parameter (and no configuration element) is shown**
The parameter configured in line xxx does not exist or is not permissible (e.g. list parameter). With S and P parameters, the data length must be known via the PPC-internal preferred list, or by means of Y-0-0157/Y-0-0158.

Remedy:

- Parameterize Y-0-0128 correctly, respectively with S or P parameters, make known the data lengths by the user-defined lists Y-0-0157 and Y-0-0158.

F15 (285) "Parameter Y-0-0185 not correct. Line nbr.: xxx"

Y-0-0048: 285 The content of the configuration list Y-0-0185 for the process output data is not correct. The fault identified first appears in line xxx. The following faults can occur:

- **No line number xxx is shown:**
The process data length is greater than the permissible 32 words.
- **Line number xxx points out the element behind the last list entry:**
The configuration element for the end of the static part (Y-0-0197) or the end of a multiplex level (Y-0-0198) as termination of the configuration list is missing.
- **Configuration element Y-0-0197 is shown in line xxx:**
In the parameter list for the static part of the process data channel, there is already a configuration element for the end of a multiplex level (Y-0-0198).
- **Configuration element Y-0-0198 is shown in line xxx :**
Too many multiplex levels have been configured.
- **In line xxx, a parameter (and no configuration element) is shown**
The parameter configured in line xxx does not exist or is not permissible (e.g. list parameter). With S and P parameters, the data length must be known via the PPC-internal preferred list, or by means of Y-0-0157/Y-0-0158.

Remedy:

- Parameterize Y-0-0185 correctly, respectively with S or P parameters, make known the data lengths by the user-defined lists Y-0-0157 and Y-0-0158.

F15 (286) "Parameter Y-0-0186 not correct. Line nbr.: xxx"

Y-0-0048: 286 The content of the configuration list Y-0-0186 for the process output data is not correct. The fault identified first appears in line xxx. The following faults can occur:

- **No line number xxx is shown:**
The process data length is greater than the permissible 32 words.
- **Line number xxx points out the element behind the last list entry:**
The configuration element for the end of the static part (Y-0-0197) or the end of a multiplex level (Y-0-0198) as termination of the configuration list is missing.
- **Configuration element Y-0-0197 is shown in line xxx:**
In the parameter list for the static part of the process data channel, there is already a configuration element for the end of a multiplex level (Y-0-0198).
- **Configuration element Y-0-0198 is shown in line xxx :**
Too many multiplex levels have been configured.
- **In line xxx, a parameter (and no configuration element) is shown**
The parameter configured in line xxx does not exist or is not permissible (e.g. list parameter). With S and P parameters, the data length must be known via the PPC-internal preferred list, or by means of Y-0-0157/Y-0-0158.

Remedy:

- Parameterize Y-0-0186 correctly, respectively with S or P parameters, make known the data lengths by the user-defined lists Y-0-0157 and Y-0-0158.

F15 (287) "Parameter Y-0-0187 not correct. Line nbr.: xxx"

Y-0-0048: 287 The content of the configuration list Y-0-0187 for the process output data is not correct. The fault identified first appears in line xxx. The following faults can occur:

- **No line number xxx is shown:**
The process data length is greater than the permissible 32 words.
- **Line number xxx points out the element behind the last list entry:**
The configuration element for the end of the static part (Y-0-0197) or the end of a multiplex level (Y-0-0198) as termination of the configuration list is missing.
- **Configuration element Y-0-0197 is shown in line xxx:**
In the parameter list for the static part of the process data channel, there is already a configuration element for the end of a multiplex level (Y-0-0198).
- **Configuration element Y-0-0198 is shown in line xxx :**
Too many multiplex levels have been configured.
- **In line xxx, a parameter (and no configuration element) is shown**
The parameter configured in line xxx does not exist or is not permissible (e.g. list parameter). With S and P parameters, the data length must be known via the PPC-internal preferred list, or by means of Y-0-0157/Y-0-0158.

Remedy:

- Parameterize Y-0-0187 correctly, respectively with S or P parameters, make known the data lengths by the user-defined lists Y-0-0157 and Y-0-0158.

