

Application Description

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Coupling Module

for Coupling the PROCONTROL Station Bus
to the Advant[®] Fieldbus 100

87TS50-E/R5010

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1 Overview

This application description provides the information required for commissioning and configuring the 87TS50/R5010 module. Furthermore, it includes a complete description of the system messages in order to facilitate error and disturbance analyses and to detect configuration problems.

For commissioning the module, perform the following steps:

1. Configure the Ethernet interface
2. Generate a configuration list
3. Load the configuration list onto the module
4. Save the configuration list on the module
5. Start the module

Should any problems occur during commissioning, a number of diagnostic actions can be carried out with the help of the user monitor (menu diagnosis).

For instance, if not all of the signals configured are exchanged between the Advant system and the PROCONTROL system, it is recommended to search through the system messages in the system-message buffer for entries regarding the configuration-lists scan and the configuration-list processing.

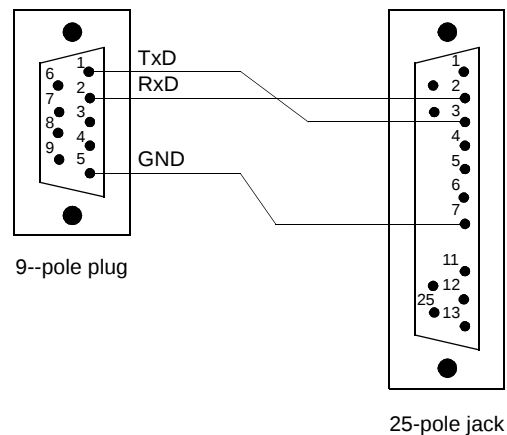
System messages can be found based on their message codes by using the index list given in this application description.

Displays can be output, via the serial RS232 interface (9-pole connector X1 on the module front), on a terminal (VT100 or higher) or a computer with terminal emulation. Displaying is also possible via the Ethernet interface (for user monitors only; BNC jack, connector X2) with the help of a monitor program.

The Ethernet interface is connected via a 50 Ω thin-wire coax cable. The distance from the last connection must exceed 180 m. The distance between 2 participants must be at least 0.5 m. In the factory, the modules are given a fixed and unique Ethernet address. The Internet address needed for communicating with a computer is set at the user monitor.

The terminal can be plugged in or removed during operation.

Cable connection 87TS50 --> VT100



2 Service and configuration interface

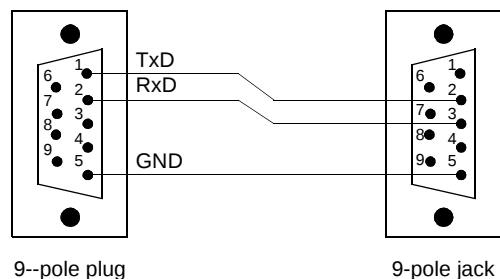
For configuring and servicing, the 87TS50/R5010 module is equipped with a menu-guided interface (user monitor). There are two types of monitors in use:

- Boot monitor
 - For configuring the Ethernet interface
- User monitor
 - For configuring the module
 - For displaying internal statuses and data

The boot monitor is activated directly after the module has been plugged in, by pressing a key, while the individual segments of the mode display are activated one after the other.

The user monitor is started automatically after the 87TS50 has been plugged in, provided that the module did reach at least its operating status 6 "Waiting for configuration list".

Cable connection 87TS50 --> IBM-PC COMx



2.1 Configuring the Ethernet interface

Connecting the Ethernet interface to a network is optional. An Internet address must be assigned for in redundant applications.

The network address is composed of the Ethernet address and the Internet address. The Ethernet address is a fixed address on every 87TS50.

The Internet address must be selected according to the project in question, if the module is to be operated in a network, and must be entered on the 87TS50 modules and on the computer as well. In a network, each one of the modules connected must be given a different Internet address.

Please note:

- Handling of the Internet addresses is centralized.
- By setting an Internet address, a configuration list that might exist in the flash PROM will be lost. Therefore, it is advisable to configure the Ethernet interface first when commissioning the module.

When the 87TS50 is commissioned for the first time, the Internet address is set as follows:

- 1 Connect a VT100 terminal or personal computer with VT100 emulation to the 87TS50.
- 2 Plug the module into the subrack again.
Output:

```
87TS50 BOOT MONITOR, REL :..., autoboot in progress
type any key to break
```

- 3 Press any key, while the segments of the mode display are being activated one after the other. This activates the boot monitor.
Output:

```
B    continue autoboot
I    internet address
T    special tools
```

- 4 Input of "I" deletes the DRAM (clear DRAM) and displays the current Internet address in decimal form.
Output:

```
act.Internet address (dec) : 138.222.10.00
<CR> exit, c change :
```

This address is exemplary.

- 4.1 Input of "<CR>" closes the "Internet address" menu. Proceed with step 5.
- 4.2 Input of "C<CR>" allows to change the Internet address in decimal form.
Output:

```
Internet address (dec) --> d1.d2.d3.d4 :
```

Input:

```
138.222.70.41 <CR>
```

Output:

```
'AM 29F010 found
flash clear.... ok.
internet address (dec) 138.222.70.41
```

- 5 The following menu will appear:

```
<CR> internet address , B continue autoboot :
```

- 5.1 Input of "<CR>" allows to change the Internet address again (see step 4).
- 5.2 Input of "B<CR>" allows to directly start the module with the current Internet address (without steps 6, 7).
- 6 Withdraw the module and write the configured Internet address on the Internet address label at connector X12 of that module.
- 7 Plug the module back into the subrack. It will now be running with the new addresses.

Please note:

<CR> stands for pressing the ENTER or RETURN key.

2.2 Configuring the module

The module is configured by loading a configuration list into the RAM. This list is generated with the help of the AP-BRIDGE configuration program and is transferred to the module. After that, the list can be saved on the module in the flash PROM (a restart will be initiated and this list is activated automatically).

The module can be started via the user interface using either a list in the RAM or one in the flash PROM. Loading a list into the RAM is possible in the "Waiting for configuration list" state only.

The list is protected by a checksum.

The basic structure of a configuration list including explanations of the parameters and data listed is shown by the following example:

```
BEGIN
LISTID=STANDARD TESTLIST file: standard.tst 05.03.97
# =====
# This list is an example for the 87TS50R5010 configuration
# list layout
# =====
#
# global rules:
# - each line is max. 64 characters long
# - each line ends with CR/LF
# - each line with a # character at pos. 1 is a comment line
# - each line with a > character at pos. 1 continues the
#   previous line
# - each line with a = character at pos. 1 contains dat
#   specific data
# - each number is in decimal format (without leading zeros)
# - the first line is marked with "BEGIN"
# - the second line is marked with "LISTID", the list identi-
#   fication (e.g. created by, date, project) follows
# - the last line is marked with "END"
# - the last line-1 is marked with (uppercase)
#   "checksum=0x00000000"
# (the checksum must be preinitialised to 0x00000000)
# - the common config data must be present before the "RDS"
#   token
# - parameters are separated by one or more blank characters
# - indexes for datasets and telegrams must be in ascending
#   order, beginning from 1
#
# =====
# COMMON CONFIG DATA
# =====
#
# basic cycletime for scanning receiving ds in ms (10..10000)
BCYCLETIM=512
#
# common default values for all procontrol send telegrams
#
# DCSUPTI: counter supression timeinterval in ms (0..10000)
# DASUPTI: analog supression timeinterval in ms (0..10000)
# DATHRES: analog threshold in 0.1% (1..68)
#
DCSUPTI=200
DASUPTI=300
DATHRES=50
#
# clock master address: (sy,sta,mod,reg)
CMADR=1,10,6,0
# starttime (year,month,day,hour,minute,second,millisecond)
TIME=95,6,16,11,23,20,100
# time status (wintertime=on, summertime=off)
TS=ON
# daylight saving time suppression (on/off)
DAYLSUP=ON
# af100 station address (1..80)
AFSTA=10
# buslength (300, 600, 1200, 2000)
AFBUSLEN=2000
# timemaster function (on/off)
AFTIMAS=ON
# busadministrator function (on/off)
BUSADMIN=ON
# redundancy mode (on/off)
REDMOD=ON
#
```

```
# =====
# AF100 -> PROCONTROL
# =====
#
# --- RDS -----
RDS
# receiving ds config data:
#
# RDSI STA ID CYC RDSS
# =REF DA [STI1|STI2] [VA] [MRL MRH]
# [=REF DA [STI1|STI2] [VA] [MRL MRH]]
# [=REF DA [STI1|STI2] [VA] [MRL MRH]]
# [=REF DA [STI1|STI2] [VA] [MRL MRH]]
# [=REF DA [STI1|STI2] [VA] [MRL MRH]]
# [=REF DA [STI1|STI2] [VA] [MRL MRH]]
# [=REF DA [STI1|STI2] [VA] [MRL MRH]]
#
# RDSI:receiving ds index (1..2000)
# STA: ds station (1..80)
# ID : ds id (1..50)
# CYC: ds cycletime in ms
# (1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096)
# RDSS:ds size in byte (2, 4, 8, 16, 32)
# REF: dat reference (1..8)
# DA : dat data type (I=int16, L=int32, B=Boolean, R=real32)
# STI1:dat bit (0..31), sending tlg index (1..800),
#   tlg bit (0..15)
# STI2:sending tlg index (1..800)
# VA : dat valuetype (3 characters significant, e.g.: %, V, mA)
# MRL: dat measuring range low, low < high
# MRH: dat measuring range high, high > low
#
# DA variants: B: DA STI1
#               I: DA STI2
#               L: DA STI2
#               R: DA STI2 VA MRL MRH
#
# .....
#RDSI STA ID CYC RDSS REF DA STI VA MRL MRH - rcv ds 01-
1 9 1 512 32 1 B 0,1,0
> 1,1,1
> 2,1,2
> 3,1,3
> 4,1,4
> 5,1,5
> 6,1,6
> 7,1,7
> 8,1,8
> 9,1,9
> 10,1,10
> 11,1,11
> 12,1,12
> 13,1,13
> 14,1,14
> 15,1,15
> 16,2,0
> 17,2,1
> 18,2,2
> 19,2,3
> 20,2,4
> 21,2,5
> 22,2,6
> 23,2,7
> 24,2,8
> 25,2,9
> 26,2,10
> 27,2,11
> 28,2,12
> 29,2,13
> 30,2,14
> 31,2,15
= 3
= 3 L 4
= 4 R 5 % 0 100
= 5 B 31,13,5
= 6 I 6
= 7 L 7
= 8 R 8 C 0 1200
#
#RDSI STA ID CYC RDSS REF DA STI VA MRL MRH - rcv ds 02-
2 11 2 1024 16 1 I 9
= 2 L 10
= 3 R 11 C 0 1200
#
```

```

#RDSI STA ID CYC RDSS REF DA STI VA MRL MRH - rcv ds 03-
3 12 4 2048 32
=
= 1 R 12 % 0 100
= 2 B 2,13,1
> 3,13,2
> 4,13,3
= 5 I 14
= 6 B 0,15,3
> 1,15,4
> 2,15,1
= 7 R 16 % 0 100
= 8 R 17 % 0 100
#
#RDSI STA ID CYC RDSS REF DA STI VA MRL MRH - rcv ds 04-
4 12 5 1024 16
=
= 1 I 18
#
# --- STLG -----
STLG
#
# sending tlg config data:
#
# STI SY STA MOD REG DA [MR] [SUPTI] [THRES]
#
# STI: sending tlg index (1..800)
# SY : procontrol system address (0..3)
# STA: procontrol station address(1..249)
# MOD: procontrol module address (0..59)
# REG: procontrol register address (0..199)
# DA : procontrol data type (0..25, 27, 28)
# MR : procontrol measuring range (0..3)
# SUPTI: individual supression timeinterval in ms (0..10000)
# THRES: individual analog threshold in 0.1% (1..68)
#
# MR variants: DA 5: MR 0 (0..100%)
# DA 6: MR 0 (0..150C)
# DA 6: MR 1 (0..300C)
# DA 6: MR 2 (0..600C)
# DA 6: MR 3 (0..1000C)
# DA 7: MR 0 (0..200K)
# DA 7: MR 1 (0..150K)
# DA 7: MR 2 (0..200K)
# DA 7: MR 3 (0..300K)
#
# DA variants: 0..3,8..28: DA
# 4 : DA
# 4 : DA SUPTI
# 5,6,7 : DA MR
# 5,6,7 : DA MR SUPTI THRES
#
# STI SY STA MOD REG DA MR SUPTI THRES -- send telegrams --
#
1 1 10 17 0 9
2 1 10 17 1 9
3 1 10 17 2 4
4 1 10 17 3 4 2000
5 1 10 17 4 5 0
6 1 10 17 5 4
7 1 10 17 6 4
8 1 10 17 7 5 0 1000 10
9 1 10 17 8 4
10 1 10 17 9 4
11 1 10 17 10 6 2 500 5
12 1 10 17 11 5 0
13 1 10 17 12 0
14 1 10 17 13 4
15 1 10 17 14 0
16 1 10 17 15 5 0
17 1 10 17 16 5 0
18 1 10 17 17 4
#