F16 (20) "Non-supported drive type"

Y-0-0048: 20 A connected drive could not be identified.
The address of the relevant drive is specified in parameter "SYNAX - error source" (Y-0-0046).

Remedy:

- **IMPORTANT:** Read out the text of parameter "Manufacturer version" (S-0-0030) and make a note of it, e.g., "DSM2.3-ELS-02V03".
- Contact Bosch Rexroth customer service.

F16 (21) "Non-supported drive firmware"

Y-0-0048: 21 The SYNAX 200 firmware used is not compatible with the firmware in the drive.
The address of the relevant drive is in parameter "SYNAX - error source" (Y-0-0046).

Remedy:

- **IMPORTANT:** Read out the text of parameter "Manufacturer version" (S-0-0030) and make a note of it, e.g., "DSM2.3-ELS-02V03").
- Contact Bosch Rexroth customer service.

F17 (105) "Master position value corrupted. Master axis: xx"

Y-0-0048: 105 The master axis position of the virtual master axis is checked but once for validity upon reaching master axis mode (checksum).
"xx" is the master axis address.

Cause:

- A new PPC was used with a non-initialized programming module.
- Data integrity was lost, e.g., as a result of a faulty programming module.

Remedy:

- "Clear master axis error" (_E:L#.16).
- If necessary, set position of the virtual master axis with "Enable virtual master axis" (_E:L#.06) or "Preset position" (_E:L#.20).

F17 (106) "Master speed limit too high (C-30, C-31). Master axis: xx"

Y-0-0048: 106 The maximum allowable velocity command value of the master axis is fixed with

$$\text{MAX} = \frac{1000 \times 0,45 \times 60}{\text{SERCOS cycle time}}$$

The SERCOS cycle time is displayed in parameter S-0-0002.

At least one limit value of the velocity command value (C-0-0030 or C-0-0031) is greater than the maximum allowable velocity command value as per the above formula.

"xx" is the master axis address.

Remedy:

- C-0-0030 or C-0-0031 must be decreased as per formula above.

F17 (107) "Master speed limit too high (C-55, C-56). Master axis: xx"

Y-0-0048: 107 The maximum allowable velocity command value of the master axis is fixed with

$$\text{MAX} = \frac{1000 \times 0,45 \times 60}{\text{SERCOS cycle time}}$$

The SERCOS cycle time is displayed in parameter S-0-0002.

At least one limit value of the velocity command value (C-0-0055 or C-0-0056) is greater than the maximum allowable velocity command value as per the above formula.

"xx" is the master axis address.

Remedy:

- C-0-0055 or C-0-0056 must be decreased as per formula above.

F17 (109) "C-76, C-2, C-5: Different cycles of master axes"

Y-0-0048: 109 Both master axis have a real master axis. The master encoder address for the real master axis is pretend in parameter "RM - master encoder, drive address" (C-0-0005). If a redundant master encoder is available then its drive address is parameterized in parameter "RM - redundant master encoder, drive address" (C-0-0072).

In both master axis the drive address is parameterized equal (see parameter C-0-0005 or C-0-0072). Both master axis refer to the same master encoder. The product cycle (C-0-0076) and thus the master encoder range (P-0-0765) of the master encoder should be equal.

Remedy:

- The product cycles (C-0-0075) of both master axes must be equal at equal master encoder.

F17 (110) "Too many local IO's for cam switches 2 activated (C-0-0049)"

Y-0-0048: 110 With the help of parameter "Cam switch group 2 - control word" (C-0-0049) the cam switch group 2 in the SERCOS cycle can be output to a local I/O module (RECO).

The output in the SERCOS cycle is only possible for a local I/O module. The output to a local I/O module may only be entered in C-0-0049.

Remedy:

- Deactivate the output in C-0-0049.
- Output of the cams to drive I/O cards (DEA).

F17 (111) "Too many DEA cards for cam switches 2 activated (C-49, A-36)"

Y-0-0048: 111 The cam function is activated in parameter "Cam switch group 2 - control word" (C-0-0049). DEA cards are allocated to these cams in parameter "DEA - Configuration as cam switches for master axis" (A-0-0036).