```

```

# =====
# PROCONTROL -> AF100
# =====
#
# --- DTLG -----
DTLG
# destination tlg config data:
#
# DTI SY STA MOD REG DA SDI1 [SDI2]
# DTI SY STA MOD REG DA SDI2
#
# DTI: destination tlg index (1..256)
# SY : procontrol system address(0..3)
# STA: procontrol station address(1..249)
# MOD: procontrol module address(0..59)
# REG: procontrol register address(0..199)
# DA : procontrol data type(0..29)
# SDI1: sending ds index(1..50), dat reference(1..8)
# SDI2: tlg bit(0..15), sending ds index(1..50),
# dat reference(1..8), dat bit(0..31)
# also optional disturbance bit reference for ai/ci
#
#DTI SY STA MOD REG DA SDI ----- destination telegrams --
#
1 1 10 17 0 1 0,3,1,0 1,3,1,1 2,3,1,2 3,3,1,3
> 4,3,1,4 5,3,1,5 6,3,1,6 7,3,1,7
> 8,3,1,8 9,3,1,9 10,3,1,10 11,3,1,11
> 12,3,1,12 13,3,1,13 14,3,1,14 15,3,1,15
2 1 10 17 1 1 0,3,1,15
3 1 10 17 2 4 3,3
4 1 10 17 3 4 3,4
5 1 10 17 255 5 3,5 0,3,1,16
#
# --- RTLG -----
RTLG
# receiving tlg config data:
#
# RTI SY STA MOD REG DA SDI1 [SDI2]
# RTI SY STA MOD REG DA SDI2
#
# RTI: receive tlg index
# SY : procontrol system address(0..3)
# STA: procontrol station address(1..249)
# MOD: procontrol module address(0..59)
# REG: procontrol register address(0..199)
# DA : procontrol data type(0..29)
# SDI1: sending ds index(1..50), dat reference(1..8)
# SDI2: tlg bit(0..15), sending ds index(1..50),
# dat reference(1..8), dat bit(0..31)
# also optional disturbance bit reference for ai/ci
#
#RTI SY STA MOD REG DA SDI ----- receive telegrams --
#
1 1 10 7 10 1 0,2,1,0 1,2,1,1 2,2,1,2 3,2,1,3
> 4,2,1,4 5,2,1,5 6,2,1,6 7,2,1,7
> 8,2,1,8 9,2,1,9 10,2,1,10 11,2,1,11
> 12,2,1,12 13,2,1,13 14,2,1,14 15,2,1,15
2 1 10 7 1 1 0,2,1,15
3 1 10 7 2 4 1,3
4 1 10 7 3 4 1,4
5 1 10 7 0 5 1,5 0,1,1,16
6 1 10 7 5 1 15,1,2,31
7 1 10 7 6 1 14,1,2,30
8 1 10 7 7 4 1,8
9 1 10 7 8 4 2,2
10 1 10 7 9 5 2,3 0,1,2,0
11 1 10 7 4 6 2,4
12 1 10 7 30 4 2,5
#

```

```

# --- SDS -----
SDS
# sending ds config data:
#
#   SDSI ID CYC SDSS
#   =REF DA [VA] [MRL MRH]
#   [=REF DA [VA] [MRL MRH]]
#   [=REF DA [VA] [MRL MRH]]
#   [=REF DA [VA] [MRL MRH]]
#   [=REF DA [VA] [MRL MRH]]
#   [=REF DA [VA] [MRL MRH]]
#   [=REF DA [VA] [MRL MRH]]
#   [=REF DA [VA] [MRL MRH]]
#
# SDSI:sending ds index (1..50)
# ID : ds id (1..50)
# CYC: ds cycletime in ms
# (1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096)
# SDSS:ds size in byte (2, 4, 8, 16, 32)
# REF: dat reference (1..8)
# DA : dat data type (I=int16, L=int32, B=Boolean, R=real32)
# VA : dat valuetype (3 characters significant, e.g.: %, V, mA)
# MRL: dat measuring range low, low < high
# MRH: dat measuring range high, high > low
#
#SDSI ID CYC SDSS REF DA VA MRL MRH --- send dataset 01 --
1 1 512 32
=
= 1 B
= 2 B
= 3 I
= 4 L
= 5 R V 4 16
= 6 B
= 7 B
= 8 I
#
#SDSI ID CYC SDSS REF DA VA MRL MRH --- send dataset 02 --
2 2 512 16
=
= 1 B
= 2 I
= 3 R % 0 100
= 4 R C 0 1200
= 5 L
#SDSI ID CYC SDSS REF DA VA MRL MRH --- send dataset 03 --
3 3 512 32
=
= 1 B
= 2 B
= 3 I
= 4 L
= 5 R V 4 16
= 6 B
= 7 B
= 8 I
#
CHECKSUM=0x00006ed0
END

```

Important:

System messages with message codes assigned by the configuration-list processing and the configuration-list scanning always refer to the list existing in the module.

3 APBRIDGE configuration program

3.1 General notes

The configuration program is an Excel program (Excel 5.0 or higher). Versions for Windows 3.11 or Windows NT 4.0 are available.

Please pay attention to the updated information given in the "readme.txt" file on the installation disk.

3.2 Installing the program under Windows 3.11

- Copy file *win3.11/apbr.xls* onto your computer into any directory. We suggest to create a separate directory for this program. All the configuration files are written into the same directory where the Excel program file is located.
- Copy the *win3.11/checksum.exe* and *win3.11/ts50.trm* files into the c:\excel directory. You can also copy these two files into another directory. The path must be declared (c:\excel is the default path) in the APBRIDGE program, on the "Common data" worksheet.

3.3 Installing the program under Windows NT 4.0

- Copy the *winnt4.0/apbr_en.xls* file onto your computer into any directory. We suggest to create a separate directory for this program. All the configuration files will be written into the same directory where the Excel program file is located.
- Copy the *winnt4.0/checksum.exe* and *winnt4.0/ts50.ht* files into the c:\excel directory. You can also copy these two files into another directory. The path must be declared in the APBRIDGE program (c:\excel is the default path) on the "Common data" worksheet.

3.4 Getting started

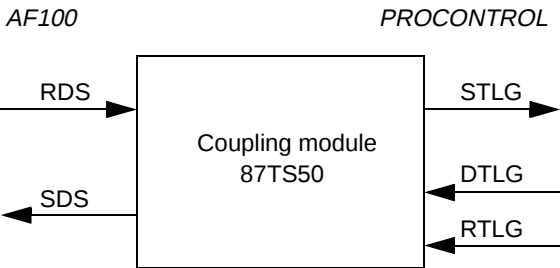
- Start up Excel.
- Open file *apbr_en.xls*. The "Common data" worksheet will appear.
- Save this file with „Save As...“ under a different name. Choose a name for your project. The text file that is required for loading onto the 87TS50 module and that is generated with this program, will be given the same name having ".CNF" for an extension.

3.5 Data input

3.5.1 General

Different worksheets are available for entering data. Each column of the worksheets has a specific name and contains a description. Entries are not checked by the APBRIDGE program. Checking takes place when the configuration file is loaded onto the 87TS50 coupling module.

Seen from the 87TS50, there are two directions of communication per system (Advant P and PROCONTROL).



The 87TS50 receives data from the AF100 and passes these data on to the PROCONTROL station bus. The data coming from the AF100 are listed on the "RDS A -> P" worksheet (RDS = receiving data set). The data going to the PROCONTROL station bus are listed on worksheet "STLG A -> P" (STLG = sending telegram).

The 87TS50 receives data from the PROCONTROL station bus and passes them on to the AF100. The data coming from the PROCONTROL station bus are listed on the "DTLG P -> A" worksheet (DTLG = destination telegram) and the "RTLG P -> A" worksheet (RTLG = receiving telegram). The data going to the AF100 are listed on worksheet "SDS P -> A" (SDS = sending data set).

The links between the data of the PROCONTROL station bus and the data of the AF100 need to be configured in different worksheets in the APBRIDGE program.

- From the AF100 to the PROCONTROL station bus:
listed on worksheets "RDS A -> P" and "STLG A -> P".
- From the PROCONTROL station bus to the AF100:
listed on worksheets "DTLG P -> A", "RTLG P -> A" and "SDS P -> A".

AIS, AOS DAT(IL)	87TS50 DAT(B)	DIS, DOS DAT(I)	87TS50 DAT(B)
1	0	1	15
:	:	:	:
20	19	16	31

3.5.2 Hints

The following hints briefly describe how to convert Boolean data.

PROCONTROL counts the bits from 0 .. n, Advant counts from 1 .. m.

- The VALUE terminal names of the data base element for Boolean data DAT(B) and of the 87TS50 differ. The following table shows how to convert correctly:

Advant DAT(B)	87TS50 DAT(B)
VALUE	0
VALUE21	
:	:
VALUE32	31

- To handle the extended data base elements AIS, AOS, DIS, and DOS correctly, use the following conversion table:

3.5.3 The "Common data" worksheet

The first worksheet displayed upon startup, is called "Common data" and is used for entering all the general data.

Common configuration data																							
Date and Time: 12.12.1996 14:10																							
BCYCLETIM	DCSUPTI	DASUPTI	DATHRES	CMADR	TIME	TS	DAYLSUP	AFSTA	AFBUSLEN	AFTIMAS	BUSADMIN												
basic cycletime for scanning receiving ds in ms	counter suppression time interval in ms (0..10000)	analog suppression time interval in ms (0..10000)	analog threshold in 0.1 % (1..68)	clock master address (sy, sta, mod, reg)	starttime (year, month, day, hour, minute, second, millisecond)	time status (wintertime = ON, summertime = OFF)	daylight saving time suppression (ON/OFF)	AF100 station address (1..80)	bus length (300, 600, 1200, 2000)	time-master function (ON/OFF)	busadministrator function (ON/OFF)												
Default=1000	Default= 100	Default= 100	Default= 10	Default=0,0,0,0		Default=OFF	Default=OFF	Default=1	Default=2000	Default=OFF	Default=OFF												
512	200	300	50	1,10,6,0	96,10,22,12,0,0,0	OFF	ON	10	2000	ON	ON												
REDMOD redundancy mode (ON/OFF) Default=OFF OFF <table border="1"> <thead> <tr> <th>File ID</th> <th>Checksum directory</th> <th>Terminal program directory</th> </tr> </thead> <tbody> <tr> <td>this text will be displayed as ID for the list file; not more than 21 characters</td> <td>directory of the program CHECKSUM (used internally in this Excel program)</td> <td>directory of the TS50.TRM file for the configuration of the Terminal program</td> </tr> <tr> <td>e.g.: STANDARD TESTLIST</td> <td>Default= C:\EXCEL</td> <td>Default= C:\EXCEL</td> </tr> <tr> <td>STANDARD TESTLIST</td> <td>C:\PROCONTR</td> <td>C:\PROCONTR</td> </tr> </tbody> </table>												File ID	Checksum directory	Terminal program directory	this text will be displayed as ID for the list file; not more than 21 characters	directory of the program CHECKSUM (used internally in this Excel program)	directory of the TS50.TRM file for the configuration of the Terminal program	e.g.: STANDARD TESTLIST	Default= C:\EXCEL	Default= C:\EXCEL	STANDARD TESTLIST	C:\PROCONTR	C:\PROCONTR
File ID	Checksum directory	Terminal program directory																					
this text will be displayed as ID for the list file; not more than 21 characters	directory of the program CHECKSUM (used internally in this Excel program)	directory of the TS50.TRM file for the configuration of the Terminal program																					
e.g.: STANDARD TESTLIST	Default= C:\EXCEL	Default= C:\EXCEL																					
STANDARD TESTLIST	C:\PROCONTR	C:\PROCONTR																					

Program: APBRIDGE
Version: 1.1 english
Date: 12.12.96

In fields where no value has been entered, the default values will be used.

Please note: ON/OFF must be entered in capital letters.

3.5.4 The "RDS A -> P" worksheet

The "RDS A->P" worksheet is used for entering data that are transferred from the AF100 to the PROCONTROL station bus. In the following, the AF100 part of data communication is described.

Values RDSI, STA, ID, CYC, RDSS, REF, DA, VA, MRL, and MRH indicate the AF100 datasets that are to be transferred to the PROCONTROL station bus.

For the Boolean data type, value STI1 determines which one of the bits of this AF100 dataset is to be transferred to which telegram and which bit is to be transferred over the PROCONTROL station bus. The link to the PROCONTROL telegram is established by the second value of STI1. This value corresponds to STI on the "STLG A -> P" worksheet.

In the case of data types int16, int32 and real32, the value STI2 establishes the link from the AF100 telegram to the PROCONTROL telegram. Value STI2 corresponds to value STI on the "STLG A -> P" worksheet.

Value RDSI must be numbered in ascending order.

RDSI	STA	ID	CYC	RDSS	REF	DA	STI1	STI2	VA	MRL	MRH	Comments
1	9	1	512	32	1	B	0,1,0					
							1,1,1					
							2,1,2					
							3,1,3					
							4,1,4					
							5,1,5					
							6,1,6					
							7,1,7					
							8,1,8					
							9,1,9					
							10,1,10					
							11,1,11					
							12,1,12					
							13,1,13					
							14,1,14					
							15,1,15					
							16,2,0					
							17,2,1					
							18,2,2					

Please note: ON/OFF must be entered in capital letters.

The references must always be entered in separate rows.

3.5.5 The "STLG A -> P" worksheet

The "STLG A->P" worksheet is used for entering the data going from the AF100 to the PROCONTROL station bus. In the following, the PROCONTROL part of data communication is described.

Values SY, STA, MOD, REG, DA, MR, SUPTI, and THRES indicate the PROCONTROL telegram where the AF100 data are transferred to. Value STI links the values from the "RDS A -> P" worksheet with the ones on worksheet "STLG A -> P".

Value STI must be numbered in ascending order.

Microsoft Excel - APBR_EN.XLS										
Datei Bearbeiten Ansicht Einfügen Format Extras Daten Fenster Coupler ?										
Arial 10 F K U % 000 .00 .00										
A	B	C	D	E	F	G	H	I	J	
1	AF100 -> Procontrol									
2	STI	SY	STA	MOD	REG	DA	MR	SUPTI	THRES	Comments
3	sending tlg index (1..800)	procontrol system address (0..3)	procontrol station address (1..249)	procontrol module address (0..59)	procontrol register address (0..199)	procontrol datatype (0..25, 27, 28)	procontrol measuring range (0..3)	individual suppression time interval in ms	individual analog threshold in 0.1% (1..68)	
4						DA variants:	MR variants:			
5						0..3, 8..28: DA	DA 5: MR 0 (0..100%)			
6						4: DA	DA 6: MR 0 (0..150C)			
7						4: DA SUPTI	DA 6: MR 1 (0..300C)			
8						5, 6, 7: DA MR	DA 6: MR 2 (0..600C)			
9						5, 6, 7: DA MR SUPTI THRE	DA 6: MR 3 (0..1000C)			
10							DA 7: MR 0 (0..200K)			
11							DA 7: MR 1 (0..150K)			
12							DA 7: MR 2 (0..200K)			
13							DA 7: MR 3 (0..300K)			
14	1	1	10	11	0	9				
15	2	1	10	11	1	9				
16	3	1	10	11	2	4				
17	4	1	10	11	3	4		2000		
18	5	1	10	11	4	5	0			
19	6	1	10	11	5	4				
20	7	1	10	11	6	4				
21	8	1	10	11	7	5	0	1000	10	
22	9	1	10	11	8	4				
23	10	1	10	11	9	4				
24	11	1	10	11	10	6	2	500	5	
25	12	1	10	11	11	5	0			
26	13	1	10	11	12	0				
27	14	1	10	11	13	4				
28	15	1	10	11	14	0				
29	16	1	10	11	15	5	0			
30	17	1	10	11	16	9				
31	18	1	10	11	17	4		1500		
32	19	1	10	11	18	4				

common data RDS A -> P STLG A -> P DTLG P -> A RTLG P -> A SDS P -> A

Bereit

NUM

3.5.6 The "DTLG P -> A" worksheet

The "DTLG P -> A" worksheet is used for entering the data going from the PROCONTROL station bus to the AF100. These are destination values that are not transferred cyclically. In the following, the PROCONTROL part of data communication is described.

Values DTI, SY, STA, MOD, REG, and DA indicate the PRO-CONTROL telegram that is to be transferred to the AF100 datasets.

For the Boolean data type, value SDI2 determines which one of the bits of this PROCONTROL telegram is to be transferred to which dataset and which bit is to be transferred over the AF100. The link to the AF100 dataset is made via the second and third value of SDI2. These values correspond to the values SDSI and REF on the "SDS P -> A" worksheet.

For data types int16, int32 and real32, value SDI1 provides the link from the PROCONTROL telegram to the AF100 telegram. Both values of SDI1 correspond to the values SDSI and REF on the "SDS P -> A" worksheet.

Value DTI must be numbered in ascending order.

Microsoft Excel - APBR_EN.XLS

Datei Bearbeiten Ansicht Einfügen Format Extras Daten Fenster Coupler ?

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A12 1

	A	B	C	D	E	F	G	H	I
1	Procontrol -> AF100 DTLG -> destination telegram configuration data								
2	DTI	SY	STA	MOD	REG	DA	[SDI1]	[SDI2]	Comments
3	destination tlg index (1..256)	procontrol system address (0..3)	procontrol station address (1..249)	procontrol module address (0..59)	procontrol register address (0..199)	procontrol datatype (0..25, 27, 28)	sending ds index (1..50), dat reference (1..8)	tlg bit (0..15), sending ds index (1..50), dat reference (1..8), dat bit (0..31); also optional disturbance bit reference	
4	DA variants:								
5	0..3, 8..28: DA SDI2 ¹⁾								
6	4: DA SDI1								
7	4: DA SDI1 SDI2 ²⁾								
8	5, 6, 7: DA SDI1								
9	5, 6, 7: DA SDI1 SDI2 ²⁾								
10	1) up to 16 SDI2								
11	2) optional disturbance bit								
12	1	1	10	17	0	1		0,3,1,0	
13								1,3,1,1	
14								2,3,1,2	
15								3,3,1,3	
16								4,3,1,4	
17								5,3,1,5	
18								6,3,1,6	
19								7,3,1,7	
20								8,3,1,8	
21								9,3,1,9	
22								10,3,1,10	
23								11,3,1,11	
24								12,3,1,12	
25								13,3,1,13	
26								14,3,1,14	
27								15,3,1,16	
28	2	1	10	17	1	1		0,3,1,15	
29								1,3,1,16	
30								2,3,1,17	

RDS A -> P / STL A -> P / DTLG P -> A / RTL P -> A / SDS P -> A

3.5.7 The "RTL P -> A" worksheet

The "RTL P -> A" worksheet is used for entering the data going from the PROCONTROL station bus to the AF100. In the following, the PROCONTROL part of data communication is described.

Values RTI, SY, STA, MOD, REG, and DA indicate the PROCONTROL telegram that is to be transferred to AF100 datasets.

For the Boolean data type, value SDI2 declares which one of the bits of this PROCONTROL telegram is to be transferred to which dataset and which bit is to be transferred over the AF100. The link to the AF100 dataset is made via the second and third value of SDI2. These values correspond to SDSI and REF on the "SDS P -> A" worksheet.

For data types int16, int32 and real32, value SDI1 provides the link from the PROCONTROL telegram to the AF100 telegram. Both values of SDI1 correspond to the values SDSI and REF on the "SDS P -> A" worksheet.

Microsoft Excel - APBR_EN.XLS									
Datei Bearbeiten Ansicht Einfügen Format Extras Daten Fenster Coupler ?									
Arial 10 F K U % 000 +,00 -,00									
A	B	C	D	E	F	G	H	I	
1	Procontrol -> AF100 RTL P -> receiving telegram configuration data								
2	RTI	SY	STA	MOD	REG	DA	[SDI1]	[SDI2]	Comments
3	receive	procontrol	procontrol	procontrol	procontrol	procontrol datatype	sending ds	tlg bit (0..15), sending ds	
4	tlg index	system	station	module	register	(0..25, 27, 28)	index (1..50),	index (1..50), dat reference	
5		address	address	address	address		dat reference	(1..8), dat bit (0..31)	
6		(0..3)	(1..249)	(0..59)	(0..199)		(1..8)		
7						DA variants:			
8						0..3, 8..28: DA SDI2 ¹⁾			
9						4: DA SDI1			
10						4: DA SDI1 SDI2 ²⁾			
11						5, 6, 7: DA SDI1			
						5, 6, 7: DA SDI1 SDI2 ²⁾			
						1) up to 16 SDI2			
						2) optional disturbance bit			
12	1	1	10	7	10	1		0,2,1,0	
13								1,2,1,1	
14								2,2,1,2	
15								3,2,1,3	
16								4,2,1,4	
17								5,2,1,5	
18								6,2,1,6	
19								7,2,1,7	
20								8,2,1,8	
21								9,2,1,9	
22								10,2,1,10	
23								11,2,1,11	
24								12,2,1,12	
25								13,2,1,13	
26								14,2,1,14	
27								15,2,1,15	
28	2	1	10	7	1	1		0,2,1,15	
29	3	1	10	7	3	4	1,3		
30									

common data / RDS A -> P / STL A -> P / DTL P -> A / RTL P -> A / SDS P -> A

Bereit

NUM

3.5.8 The "SDS P -> A" worksheet

The "SDS P -> A" worksheet is used for entering the data going from the PROCONTROL station bus to the AF100. In the following, the AF100 part of data communication is described.

Values ID, CYC, SDSS, DA, VA, MRL, and MRH indicate the AF100 dataset where the PROCONTROL telegram is transferred to. The values SDSI and REF combine the values of worksheets "DTLG P -> A" and "RTL P -> A" with the values on worksheet "SDS P -> A".

Microsoft Excel - APBR_EN.XLS

File Bearbeiten Ansicht Einfügen Format Extras Daten Fenster Coupler ?

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A9 1

1	Procontrol -> AF100									
2	SDSI	ID	CYC	SDSS	REF	DA	[VA]	[MRL]	[MRH]	Comments
3	sending ds index (1..50)	ds id (1..50)	ds cycletime in ms (1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096)	ds size in byte (4, 8, 16, 32)	dat reference (1..8)	dat datatype (I=int16, L=int32, B=boolean, R=real32)	dat valuetype (3 characters significant, e.g.: %, V, mA)	dat measuring range low, low < high	dat measuring range high, high > low	
4						DA variants: B: DA I: DA L: DA R: DA VA MRL MRH				
9	1	1	512	32	1	B				
10					2	B				
11					3	I				
12					4	L				
13					5	R	V	4	16	
14					6	B				
15					7	B				
16					8	I				
17										
18	2	2	512	16	1	B				
19					2	I				
20					3	R	%	0	100	
21					4	R	C	0	1200	
22					5	L				
23					6	R	%	0	500	
24										
25	3	3	512	32	1	B				
26					2	B				
27					3	I				
28										

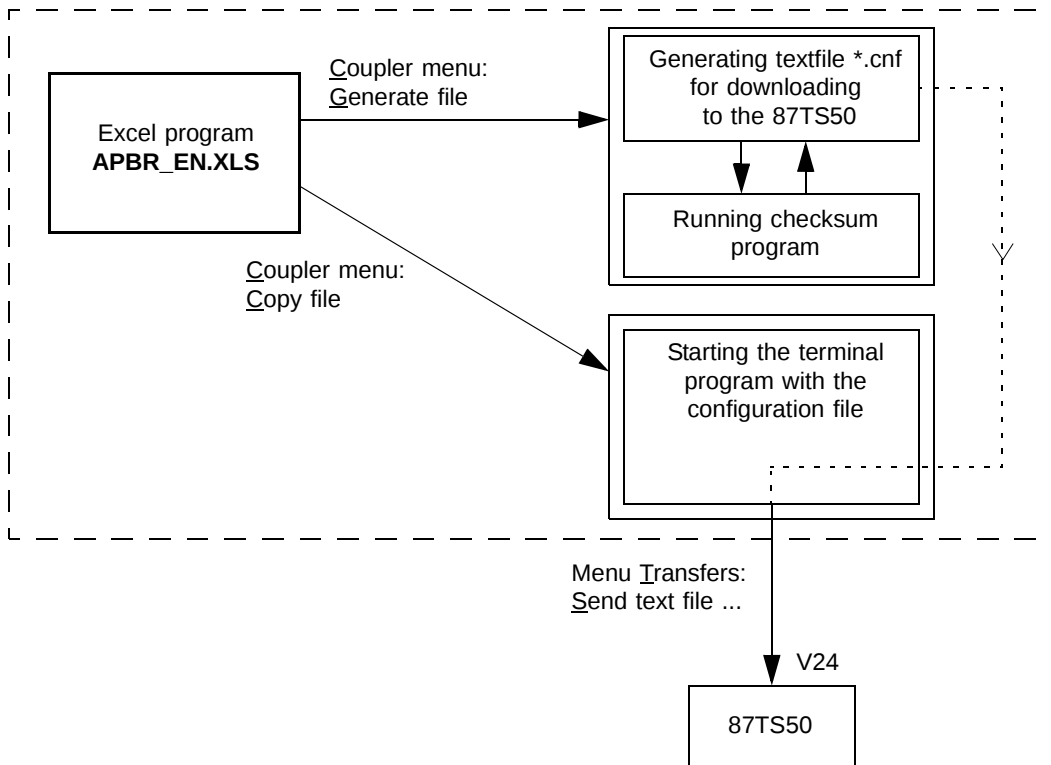
common data / RDS A -> P / STL A -> P / DTLG P -> A / RTL P -> A / SDS P -> A

Bereit NUM

Please note: ON/OFF must be entered in capital letters.