Too many DEA cards have been allocated to the number of cams selected.

Remedy:

- Change C-0-0049.
- Change A-0-0036.

F17 (112) "Cam switch 2 - parameters C-49 and A-36 not ok"

Y-0-0048: 112 In parameter "Cam switch group 2 - control word" (C-0-0049) the cam function is activated. In the parameter "DEA - Configuration as cam switches for master axis" (A-0-0036), the DEA cards are assigned to this cam.

The combination of those two parameters is not permissible.

Cause:

- With an activated cam switch 2 (C-0-0049, bit 0,1) no DEA card has been activated in parameter A-0-0036.
- With an activated cam switch 2 (C-0-0049, bit 0,1) too many DEA cards have been activated in parameter A-0-0036 on different axes.
- Drive with DEA card (bit 1 set in A-0-0036) has been deactivated.

Remedy:

- Check the parameterization of C-0-0049 and A-0-0036 (potentially of all axes).

F18 (99) "RM - Master encoder range exceeded (C76 * C144 > Max{P765})"

Y-0-0048: 99 If a drive follows a real master axis with absolute encoder, the following axis must be informed about the "Range of master encoder" (P-0-0765). This range is automatically calculated by SYNAX and written into P-0-0765 with the initialization of the real master axis.

The "Range of master encoder" calculated by SYNAX is the product of "Product cycle" (C-0-0076) and the "RM - master encoder input revolutions" (C-0-0144) at a multiturn encoder. This value may not exceed the maximum (depending on the drive type) of P-0-0765.

At a singleturn encoder SYNAX always enters the permissible value '1' into parameter P-0-0765.

Remedy:

- Parameterize the "Product cycle" (C-0-0076) and/or the "RM - master encoder input revolutions" (C-0-0144) so that the product of these parameters does not exceed the maximum (depending on the drive type) of P-0-0765.

F18 (100) "Real master axis - master encoder error"

Y-0-0048: 100 The encoder monitoring device was actuated with the use of a redundant encoder for the real master axis. The master encoder is hunting.

Cause:

- The coupling unit is defective.
- The encoder is defective.
- The encoder cable is defective.
- Monitoring window "Real master - redundant encoder monitoring window" (C-0-0073) too small.

Remedy:

- Check both encoders.
- Correct the parameter by using the parameter "Real master - redundant encoder max. position difference" (C-0-0074), if necessary.
- The error can only be reset with input "Clear master axis error" (_E:L#.16).

F18 (101) "Real master axis - redundant encoder error"

Y-0-0048: 101 The encoder monitoring device was actuated with the use of a redundant encoder for the real master axis. The master encoder is hunting.

Cause:

- The coupling unit is defective.
- The encoder is defective.
- The encoder cable is defective.
- Monitoring window "Real master - redundant encoder monitoring window" (C-0-0073) too small.

Remedy:

- Check both encoders.
- Correct the parameter by using the parameter "Real master - redundant encoder max. position difference" (C-0-0074), if necessary.
- The error can only be reset with input "Clear master axis error" (_E:L#.16).

F18 (102) "RM - Drive with master axis encoder is missing"

Y-0-0048: 102 The drive to which the master axis encoder for the real master axis is connected was not detected during transition from initialization into parameter mode in the SERCOS ring.

The drive is either not projected or deactivated.

Remedy:

- Drive in SERCOS ring projected (change parameter Y-0-0002)
- Activate drive (change parameter A-0-0006).

F18 (103) "RM - External encoder feedback need to configure"

Y-0-0048: 103 There was no external encoder feedback parameterized for the drive to which the master axis encoder for the real master axis is connected.

Remedy:

- An external encoder feedback must be specified with a value unequal to zero with parameter "Feedback 2 type" (P-0-0075).

F18 (104) "RM - Redundant ext. encoder feedback need to configure"

Y-0-0048: 104 There was no external encoder feedback parameterized for the drive to which the redundant master axis encoder for the real master axis is connected.