The references must always be entered in separate rows.

3.6 Program structure



This figure shows the structure of the APBRIDGE program. The program offers one menu item, "Coupler", with two sub-items.

The first subitem "Generate file" generates a configuration file for the 87TS50 which includes all data from all of the work-sheets. The CHECKSUM program is started, and the check-sum is indicated at the end of the configuration file.

The second subitem "Copy file" starts the Windows terminal program:

- Windows 3.11
Terminal (terminal.exe) using configuration file TS50.TRM
- Windows NT 4.0
Hyperterminal (hypertm.exe) using configuration file TS50.HT

The configuration file can be loaded onto the 87TS50 coupling module using menu item "Transfers" and subitem "Send text file...".

The connection between computer (COM1) and coupling module (X1) is established via a RS232 cable (cf. "Service and configuration interface").

3.7 Sample configuration session (under Windows 3.11)

- Enter the configuration data in the Excel data sheets.
- Generate configuration file: Coupler -> Generate file.
- Connect coupling module to PC via serial link.
- Copy file onto coupling module: Coupler -> Copy file => terminal TS50.TRM icon.
- Open terminal icon and login user monitor (password: abb).
- Select "Configuration list" menu.
Select "Load".
Press function key "~".
Select "Transfers -> Send Text File" (German version: "Übertragung -> Textdatei senden").
Select "Filename".
- Type in "V" to save the new list or "A" to start the coupling module with the new list.
- Check the current system messages in the diagnosis menu for possible configuration errors. For further explanations on the reported messages, cf. Section 5 "System messages".

4 How to operate the user monitor

4.1 General notes

The following abbreviations and terms are used in the user monitor displays:

Advant Power

ci	Advant Fieldbus 100 interface
cycle	Transmission interval of a peripheral dataset element
ds	Peripheral dataset element
dat	Data element
ident	Identification number of a peripheral dataset element
me	Module error
pe	Process error
ref	Reference number of a data element
se	System error
size	Size of a peripheral dataset element

PROCONTROL

da	Data type
db	Disturbance bit
ssu	Sending suppressed
thresh	Threshold
ti	Time interval
tlg	Telegram
trm	Transmission mode

Other abbreviations

adr	Address
alloc	Allocation
ps	Processing
rmr	Receive monitoring
sta	Station
valid	Data are configured and are being processed

4.2 Login

The module can be configured from the user monitor which also allows to read and display internal statuses and data of the 87TS50. For displaying, a serial interface (X1 on the module front) of a terminal or a computer with terminal emulation, or an Ethernet interface (X2) of a networked computer loaded with a monitor program can be used. Loading a configuration list can be done with the help of a terminal emulation only.

The monitor is started up automatically after the 87TS50 has been plugged in and operating state 6 "Waiting for configuration list" has been reached. The cable for connecting the serial interface can be plugged in or removed during operation. The monitor program on the networked computer can be started or stopped during operation. The monitor program is called with the following command:

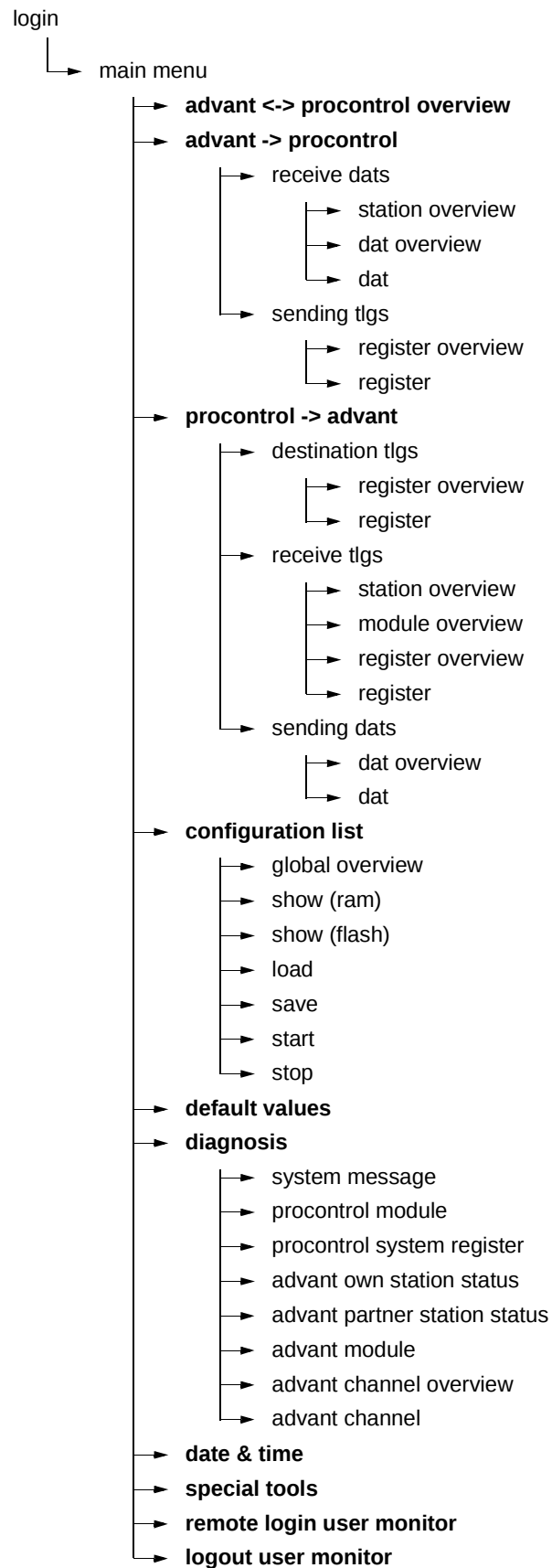
"umon <Internet address>"

For example: "umon 138.222.70.41"

and is available on every POS/PMS system. Upon input of the command, a window will be opened on the computer and the connection to the 87TS50 is set up. After starting the 87TS50, the user has to log in first. This is done by pressing any key at the terminal or computer. After that, enter the user monitor password (abb). After this entry has been successful, you may enter a project name or changed it if need be. This name will be indicated on all of the screen outputs.

The present firmware version of the processing software is displayed during the login procedure.

4.3 Menu overview



4.4 Screen layout

Project name **Release, revision of monitor** **Date and time**

ABB Advant P <-> PROCONTROL P

RIK 4S GT26 87TS50 USER MONITOR 4.0 97-04-04 10:00:52

main menu 9CA 138,222,070,042

Current menu on the monitor

Menu-related tasks

Input prompt

Internet address (decimal)

Redundancy status (display only for redundant applications)
A=Module active
P=Module passive

Bus systems
Connect status
D=Disconnected
C=Connected

Current display
Operating state

4.5 Menu descriptions and screen outputs

4.5.1 Advant Power <-> PROCONTROL overview

RIK 4S GT26 87TS50 USER MONITOR 4.0 95-06-18 10:55:11

advant <-> procontrol overview 9C 138,222,070,045

measuring!

connect status : connected

display value : 9 -> processing

procontrol -> advant

destination tlg items act/max : 00000/00256 tlg/s

destination tlg items in : 00000 tlg/s

receive tlg items act/max : 00014/06000 tlg/s

receive tlg fifo items act/max : 00000/12288 tlg/s [status: ok]

receive tlg fifo items in/out : 00000/00000 tlg/s

sending ds,dat items act/max : 003,0015/050,0400 ds/dats

sending dat items changed : 00000 dats/s

procontrol bus cycle time : 00020 ms

advant -> procontrol

receive ds,dat items act/max : 002,0015/750,6000 ds/dats

receive dat items changed : 00000 dats/s

receive ds basic scan cycle act/cnf : 0010/0010 ms

sending tlg items act/max : 014/800 tlg/s

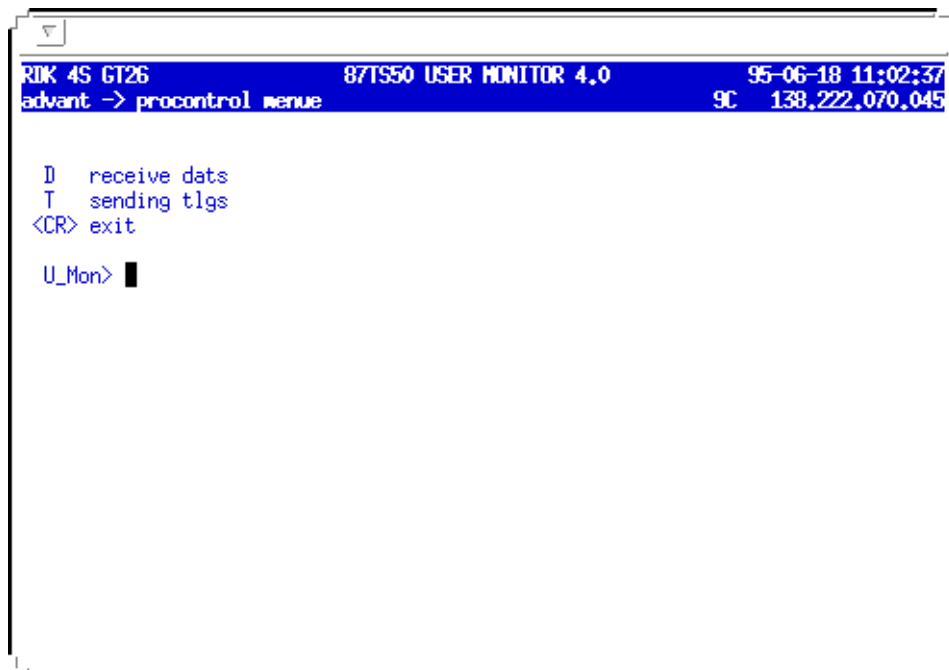
sending tlg items changed : 000/000 tlg/s [cyclic/event]

Type any key to break:

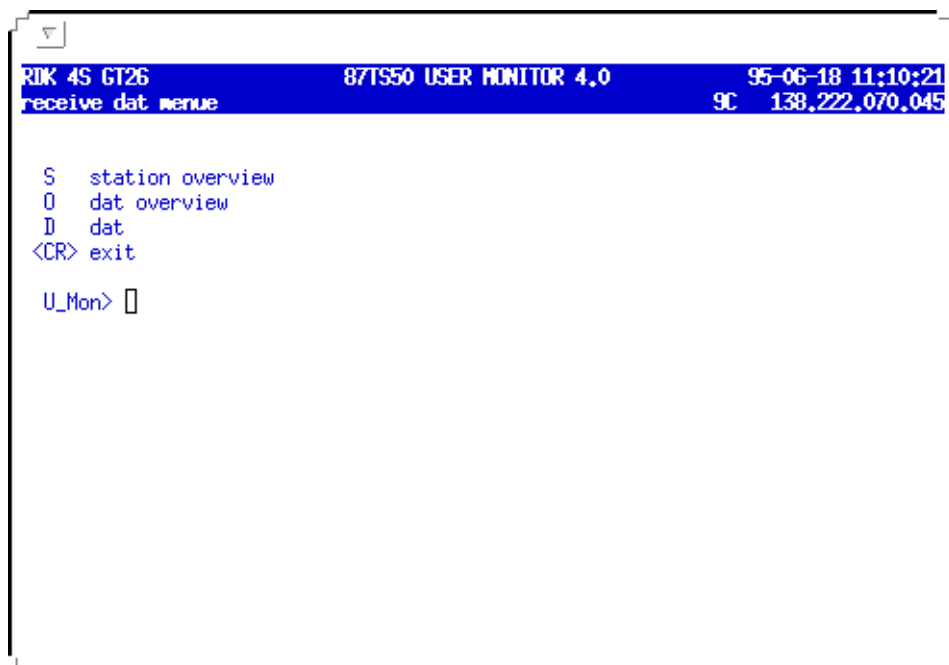
Current information for receiving and processing telegrams and data elements. The information is updated cyclically based on the bus cycle time and the largest data-element cycle time, provided that the module is in the "connected" state. The values

displayed for the changed data elements (sending dat items changed) are derived from the sum of the changed process signals per data element.

4.5.2 Advant Power -> PROCONTROL overview



4.5.2.1 Receive data element menu



4.5.2.1.1 Station overview

```

RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-18 13:41:26
receive dat station overview      9C 138,222,070,045

123456789012345678901234567890123456789012345678901234567890
.....1.....2.....3.....4.....5.....6.....7
-----X-----
.....8
-----

( X = valid, I = valid with rmr, _ = invalid )

<CR> exit, R repeat: 

```

Overview of the Advant Fieldbus 100 stations reported by the 87TS50.

In this example, only data elements from Advant Power station 12 are received.

4.5.2.1.2 Data elements overview

```

RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-18 13:58:00
receive dat overview      9C 138,222,070,045
sta: 12

ident | 12345678901234567890123456789012345678901234567890
valid | .....1.....2.....3.....4.....5
size  | X_X
cycle | -----
      |
ref 1 | B R
ref 2 | B R
ref 3 | I R
ref 4 | L R
ref 5 | R R
ref 6 | R R
ref 7 | B R
ref 8 | R

                                         datatype:
                                         I=int16
                                         L=int32
                                         R=real
                                         B=boolean

valid      : X=valid, I=valid with rmr, _=invalid
size[byte]: 1=4, 2=8, 3=16, 4=32
cycle [ms]: 0=1, 1=2, 2=4, 3=8, 4=16, 5=32, 6=64, 7=128
            8=256, 9=512, a=1024, b=2048, c=4096
<CR> exit, R repeat, P previous, N next, G goto: 

```

Overview of the data elements of an Advant Power station reported by the 87TS50. In this example, data elements with re-

ference numbers 1...7 and 1...8 of the peripheral dataset elements 1 and 3 are reported.

4.5.2.1.3 Data element

```

RDK 4S GT26          87TS50 USER MONITOR 4.0          95-06-18 13:47:47
receive dat          9C 138,222,070,045
sta: 12, ident: 1, ref: 1                                significant!

dat data : sta: 12, ident: 1, ref: 1, cycle: 512 ms

ds state : ci = 1 (active), ps = firstval valid
ds errors : ci = se: 0x00000000, me: 0x00000000, pe: 0x00000000
dat time : 95-06-18 13:40:01;953
dat info : binary data
dat da,val: boolean, 0x00000000 (0000,0000 0000,0000 0000,0000 0000,0000)
dat alloc : tlg(mod,reg,bit,val)

31..28: - - - -
27..24: - - - -
23..20: - - - -
19..16: - - - -
15..12: 17,004,15,0 17,004,14,0 17,004,13,0 17,004,12,0
11..08: 17,004,11,0 17,004,10,0 17,004,09,0 17,004,08,0
07..04: 17,004,07,0 17,004,06,0 17,004,05,0 17,004,04,0
03..00: 17,004,03,0 17,004,02,0 17,004,01,0 17,004,00,0

Type any key to break: █

```

The display for a data element that is to be received shows the allocation of the data to the telegram and the current statuses of the Advant Fieldbus 100 interface and the processing section.

In this example, bit 15 of this Boolean data element is transmitted to bit 15 of the telegram having module address 17 / register 4.

4.5.2.2 Send telegram menu

```

RDK 4S GT26          87TS50 USER MONITOR 4.0          95-06-18 14:03:48
send tlg menu          9C 138,222,070,045

R  register overview
T  register
<CR> exit

U_Mon> █

```

4.5.2.2.1 Register overview

```

RDK 4S GT26          87TS50 USER MONITOR 4.0          95-06-18 14:06:23
send tlg register overview          9C 138.222.070.045

own sta: 10

own mod: 17
01234567890123456789012345678901234567890123456789
0.....1.....2.....3.....4.....5.....6.....
XXXXXXXXXXXXXXXXX
7.....8.....9.....10.....11.....12.....13.....
-----
14.....15.....16.....17.....18.....19.....
-----

own mod: 18
01234567890123456789012345678901234567890123456789
0.....1.....2.....3.....4.....5.....6.....
7.....8.....9.....10.....11.....12.....13.....
-----
14.....15.....16.....17.....18.....19.....
-----

( X = valid, S = valid with ssu, _ = invalid )

<CR> exit, C continue: █

```

Overview of all registers sent by the 87TS50.

4.5.2.2.2 Register

```

RDK 4S GT26          87TS50 USER MONITOR 4.0          95-06-18 14:14:25
send tlg register          9C 138.222.070.045
mod: 17, reg: 5          significant!

tlg data : sta: 10, mod: 17, reg: 5, da: 6, val: 0x0000

tlg od(ba): 0x00 = valid
tlg trm,rs: cyclic, firstval
tlg suppr : ti: 300 ms, thresh: 5,0 % (defaults)
tlg time : 95-06-18 13:40:01:953
tlg info : analog data with general disturbance bit
tlg da,val: 6, 0x0000 (0.00 °C, range: 0..150 °C)
tlg alloc : dat(sta,ident,ref,da,val)
             dat(sta,ident,ref,bit,val)

value : 12,1,6,real32,0x00000000 (0.00 C, range: 0..100 C)
db bit: 12,1,7,0,0

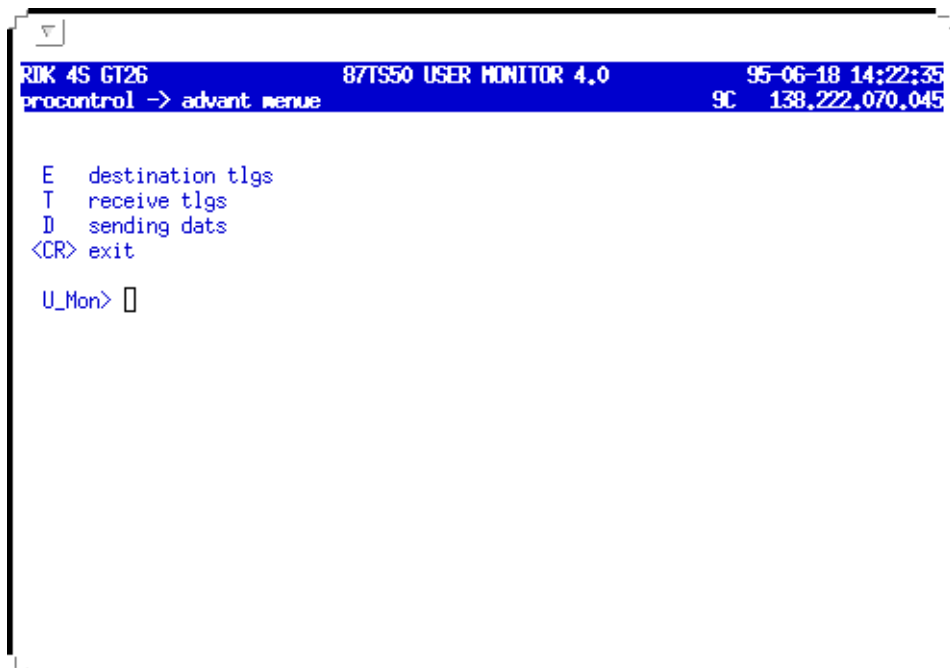
Type any key to break: █

```

The display of a register that is to be sent shows how the data elements are allocated to this telegram and indicates the current statuses of station-bus interface and processing section.

The analog telegram in this example consists of two data elements of the Advant Power system.

4.5.3 PROCONTROL -> Advant Power menu



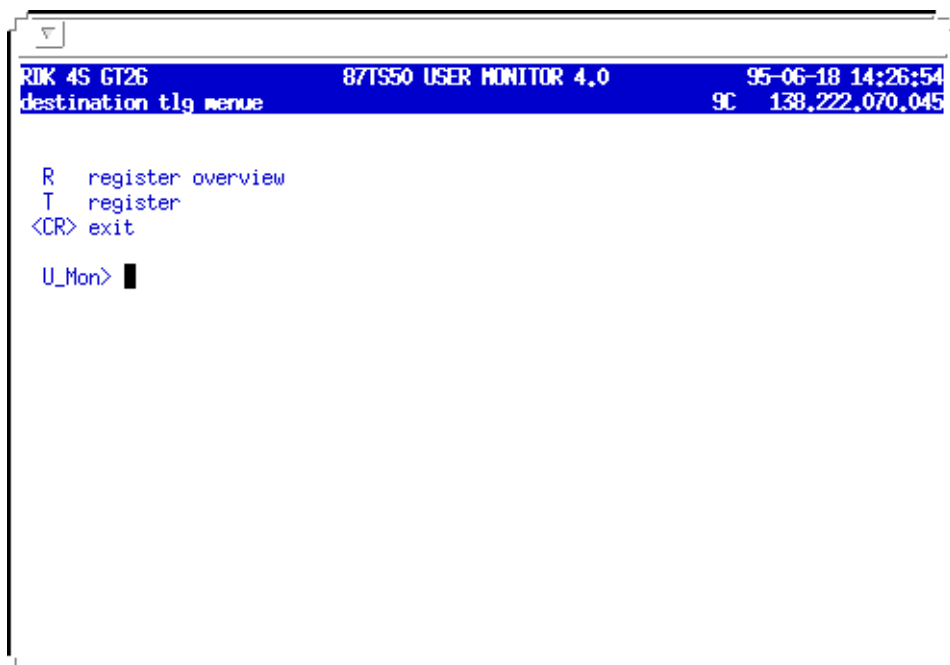
The screenshot shows a terminal window titled "87TS50 USER MONITOR 4.0". The top status bar displays "RDK 4S GT26" on the left, "87TS50 USER MONITOR 4.0" in the center, and "95-06-18 14:22:35" on the right. Below the status bar, a blue header line reads "procontrol -> advant menu" followed by "9C 138,222,070,045". The main menu lists the following options: "E destination tlgs", "T receive tlgs", "D sending dats", and "<CR> exit". At the bottom, the prompt "U_Mon>" is followed by a cursor.

```
RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-18 14:22:35
procontrol -> advant menu      9C 138,222,070,045

E  destination tlgs
T  receive tlgs
D  sending dats
<CR> exit

U_Mon> █
```

4.5.3.1 Destination telegram menu



The screenshot shows the same terminal window as before, but the blue header line now reads "destination tlg menu" followed by "9C 138,222,070,045". The main menu lists the following options: "R register overview", "T register", and "<CR> exit". At the bottom, the prompt "U_Mon>" is followed by a cursor.

```
RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-18 14:26:54
destination tlg menu      9C 138,222,070,045

R  register overview
T  register
<CR> exit

U_Mon> █
```

4.5.3.1.1 Register overview

```

RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-16 11:26:03
destination tlg register overview              9C 138,222,070,045

01234567890123456789012345678901234567890123456789
0.....1.....2.....3.....4.....5.....6.....
XXX
7.....8.....9.....10.....11.....12.....13.....
14.....15.....16.....17.....18.....19.....20.....
21.....22.....23.....24.....25.....
X

( X = valid, X = valid with rmr, _ = invalid )

<CR> exit, R repeat: █
    
```

This overview shows the destination telegrams that are to be received by the 87TS50. In this example, registers 0...3 and 255 will be transferred to the Advant Power system.

A destination telegram indicating "Receive monitoring responded" means that this destination telegram has never been received before.

4.5.3.1.2 Register

```

RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-16 11:28:08
destination tlg register              9C 138,222,070,045
reg: 1                                significant!

tlg data : sta: 255, mod: 63, reg: 255, da: 31, val: 0xFFFF

tlg od(ba): 0xFF = changeon invalid
tlg rs(ba): 0xFF = rmr
tlg sra,rs: 1, first rmr
tlg time : 95-06-16 11:23:22:930
tlg info : binary data with general disturbance bit
tlg da,val: 1, 0x0000 (0000,0000 0000,0000)
tlg alloc : dat(ident,ref,bit,val)

15..12: - - - -
11..08: - - - -
07..04: - - - -
03..00: - - - 03,1,15,0

Type any key to break: █
    
```

The display of a received destination register shows how the data are allocated to the data element and indicates the current statuses of station-bus interface and processing section. In this example, bit 0 of the destination telegram is transferred to bit

15 of data element 1 of the peripheral dataset element 3. If the receive monitoring function has responded - as shown in this example - the data of the station-bus interface (tlg data, tlg od(ba) and tlg rs(ba) are still in their initial state.