Remedy:

- An external encoder feedback must be specified with a value unequal to zero with parameter "Feedback 2 type" (P-0-0075).

F21 (230) "SERCOS transmission error (no drive responds)"

Y-0-0048: 230 A SERCOS interface transmission could not be successfully concluded (time out monitoring).

At the time of this transmission, one or several axes would not respond.

The SYNAX 200 ring remains in initialization mode. A progression is now only possible by switching the PPC off and on or reset the PPC.

Cause:

- Fiber optic cable ring defective -or-
- Drive was switched off.

Remedy:

- Switch drive and PPC off.
- Check fiber optic cable ring.
- Contact Bosch Rexroth customer service.

F21 (231) "SERCOS interface - transmission error during initialization"

Y-0-0048: 231-299 An error occurred during the transmission of a parameter to the drive while initializing the SERCOS interface ring and drives.

This error may not occur with a system that is already successfully operating. There is a problem in the transmission path, i.e., LWL ring, if it does.

This error can occur during startup if, for example, a drive used

- does not support a specific parameter or
- it does not permit the value of a parameter that is to be transmitted.

In this case, it is possible to start up the system by changing parameterization.

Remedy:

- **IMPORTANT:** Read out the number from parameter "SYNAX - error number" (Y-0-0048) and make a note of it (e.g., 231).
- Contact Bosch Rexroth customer service.

F22 (199) "Switching to uninitialized operation mode"

Y-0-0048: 199 With the binary inputs of the following axis an operating mode was activated that was not parameterized.

Remedy:

- Parameterize the corresponding operating mode in parameter A-0-0003, A-0-0009 or A-0-0070, ... or
- do not set the binary input.

F23 (23) "PPC-parameter inconsistent. Command 'Restore' (Y-0-0014)?"

Y-0-0048: 23 When running up the system an inconsistency was recognized between backup copy of the nvRAM data on the CompactFlash and the nvRAM data on the PPC.

Cause:

A change of the hardware is normally the cause. The content of the CompactFlash does not fit to the data on the PPC.

Remedy:

Running up the system and assume the stored configuration from the CompactFlash card:

- Assume the stored data from the CompactFlash card with Y-0-0014.

Running up the system without assuming the stored configuration from the CompactFlash card:

- clear error
- load base parameters

F24 (24) "Reinitialization necessary - Reset when changing the phase!"

Y-0-0048: 24 System data is loaded from the CompactFlash card (with Y-0-0014). To assume the new configuration the system must be restarted (e.g., with phase switching initiated by the user).

Cause:

System data is loaded from the CompactFlash card (with Y-0-0014). Further operation of the system with the changed but not assumed configuration data is not possible.

Remedy:

- Initialize a restart of the system with phase switching or a reset.

F27 (27) "Reset PC interface. Reinitialization DPRAM took place."

Y-0-0048: 27 The communication between the PC and PPC-P11 takes place via PCI interface (PCI-DPRAM). During a softstart of the PC it is reinitialized on hardware side by the PC (reset of the DPRAM). To make communication via this interface possible again, a reinitialization of the DPRAM is necessary. This is pointed out by this diagnosis.

Because data in the DPRAM can get lost with the sudden breakdown of the communication, it could also be necessary to reinitialize the communication used before depending on the application of the system (.e.g., PLC or HMI on the PC).

Cause:

Softreset of the PC, that means a restart of the PC without switching off the voltage took place while the PCI-DPRAM was reinitialized.

Remedy:

- Possible reinitialization of the communication of the PPC-P11 with an application on the PC (PLC, HMI) by a new phase switch.

F32 (140) "3964R Serial interface overrun"

Y-0-0048: 140 An overrun error has occurred at the interface.

Remedy:

- Clear error, restart transmission.
- If the error occurs again, contact Bosch Rexroth customer service.

F32 (141) "3964R Serial interface parity error"

Y-0-0048: 141 A parity error occurred at the serial interface.

Cause:

- First failure (e.g., due to EMC)
- Repetitive failure, e.g., due to faulty transmission path (e.g., defective line).

Remedy:

- Check transmission path.
- Clear error.
- Restart transmission.

F32 (142) "3964R Serial interface transmission error (Frame)"

Y-0-0048: 142 A frame error has occurred at the serial interface.

Cause:

- Incorrectly set data rate, parity and so on.

Remedy:

- Set data transmission correct, also see "Host communication - control word" (Y-0-0033).

F32 (143) "ARCNET - excessive bus reconfiguration"

Y-0-0048: 143 The ARCNET bus connection has completely broken down.

Cause:

- The ARCNET bus connection has been interrupted.
- Strong EMC interference.

Remedy:

- - Check plug-in contacts for seating.
- - Ensure that the end resistors (93 Ω) are in at both bus ends.
- In a highly polluted EMC environment, use cable RG 71 (in lieu of RG 62).

F32 (146) "ARCNET telegram buffer: overrun error"

Y-0-0048: 146 SYNAX accumulates the arriving ARCNET telegrams in an internal buffer for 32 telegrams and processes them if the execution of the current telegram is terminated.

If the 33rd telegram occurs during execution of the current telegram, it can't be stored any more, because the telegram buffer is full. The diagnostic message 146 shows that ARCNET telegrams get lost.

Remedy:

- The message interchange via ARCNET must be reduced or must be synchronized between the different ARCNET masters, so that the telegrams arrive on the PPC not faster than they can be processed internal.

F32 (147) "Buffer overrun: parameter are changed too fast in sequence!"

Y-0-0048: 147 SYNAX provides several A parameters whose operating data are automatically transmitted in the background from the PPC to the respective drive parameters.

The changed operating data of these parameters are buffered internally and are written sequentially to the drive via service data channel.

If these operating data are changed at the same time in too many parameters or for several parameters too fast in serial, the internal buffer with 50 memory locations can overrun. The diagnostic message 147 shows that changes get lost.

In SYNAX version 10 this applies for the parameters

- A-0-0124 (--> P-0-0093)
- A-0-0126 (--> P-0-0157)
- A-0-0170 (--> P-0-0156)

Remedy:

- At the configuration of these A parameters in the real time channel of a fieldbus interface or in data blocks for the acyclic data transmission not more than 50 values may be changed at the same time. The next changes can be made earliest after the expiration of the internal transmission time
 $T = 10 \cdot \text{number of changed A parameters} \cdot \text{SERCOS cycle time [in ms]}$.

F33 (150) "Communication via the fieldbus is impossible"

Y-0-0048: 150 The fieldbus communication task on the PPC could not be started successfully.

Cause:

- PPC internal error.

Remedy:

- Contact Bosch Rexroth customer service.

F33 (151) "Fieldbus: Incorrect jumper setting on fieldbus board"

Y-0-0048: 151 The jumper setting for the interrupt number and/or the address offset is not correct.

Remedy:

- Contact Bosch Rexroth customer service.

F36 (36) "Local bus module - External power supply error. Slot-Nr: xx"

Y-0-0048: 36 The local bus output module has galvanically separated outputs. For a proper operation of these outputs, an external voltage source must be applied. "xx" are the slot numbers 1 through 15.

Cause:

- The external voltage source is outside of the limits of $+19,5V < U_i < +31V$.

Remedy:

- Check external voltage source.

F40 (40) "PPC-link - link defective"

Y-0-0048: 40 The link participant has detected an LWL break in the link ring.

Cause:

- Each DAQ monitors its optical inputs. With missing signals, an LWL break is detected.

Remedy:

- Check LED H17 and H18 on the DAQ (warped display, LWL break display).
- The LWL break is physically "before" that subscriber that signals this error.

F42 (42) "PPC-link - master position fault (MDT)"

Y-0-0048: 42 The transmission of the master axis position by the link master to the link subscriber is experiencing problems.

Cause:

- Data transmission interference (bit error) link MDT of two sequential cycles is faulty.

Remedy:

- Check LED H17 (DAQ) and LWL, if necessary.