4.5.3.2 Receive telegram menu

```

RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-18 14:36:57
receive tlg menu      9C 138,222,070,045

S  station overview
M  module overview
R  register overview
T  register
<CR> exit

U_Mon> █

```

4.5.3.2.1 Station overview

```

RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-18 14:42:58
receive tlg station overview      9C 138,222,070,045

01234567890123456789012345678901234567890123456789
0.....1.....2.....3.....4.....5.....6.....
 3
7.....8.....9.....10.....11.....12.....13.....
14.....15.....16.....17.....18.....19.....20.....
21.....22.....23.....24.....25.....
-----
( X = valid, 3 = valid with rmr, _ = invalid )
<CR> exit, R repeat: █

```

Overview of the stations on the PROCONTROL bus that are reported by the 87TS50. In this example, only the telegrams of

station 10 are indicated, and the receive monitoring function has responded for at least one of the telegrams.

4.5.3.2.2 Module overview

```
RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-18 14:48:09
receive tlq module overview      9C 138.222.070.045

sta: 10

0123456789012345678901234567890123456789012345678901234567890123
0.....1.....2.....3.....4.....5.....6...
-----
( X = valid, 1 = valid with rmr, _ = invalid )
<CR> exit, R repeat, P previous, N next, G goto: █
```

Overview the modules of one particular station that are reported by the 87TS50. In this example, only the telegrams of module 9 are listed, and the receive monitoring function has responded for at least one of the telegrams.

4.5.3.2.3 Register overview

```
RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-18 14:51:33
receive tlq register overview      9C 138.222.070.045

sta: 10, mod: 9

012345678901234567890123456789012345678901234567890123456789
0.....1.....2.....3.....4.....5.....6.....
XXXXXXXXXXXX3333
7.....8.....9.....10.....11.....12.....13.....
-----
14.....15.....16.....17.....18.....19.....20.....
-----
21.....22.....23.....24.....25.....
-----
( X = valid, 1 = valid with rmr, _ = invalid )
<CR> exit, R repeat, P previous, N next, G goto: █
```

Overview of the registers of one particular module that are reported by the 87TS50. In this example, telegrams 0...13 of module 9 are listed, and the receive monitoring function has responded for telegrams 10...13.

4.5.3.2.4 Register

```

ROK 4S GT26      87TS50 USER MONITOR 4.0      95-06-16 11:25:59
receive tlq register      9C 138,222,070,045
sta: 10, mod: 9, reg: 0      significant!

tlg data : sta: 10, mod: 9, reg: 0, da: 5, val: 0x0000

tlg od(ba): 0x81 = changeon valid
tlg rs(ba): 0x00 = -
tlg sra,rs: 260, firstval
tlg time : 95-06-16 11:23:23:254
tlg info : analog data with general disturbance bit
tlg da,val: 5, 0x0000 (0.00 %, range: 0..100 %)
tlg alloc : dat(ident,ref,da,val)
             dat(ident,ref,bit,val)

value : 1,5,real32,0x00000000 (0.00 %, range: 0..100 %)
db bit: 1,1,16,0

Type any key to break: █

```

The display of a received register shows how the data are allocated to the data element and indicate the current statuses of the station-bus interface and processing section. In this example, the analog telegram is transferred onto data element 5 of

the peripheral dataset element 1, and the disturbance bit of this analog telegram is transferred onto bit 16 of data element 1 of the peripheral dataset element 1.

4.5.3.3 Send-data element menu

```

ROK 4S GT26      87TS50 USER MONITOR 4.0      95-06-16 11:28:50
sending dat menu      9C 138,222,070,045

0 dat overview
D dat
<CR> exit

U_Mon> █

```

4.5.3.3.1 Data element overview

```

ABB Advant P <-> PROCONTROL P
RIK 4S GT26          87TS50 USER MONITOR 4.0          97-04-04 11:02:29
sending dat overview          9CA 138.222.070.042
  own sta: 10, sds sta: 10

  ident | 12345678901234567890123456789012345678901234567890
        | .....1.....2.....3.....4.....5
  valid | XXX-----
  size  | 434
  cycle | 999

  ref 1 | BBR
  ref 2 | B R
  ref 3 | IRR
  ref 4 | L R
  ref 5 | R R
  ref 6 | R
  ref 7 | R
  ref 8 | R

  datatype:
  I=int16
  L=int32
  R=real
  B=boolean

  valid : %=valid, S=valid with ssu, _=invalid
  size[byte]: 1=4, 2=8, 3=16, 4=32
  cycle [ms]: 0=1, 1=2, 2=4, 3=8, 4=16, 5=32, 6=64, 7=128
             8=256, 9=512, a=1024, b=2048, c=4096
  <CR> exit, R repeat: █

```

Overview of the data elements that are to be sent by the 87TS50. In this example, the data elements (ref) 1...5, 1 and 3,

as well as 1...8 of the peripheral dataset elements (ident) 1, 2 and 3 are being sent.

4.5.3.3.2 Data element

```

RIK 4S GT26          87TS50 USER MONITOR 4.0          95-06-16 11:34:02
sending dat          9C 138.222.070.045
  ident: 1, ref: 2          significant!

  dat data : sta: 10, ident: 1, ref: 2, cycle: 512 ms

  ds state : ci = 1 (active), ps = firstval valid
  ds errors : ci = se: 0x00000000, me: 0x00000000, pe: 0x00000000
  dat time : 95-06-16 11:23:23:254
  dat info : binary data
  dat da,val: boolean, 0x00000000 (0000.0000 0000.0000 0000.0000 0000.0000)
  dat alloc : tlg(sta,mod,reg,bit,val)

  31..28: - - - -
  27..24: - - - -
  23..20: - - - -
  19..16: - - - -
  15..12: 010,09,001,15,0 010,09,001,14,0 010,09,001,13,0 010,09,001,12,0
  11..08: 010,09,001,11,0 010,09,001,10,0 010,09,001,09,0 010,09,001,08,0
  07..04: 010,09,001,07,0 010,09,001,06,0 010,09,001,05,0 010,09,001,04,0
  03..00: 010,09,001,03,0 010,09,001,02,0 010,09,001,01,0 010,09,001,00,0

  Type any key to break: █

```

The display of a data element that is to be sent shows how the data of the telegram are allocated and indicates the statuses of the Advant Fieldbus 100 interface and the processing section.

In this example, bit 15 of the telegram is transferred onto bit 15 of data element 2 of the peripheral dataset element 1.

4.5.4 Configuration lists menu

```

RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-16 11:41:01
configuration list menue      9C 138,222,070,045

O  global overview
R  show (ram)
F  show (flash)
L  load
V  save
A  start
<CR> exit

U_Mon> █

```

4.5.4.1 General overview

```

RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-16 11:43:33
configuration list overview      9C 138,222,070,045

active list source: flash
id ram list      : -> list invalid
id flash list    : snd/rcv test, cnf_sndrcv,tst 16,04,96
id active list   : snd/rcv test, cnf_sndrcv,tst 16,04,96
length max       : 524272 characters
length ram list  : 000000 characters [000 %]
length flash list : 007333 characters [001 %]
length active list: 007333 characters [001 %]

<CR> exit, R repeat: █

```

The general overview displays the current configuration status of the 87TS50. It shows whether the module is operating with the memory-resident list in the flash memory or with the volatile list in the RAM memory, or whether maybe a new list has been

loaded into the RAM memory of the module. In this example, the module is using the memory-resident list. There is no volatile list available.

4.5.4.2 Displaying the RAM configuration list

```

RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-16 11:48:38
configuration list show (ram)                  9C 138,222,070,045

line list
-> list invalid

```

In this example, displaying a list is not possible, since no list has been loaded into the RAM.

4.5.4.3 Displaying the FLASH configuration list

```

RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-16 11:51:42
configuration list show (flash)                9C 138,222,070,045

line list
1 BEGIN
2 LISTID=snd/rcv test, cnf_sndrcv,tst 16,04,96
3 # =====
4 # description:
5 # basic send/receive test configuration
6 # =====
7 #
8 # =====
9 # COMMON CONFIG DATA
10 # =====
11 #
12 BCYCLETIM=10
13 DCSUPTI=200
14 DASUPTI=300
15 DATHRES=50
16 CMADR=1,10,6,0
17 TIME=95,6,16,11,23,20,100
18 TS=ON
(7X) <CR> exit, F find, G goto, II/U +/-line, N/P +/-page:

```

This configuration list is displayed with line numbers. It is possible to page through the list, to go to certain line numbers, or to search for (find) a certain text sample.

4.5.4.4 Loading the configuration list

```

RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-16 12:00:07
configuration list load      9C 138,222,070,045

id ram list: -> list invalid

<CR> exit, ~ load new ram list:

local filename: cnf_sndrcv,tst
file transfered in 1 seconds
loading finished, 142 lines, 7403 characters
list check: ok

id ram list: snd/rcv test, cnf_sndrcv,tst 16,04,96

<CR> exit, ~ load new ram list: █

```

As a rule, a configuration list can be loaded onto the RAM memory only if the processing operation has stopped. When loading a list, attention is to be paid to the fact that the "list check"

must result in an OK. If this should not be the case, the module cannot be started with this list and the erroneous list will be discarded.

4.5.4.5 Storing the configuration list

```

RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-16 12:46:51
configuration list save      9C 138,222,070,045

active list source: flash
id ram list      : snd/rcv test, cnf_sndrcv,tst 16,04,96
id flash list    : snd/rcv test, cnf_sndrcv,tst 16,04,96

note: if you select save, the module makes a new start, saves the ram list
      to flash and starts with the flash list as active list source.

<CR> exit, S save: █

```

The list stored in the RAM memory will be stored as a resident list in the flash memory. Please note that the module will run through a restart in this case.

4.5.4.6 Starting the "Processing with configuration list"

```

RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-17 04:28:38
configuration list start      9C 138,222,070,045

active list source: flash
id ram list      : snd/rcv test, cnf_sndrcv,tst 16,04,96
id flash list    : snd/rcv test, cnf_sndrcv,tst 16,04,96

note: if you select:
* ram  -> the module starts with the ram list as active list source
* flash -> the module starts with the flash list as active list source

<CR> exit, R ram, F flash: █

```

This menu item is used to select and start the configuration list that is to be activated. Please note that the module will start with the list selected last in the case of a restart as well. When the module is disconnected from power supply and plugged in

again, it will always start with the list in the flash memory. If there is no list in the flash memory, the module will remain in the "Waiting for configuration list" state.

4.5.4.7 Stopping the "Processing with configuration list"

```

ABB Advant P <-> PROCONTROL P
RDK 4S GT26      87TS50 USER MONITOR 4.0      97-04-03 13:25:39
configuration list stop      9C 138,222,070,045

active list source: ram
id ram list      : snd/rcv test, cnf_sndrcv,tst 16,10,96
id flash list    : System Integration Test (SIT) gesytec,cnf 10,12,1996

<CR> exit, P stop: █

```

4.5.5 Overview of the status and processing parameters

```

ABB Advant P <-> PROCONTROL P
??? project ???      87TS50 USER MONITOR 4.0      97-04-04 08:05:32
default values      9CA 138.222.070.042

connect status      : connected
display value       : 9 -> processing
start date & time   : 97-04-04 08:00:00:000 status: global-wint usync
daylight saving suppr : on
redundancy mode     : on
af100 busadmin, timemaster : on, on
af100 station adr, buslen : 10, 2000 m
send ds owner       : on
receive ds basic scan cycle: 10 ms
procontrol clock adr : sy: 1, sta: 010, mod: 06, reg: 000
procontrol module adr : sy: 0, sta: 105, mod: 39
procontrol send tlg  : analog suppr ti: 300 ms, thresh: 5,0 %
procontrol send tlg  : counter suppr ti: 200 ms
id configuration list : snd/rcv test, cnf_sndrcv.tst 04.04.97
active list source   : ram
module temperature   : 30°C [<5°C warning >55°C, <0°C error >60°C]
module hardware stamp : GKWE857800R5010 87TS50D-E 9066 0054
module ethernet adr  : 0x00:00:23:02:02:51
module internet adr  : 138.222.070.042
umon host internet adr : 138.222.070.020
Type any key to break:

```

Current statuses and processing parameters.

4.5.6 Diagnosis menu

```

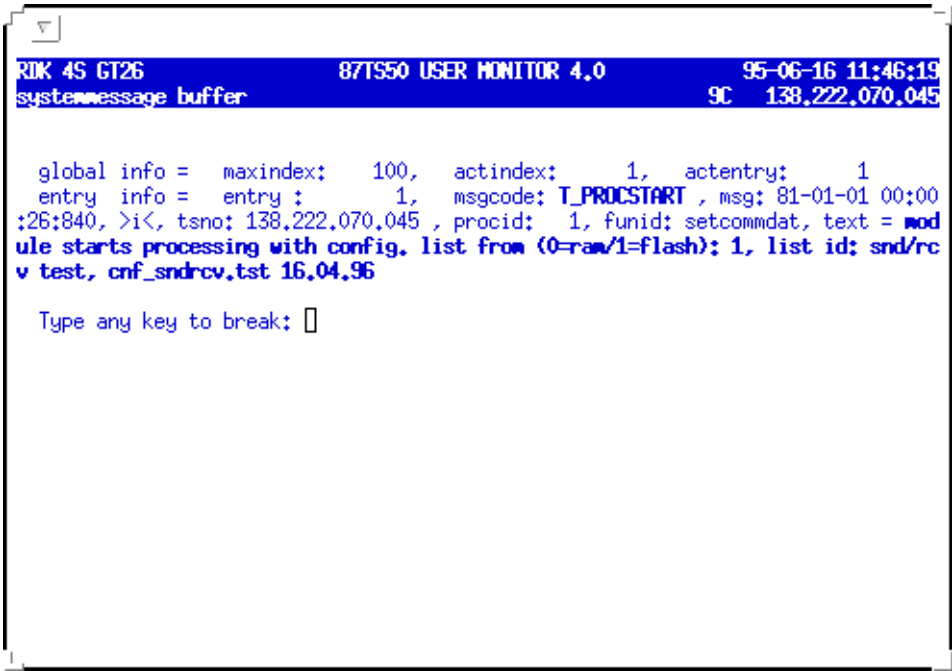
RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-17 04:34:06
diagnosis menu    9C 138.222.070.045

S  system message
P  procontrol module
R  procontrol system register
A  advant module
O  advant channel overview
C  advant channel

U_Mon>

```

4.5.6.1 System messages



The system-message buffer displays information, warnings and errors. For investigating module restarts, it is possible to perform a post mortem analysis. For this purpose, select the "post mortem" line after selecting menu item "System messages". For displaying the current system messages, select "actual".

Explanation of 'global info':

- maxindex: Max. index of a system message in the buffer (corresponds to max. number of entries).
- actindex: Index of the current buffer entry.
- actentry: Absolute message counter.

Explanation of 'entry info':

- entry: Absolute message number of the related system message.
- msgcode: System message coding, used for identifying the message.
- msg: Indicating the message.

For a detailed description of all of the possible system messages please refer to Section 5 "Concept of system messages".

4.5.6.2 PROCONTROL module diagnosis

RIK 4S GT26 87TS50 USER MONITOR 4.0 95-06-16 11:47:37	
procontrol module diagnosis 9C 138,222,070,045	
front panel	meaning
HLT led	processor halt
RUN led	activity indication (OFF=low, ON=high)
MODE display	operation mode indication; 9 -> processing
ST led	disturbance: -
SG led	module disturbance: -
note: global additional reasons for ST and SG led are: * hardware defective * prom(s) missing	
<CR> exit, R repeat: █	

Current diagnostic status and meaning of the annunciations on the front plate of the station bus interface and the processing section.

4.5.6.3 Contents of PROCONTROL system registers

RIK 4S GT26 87TS50 USER MONITOR 4.0 95-06-16 11:48:52	
procontrol system register 9C 138,222,070,045	
reg: 246	
reg: 246	
sy : 1, sta : 010, mod : 17, reg : 246, ur : 0, ua : 1, da : 00, val : 0x0000	
adr: 0x0207D7B0	
<CR> exit, R repeat, P previous, N next, G goto: █	

Contents of one of the 87TS50 system registers (register 246).

4.5.6.4 Advant Power station status of module

```

ABB Advant P <-> PROCONTROL P
RIK 4S GT26      87TS50 USER MONITOR 4.0      97-04-04 08:11:55
own station status      9CA 138,222,070,042
dat data : sta: 10, cycle: 1024 ms      significant!

ds state : ci = 1 (active), ps = modified valid
ds errors : ci = se: 0x00000000, me: 0x00000000, pe: 0x00000000
dat time : 97-04-04 08:00:36:331
dat info : station status data
dat da,val: boolean, 0x17030001 (0001,0111 0000,0011 0000,0000 0000,0001)

status messages:
 31..24 : configuration list checksum
 17 : sending dataset owner
 16 : active redundant module
 00 : module in operating mode

Type any key to break: █

```

4.5.6.5 Advant Power station status of partner module

```

ABB Advant P <-> PROCONTROL P
RIK 4S GT26      87TS50 USER MONITOR 4.0      97-04-04 08:14:02
partner station status      9CA 138,222,070,042
dat data : sta: 11, cycle: 1024 ms      significant!

ds state : ci = 1 (active), ps = modified valid
ds errors : ci = se: 0x00000000, me: 0x00000000, pe: 0x00000000
dat time : 97-04-04 08:04:54:066
dat info : station status data
dat da,val: boolean, 0x17000001 (0001,0111 0000,0000 0000,0000 0000,0001)

status messages:
 31..24 : configuration list checksum
 17 : not sending dataset owner
 16 : passive redundant module
 00 : module in operating mode

Type any key to break: █

```

The station status of the partner module can be displayed only if the module is in redundant mode.

4.5.6.6 Advant Power module diagnosis

```

RDK 4S GT26      87TS50 USER MONITOR 4.0      95-06-16 11:49:56
advant module diagnosis      9C 138,222,070,045

module type      : CI520V00R1
module status    : 0000,0000 0000,0000

status messages :
  ms3: sum process error (spe)

module diagnosis:
  module state   : 2 (operational)
  system errors  : 0000,0000 0000,0000 0000,0000 0000,0000
  module errors  : 0000,0000 0000,0000 0000,0000 0000,0000
  process errors : 0000,0000 0000,0000 0000,0000 0000,0000

error messages :
  pe31: redundant line failed

<CR> exit, R repeat:

```

Current diagnostic status of the Advant Fieldbus 100 interface. This display is based on the type of representation used in Advant Power. In this example, the Advant Fieldbus 100 interface

is not operating in redundant mode, i.e. a 87TS50–TK515–TC625–AF100 connection is either interrupted at the time or not established at all.

4.5.6.7 Overview of Advant Power transmission channel

```

ABB Advant P <-> PROCONTROL P
RDK 4S GT26      87TS50 USER MONITOR 4.0      97-04-04 09:34:19
advant channel diagnosis overview      9CA 138,222,070,042

list of channels (0=module, 1=feprom, 53=dataset):
  channel type  total
    0           1
   53          4003
    1           1

list of channels with errors:
  channel type: 0 erroneous: 1 instances:
    1

<CR> exit, R repeat:

```

Overview and current diagnostic status of the transmission channels. The display is based on the type of representation used in Advant Power. The Advant Fieldbus 100 interface uses three types of channels:

Type 0: Module
 Type 1: Flash memory
 Type 53: Peripheral dataset element

4.5.6.8 Advant Power transmission channel

```

ABB Advant P <-> PROCONTROL P
RIK 4S GT26      87TS50 USER MONITOR 4.0      97-04-04 09:38:10
advant channel diagnosis      9CA 138.222.070.042

channel type (0 module, 53 dataset): 53
data type (s station status, p process data): p station,ident: 10,1

channel diagnosis:
channel state : 1 (active)
system errors : 0000,0000 0000,0000 0000,0000 0000,0000
module errors : 0000,0000 0000,0000 0000,0000 0000,0000
process errors: 0000,0000 0000,0000 0000,0000 0000,0000

error messages :
-

<CR> exit, R repeat: █

```

Display of the current diagnostic status of a peripheral dataset element. The display is based on the type of representation used in Advant Power. In this example, the selected dataset element is active and has no diagnostic message pending. As

an alternative, either the diagnostic status of the station status (with station addresses of own module or of partner module) can be displayed or the module diagnosis status (with instance =1).

4.5.7 Date and time

```

ABB Advant P <-> PROCONTROL P
RIK 4S GT26      87TS50 USER MONITOR 4.0      95-06-16 11:52:57
date & time      9C 138.222.070.045

local: 95-06-16 11:52:57:497

status: global-wintertime local-wintertime unsynchronized

Type any key to break: █

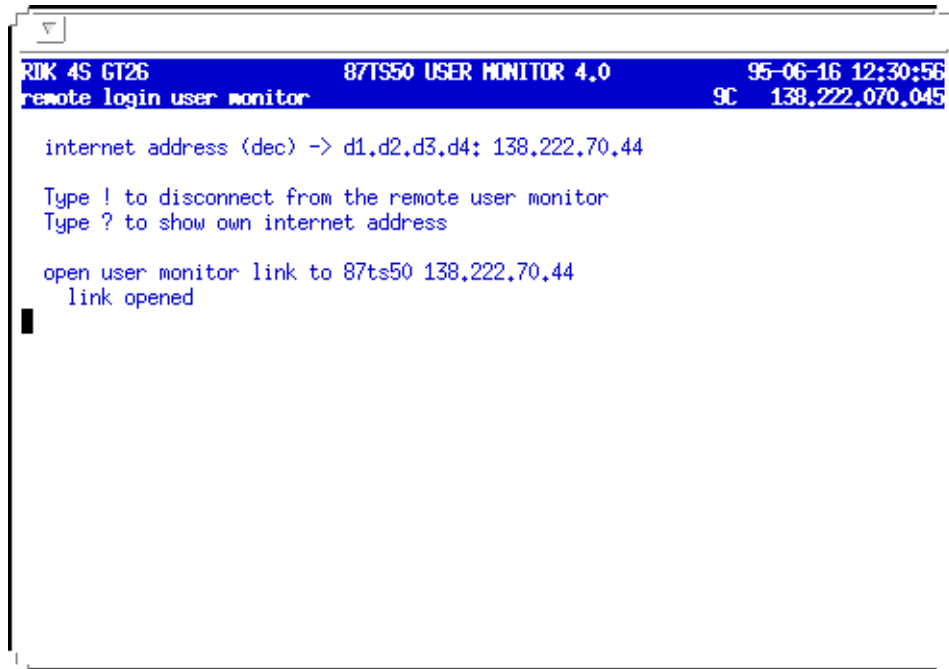
```

Current date, current time, and time status.

4.5.8 System analysis (special tools)

This menu is intended only for special, internal 87TS50 system analyses, and is therefore not accessible for general use.

4.5.9 Using the "user monitor" via the network



Logging into the "user monitor" of another 87TS50 via Ethernet.
Please note that no configuration list can be loaded in this mode.

4.5.10 Terminating the user monitor session

In order to prevent unauthorized use of the user monitor, a session should be terminated with "Logout user monitor" in the main menu.

5 System messages

5.1 General notes

System messages are logged in the internal system message buffer of the 87TS50. A message consists of the following parts:

Message code

This code identifies the message. The messages in this publication are grouped to functional classes. To find a message quickly, refer to the 'index of message codes' at the end of this publication.

Time stamp

The time stamp indicates the time when the message was generated.

Severity code

Each message contains a severity code. The same message code can be sent with different severity codes. This publication describes all the codes possible for every message. The abbreviation for the particular severity code is indicated in angle brackets (> <).

The meaning of the codes:

- Fatal Error (>f<)
After this message, proper operation of the 87TS50 cannot be guaranteed. Some action by the user is required.
- Nonfatal Error (>e<)
It may occur that data is lost by the 87TS50. Normally, an action by the user is not required, since the module will handle such problems automatically.
- Warning (>w<)
Something in the module is not working as usual. There might be some configuration errors or inconsistent module states. All of the signals and functionalities that are configured correctly are working without any problems or data losses.
- Informational (>i<)
These messages are intended to inform the user about the current module state.

Internet address

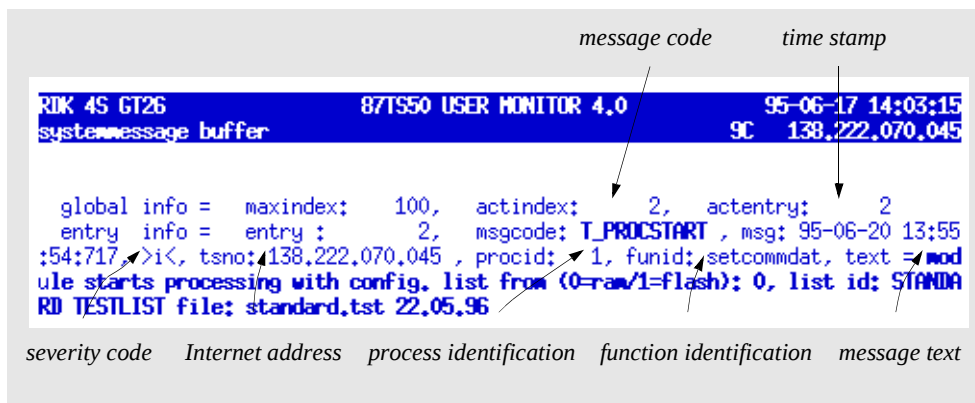
Each message contains the Internet address of the module generating that message.