F43 (43) "PPC-link - master position fault (AT)"

Y-0-0048: 43 The transmission of the master axis position by the link slave to the link master is experiencing interference.

The parameter "SYNAX - error source" (Y-0-0046) contains the affected link address.

Only those master axis positions are monitored that are used in the own SYNAX 200 ring.

Cause:

- Data transmission interference (bit error), link AT of a link slave of two sequential cycles is faulty.

Remedy:

- Check LED H17 (DAQ) and LWL, if necessary.

F44 (44) "PPC-link - selected link address not permitted"

Y-0-0048: 44 In the case of the PPC link, the link address set on the DAQ may only range between 1 and 32.

Cause:

- In parameter Y-0-0179 the default value is still 0.

Remedy:

- Change DAQ address.

F81 (81) "DAQ-board not correct (address-mapping)"

Y-0-0048: 81 The "address-mapping" of the DAQ has been changed. The available DAQ is not supported by the firmware any more.

Cause:

- DAQ with an old address-mapping is used.

Remedy:

- Replace DAQ-board. DAQ-board with a new address-mapping is required.

F91 (91) "SERCOS interface - ASIC: initialization error"

Y-0-0048: 91 The check of the SERCOS interface - ASIC produced an error.

Cause:

- The dual port RAM of the SERCOS interface - ASIC is defective.
- A time out error with a reset of the SERCOS interface - ASIC.

Remedy:

- Replace the PPC.

F92 (92) "PPC DUAL PORT RAM error"

Y-0-0048: 92 The check of the dual port RAM of the PPC generated an error.

Cause:

- The dual port RAM is defective.
- The PC wrote into the dual port RAM during the check.

Remedy:

- Replace the PPC.
- Change the PC program so that the PC cannot write during the dual port RAM test.

F93 (93) "DAQ: SERCOS interface - ASIC: initialization error"

Y-0-0048: 93 Once the PPC/DAQ is switched on

- a software reset and
- a dual port ram test

are executed.

If one of these operations should fail, then this error is generated.

Cause:

- A hardware error occurred during the initialization of the DAQ.

Remedy:

- Replace DAQ.

F94 (94) "PPC hardware version incorrect"

Y-0-0048: 94 The hardware identification on the PPC is wrong.

Cause:

- PPC hardware defective.

Remedy:

- Replace PPC card (hardware version higher or equal to 2.2).
- Contact Bosch Rexroth customer service.
- PPC-card may have to be sent back to Bosch Rexroth.

F95 (4000+x) "Operating system error"

Y-0-0048: 4000+x An operating systems error has occurred in the PPC system.

Remedy:

- IMPORTANT: Note number (e.g., 4001).
- Contact Bosch Rexroth customer service.

F97 (260) "PLC - firmware-version incompatible"

Y-0-0048: 260 SYNAX 200 is trying to detect an PLC during runup.

Cause:

- Firmware version of the PPC and that of the PLC are not compatible.

Remedy:

- Replace PPC and PLC firmware.

F97 (261) "PLC - cycle-counter is dead"

Y-0-0048: 261 SYNAX 200 is monitoring the cycle counter of a closed PLC.

Cause:

- The PLC is not running.

F97 (262) "PLC reports an error"

Y-0-0048: 262 **Cause:**

- The closed PLC is signaling an error.

F97 (265) "Timeout PLC task external event 'SERCOS cyclic'"

Y-0-0048: 265 The PLC task that is allocated to the external event 'OP_MODE_SERCOS_CYCLIC' has exceeded the allowed computing time (see Y-0-0011).

Remedy:

- Optimize computing time or displace the calculation to another task - or -
- increase parameter "Integrated PLC timeslice in MC cycle time" (Y-0-0011).

F97 (2000+z) "PLC error"

Y-0-0048: 2000+z The PLC signals an error. The diagnostic text of the PLC is copied to "SYNAX - diagnostic text" (Y-0-0047). The error number of the PLC = z plus 2000 is copied into parameter "SYNAX - error number" (Y-0-0048).

Note: In parameter "SYNAX - diagnostic text" (Y-0-0047) "PLC error" will not be listed but rather, e.g., "Task monitoring failed for '...'" .

F98 (3000+y) "Drive error"

Y-0-0048: 3000+y *Example:* "Motor overtemperature":

An error has occurred in the drive. The diagnostic parameter (S-0-0095) of the relevant drive is copied into "SYNAX - diagnostic text" (Y-0-0047). The "Error message number" (P-0-0009) = y plus 3000 is copied into parameter "SYNAX - error number" (Y-0-0048). The address of the drive is listed in parameter "SYNAX - error source" (Y-0-0046).

Note: In parameter "SYNAX - diagnostic text" (Y-0-0047) "drive error" will not be listed but rather, e.g., "motor overtemperature".

Adjustments for drives of IndraDrive M type:

So far the triple-digit drive error number was mapped to the SYNAX error number range 3000..3999 (content of P-0-0009 was added to 3000). With IndraDrive the error numbers are not triple-digit, but four-digit, i.e., mapping is not possible any more. For this reason the drive error numbers are mapped to the following error numbers:

Drive error number (P-0-0009)	SYNAX error number (Y-0-0048)
2xxx	3002
3xxx	3003
4xxx	3004
6xxx	3006
8xxx	3008
9xxx	3009

Fig. 4-1: Mapping the drive error number to the SYNAX error number (with IndraDrive)

The real drive error number (P-0-0009) can be found in the clear text diagnostic of parameter Y-0-0047.

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6 Service & Support

6.1 Helpdesk

Unser Kundendienst-Helpdesk im Hauptwerk Lohr am Main steht Ihnen mit Rat und Tat zur Seite. Sie erreichen uns

- telefonisch - by phone:
über Service Call Entry Center
- via Service Call Entry Center

Our service helpdesk at our headquarters in Lohr am Main, Germany can assist you in all kinds of inquiries. Contact us

49 (0) 9352 40 50 60

Mo-Fr 07:00-18:00
Mo-Fr 7:00 am - 6:00 pm

- per Fax - by fax:

+49 (0) 9352 40 49 41

- per e-Mail - by e-mail: service.svc@boschrexroth.de

6.2 Service-Hotline

Außerhalb der Helpdesk-Zeiten ist der Service direkt ansprechbar unter

After helpdesk hours, contact our service department directly at

+49 (0) 171 333 88 26

oder - or **+49 (0) 172 660 04 06**

6.3 Internet

Unter www.boschrexroth.com finden Sie ergänzende Hinweise zu Service, Reparatur und Training sowie die **aktuellen** Adressen *) unserer auf den folgenden Seiten aufgeführten Vertriebs- und Servicebüros.



Verkaufsniederlassungen



Niederlassungen mit Kundendienst

Außerhalb Deutschlands nehmen Sie bitte zuerst Kontakt mit unserem für Sie nächstgelegenen Ansprechpartner auf.

*) Die Angaben in der vorliegenden Dokumentation können seit Drucklegung überholt sein.

At www.boschrexroth.com you may find additional notes about service, repairs and training in the Internet, as well as the **actual** addresses *) of our sales- and service facilities figuring on the following pages.



sales agencies



offices providing service

Please contact our sales / service office in your area first.

*) Data in the present documentation may have become obsolete since printing.

6.4 Vor der Kontaktaufnahme... - Before contacting us...

Wir können Ihnen schnell und effizient helfen wenn Sie folgende Informationen bereithalten:

1. detaillierte Beschreibung der Störung und der Umstände.
2. Angaben auf dem Typenschild der betreffenden Produkte, insbesondere Typenschlüssel und Seriennummern.
3. Tel./Faxnummern und e-Mail-Adresse, unter denen Sie für Rückfragen zu erreichen sind.

For quick and efficient help, please have the following information ready:

1. Detailed description of the failure and circumstances.
2. Information on the type plate of the affected products, especially type codes and serial numbers.
3. Your phone/fax numbers and e-mail address, so we can contact you in case of questions.

6.5 Kundenbetreuungsstellen - Sales & Service Facilities

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