Process identification and function identification code

These two items identify that particular software segment of the 87TS50 that has generated this message.

Message text

This text is a plain-text explanation of the message. It may also include parameters. For these parameters, the C-notation will be used. This way, the parameter placeholder in the strings can be identified by its first character.



Example of a system message in the 87TS50 system message buffer

5.2 Explanation of system messages

The messages are grouped to the following functional classes:

- VRTX system call messages
- Common start/shutdown and miscellaneous messages
- Interrupt service handler messages
- Receive telegram processing messages
- Supervision messages
- Send telegram processing messages
- Communication messages
- Configuration list processing messages
- Configuration list scanning messages
- Temperature measuring messages
- Cyclic redundancy check messages
- Virtual field interface messages
- Special test messages

5.2.1 VRTX system call messages

Message code: T_VX_TCREA

Message text: vrtx call: sc_tcreate(task: 0x%08x, tid: %03d, pri: %03d, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers an 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart please contact the ABB service department.

Message code: T_VX_TPRIO

Message text: vrtx call: sc_tpriority(tid: %03d, pri: %03d, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_STCREA

Message text: vrtx call: sys_sc_tcreate(task: 0x%08x, tid: %03d, pri: %03d, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_TINQU

Message text: vrtx call: sc_tinquiry(info[0]: %03d, info[1]: %03d, tid: %03d, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_TDELE

Message text: vrtx call: sc_tdelete(tidpri: %03d, code: 0x%02x, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_LOCK

Message text: vrtx call: sc_lock()

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_ULOCK

Message text: vrtx call: sc_unlock()

Severity code: Informational

Explanation: Operating system call information.

User action: No user action required.

Message code: T_VX_GBLOC

Message text: vrtx call: sc_gblock(pid: %03d, blockp: 0x%08x, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_RBLOC

Message text: vrtx call: sc_rblock(pid: %03d, blockp: 0x%08x, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_QPOST

Message text: vrtx call: sc_qpost(qid: %03d, msgp: 0x%08x, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_QPEND

Message text: vrtx call: sc_qpend(qid: %03d, timeout: %08d, msgp: 0x%08x , error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_QINQU

Message text: forts call: sc_qinquiry(qid: %03d, countp: %08d, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. Until the The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_QACCE

Message text: vrtx call: sc_qaccept(qid: %03d, msgp: 0x%08x , error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_QCREA

Message text: vrtx call: sc_qcreate(qid: %03d, qsize: %03d, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_FCREA

Message text: vrtx call: sc_fcreate(groupid: %03d, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_FPOST

Message text: vrtx call: sc_fpost(groupid: %03d, mask: 0x%08x, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_FPEND

Message text: vrtx call: sc_fpend(groupid: %03d, timeout: %08d, mask: 0x%08x, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_FCLEAR

Message text: vrtx call: sc_fclear(groupid: %03d, mask: 0x%08x, pmask: 0x%08x, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_DELAY

Message text: vrtx call: sc_delay(timeout: %08d)

Severity code: Informational

Explanation: Information on operating system call.

User action: No user action required.

Message code: T_VX_GTIME

Message text: vrtx call: sc_gtime(): %08d)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_PEND

Message text: vrtx call: sc_pend(mboxp: 0x%08x, timeout: %08d, msg: 0x%08x, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_POST

Message text: vrtx call: sc_post(mboxp: 0x%08x, msg: 0x%08x, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_PCREA

Message text: vrtx call: sc_pcreate(pid: %03d, paddr: 0x%08x, bsize: %03d, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_SCREA

Message text: vrtx call: sc_screate(sem_init: %08d, opt: %03d, sem_id: %08d, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_SDELE

Message text: vrtx call: sc_sdelete(sem_id: %08d, opt: %03d, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_SPEND

Message text: vrtx call: sc_spend(sem_id: %08d, timeout: %08d, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_VX_SPOST

Message text: vrtx call: sc_spost(sem_id: %08d, error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_TX_SOCKET

Message text: tnx call: socket(error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_TX_BIND

Message text: tnx call: bind(error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_TX_LISTEN

Message text: tnx call: listen(error: 0x%08x)"

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_TX_ACCEPT

Message text: tnx call: accept(error: 0x%08x)

Severity code: Error

Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_TX_CLOSE

Message text: tnx call: close(error: 0x%08x)
 Severity code: Error
 Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.
 User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_TX_CONNECT

Message text: tnx call: connect(error: 0x%08x)
 Severity code: Error
 Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.
 User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_TX_SEND

Message text: tnx call: send(error: 0x%08x)
 Severity code: Error
 Explanation: The displayed VRTX system function on the 87TS50 module returns an error message. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.
 User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_RTL_MALLOC

Message text: rtl call: malloc: memory block ptr = 0x%08x, size = %d bytes)
 Severity code: Error
 Explanation: There is not enough system memory space available.
 User action: Please contact the ABB service department.

Message code: T_RTL_FREE

Message text: rtl call: free: memory block ptr = 0x%08x)
 Severity code: Informational
 Explanation: A memory block is put back into the system memory pool.
 User action: Since this message is some type of 'Trace message', disable the corresponding trace flag for that task whose taskid has been reported in the message.

Message code: T_RTL_FDOPEN

Message text: rtl call: fdopen(descr: %08d, stream: 0x%08x)
 Severity code: Error
 Explanation: There are no system resources available for opening a stream.
 User action: Please contact the ABB service department.

Message code: T_RTL_FCLOSE

Message text: rtl call: fclose(stream: 0x%08x, error: 0x%08x)
 Severity code: Error
 Explanation: The stream specified by the streampointer cannot be closed.
 User action: Please contact the ABB service department.

Message code: T_RTL_FSEEK

Message text: rtl call: fseek(stream: 0x%08x, offset: %08d, ptrname: %08d, error: 0x%08x)
 Severity code: Error
 Explanation: The stream position specified for the streampointer cannot be set.
 User action: Please contact the ABB service department.

Message code: T_RTL_FTELL

Message text: rtl call: ftell(stream: 0x%08x, current position: 0x%08x)
 Severity code: Error
 Explanation: The position for the specified streampointer cannot be read.
 User action: Please contact the ABB service department.

Message code: T_IFX_INSTALL

Message text: ifx call: ifx_install(name: 0x%08x, driverp: 0x%08x, error: 0x%08x)
 Severity code: Error
 Explanation: A file cannot be installed.
 User action: Please contact the ABB service department.

Message code: T_IFX_OPEN

Message text: ifx call: ifx_open(pathname: 0x%08x, accmode: %08d, descr: %08d, error: 0x%08x)
 Severity code: Error
 Explanation: A descriptor cannot be opened.
 User action: Please contact the ABB service department.

Message code: T_IFX_CLOSE

Message text: ifx call: ifx_close(descr: %08d, error: 0x%08x)
 Severity code: Error
 Explanation: A descriptor cannot be closed.
 User action: Please contact the ABB service department.

Message code: T_IFX_MOUNT

Message text: ifx call: ifx_mount(name: 0x%08x, devname: 0x%08x, managerp: 0x%08x, error: 0x%08x)
 Severity code: Error
 Explanation: The device manager cannot be mounted.
 User action: Please contact the ABB service department.

Message code: T_IFX_WRITE

Message text: ifx call: ifx_write(descr: %08d, reqcnt: %08d, actcnt: %08d, error: 0x%08x)
Severity code: Error
Explanation: A device cannot be written on.
User action: Please contact the ABB service department.

Message code: T_IFX_ASTART

Message text: ifx call: ifx_astart(descr: %08d, fncode: %08d, error: 0x%08x)
Severity code: Error
Explanation: An asynchronous request cannot be started.
User action: Please contact the ABB service department.

Message code: T_IFX_AWAIT

Message text: ifx call: ifx_await(descr: %08d, timeout: %08d, error: 0x%08x)
Severity code: Error
Explanation: Waiting for an asynchronous request has not been successful.
User action: Please contact the ABB service department.

Message code: T_IFX_ACANCL

Message text: ifx call: ifx_acancel(descr: %08d, error: 0x%08x)
Severity code: Error
Explanation: Cancellation of an asynchronous request has not been successful.
User action: Please contact the ABB service department.

Message code: T_IFX_IOCTL

Message text: ifx call: ifx_ioctl(descr: %08d, opcode: %08d, error: 0x%08x)
Severity code: Error
Explanation: An I/O control operation has not been successful.
User action: Please contact the ABB service department.

5.2.2 Common start/shutdown and miscellaneous messages

Message code: T_STARTUP

Message text: task start, release: %d.%d, date: %04d %04d
 Severity code: Informational
 Explanation: A 87TS50 task on the 87TS50 module producing this message was started. The current release and release date are indicated in the message.
 User action: No user action required.

Message code: T_SHUTDOWN

Message text: task shutdown
 Severity code: Error, Informational
 Explanation: A 87TS50 task on the 87TS50 module producing this message was stopped. To find out the reason for this and to identify the right user action, analyze the messages before and after this message.
 User action: No user action required.

Message code: T_SYSREGRERR

Message text: readsysreg rtn error (reg: %d, val: %d) error: 0x%08x
 Severity code: Error
 Explanation: A 87TS50 system register could not be read. This register is one of the PROCONTROL module status registers as diagnostic register 246. If such registers cannot be processed, error may occur in the PROCONTROL module communication.
 This error may be caused by defective or errored software or hardware. This error does not affect telegram/dataset processing.
 User action: Restart the 87TS50. Should the error still occur after this, please contact the ABB service department.

Message code: T_SYSREGSERR

Message text: setsysreg rtn error (reg: %d, val: %d, operation: %d) error: 0x%08x
 Severity code: Error
 Explanation: A 87TS50 system register could not be written. This register is one of the PROCONTROL module status registers as diagnostic register 246. If such registers cannot be processed, errors in PROCONTROL module communication might occur.
 This error may be caused by defective or errored software or hardware. This error does not affect telegram/dataset processing.
 User action: Restart the 87TS50. Should the error still occur after this, please contact the ABB service department.

Message code: T_BASTART

Message text: ba sysmsg, ba start, release: %d.%d, date: %04d %04d
 Severity code: Informational
 Explanation: The 87TS50 bus interface was started. The message indicates the release number of the software implemented on the 87TS50 module. In addition, the start date is indicated.
 User action: No user action required.

Message code: T_BAOSTATERR

Message text: ba error, baorder: %d, ba rtn status: %d, timeout(0=ok/1=timeout): %d
 Severity code: Error
 Explanation: An order from the processing section has been aborted or there was no response by the bus interface.
 User action: Analyze previous system messages. If no hints can be found, restart the 87TS50. Should the error still occur after this, please contact the ABB service department.

Message code: T_BAODRTNERR

Message text: ba error, baorder: %d, suborder: %d, ba rtn status(1=ok/0=error): %d, vrtx error: 0x%08x
 Severity code: Error
 Explanation: An order from the processing section has been aborted by the bus interface or a vrtx error has occurred. The following list explains orders and suborders that may have been given previous to this message:
 baorder/suborder
 4/1 => load address list offline/
 load address list
 4/2 => load address list offline/
 insert address list
 12/1 => send source telegram/
 insert telegram
 12/2 => send source telegram/
 delete telegram
 User action: Analyze previous system messages. If no hints can be found, restart the 87TS50. Should the error still occur after this, please contact the ABB service department.

Message code: T_BARTNERR

Message text: ba error, order(1=connect/0=disconnect): %d, ba rtn status(1=ok/0=error): %d, vrtx error: 0x%08x
 Severity code: Error
 Explanation: An order from the processing section has been aborted by the bus interface or a vrtx error has occurred.
 User action: Analyze previous system messages. If no hints can be found, restart the 87TS50. Should the error still occur after this, please contact the ABB service department.

Message code: T_CIRTNERR

Message text: ci error, order(1=connect/0=disconnect): %d
 Severity code: Error
 Explanation: An order from the processing section to the AF100 communication interface has not been successful.
 User action: Analyze previous system messages. If no hints can be found, restart the 87TS50. Should the error still occur after this, please contact the ABB service department.

Message code: T_BADTASKID

Message text: task which is not in supervision called supervision routine. taskid: %d
 Severity code: Warning
 Explanation: This is a coding error in the 87TS50 software. A task on the 87TS50 tries to set its supervisor flag although it is not being monitored by the supervision task. This does not affect receiving and sending of telegrams.
 User action: Call the ABB service department.

Message code: T_EXCEPT_ERR

Message text: exceptionhandler, exception in task, taskid: %d excoffset: %d
 Severity code: Error
 Explanation: A task on the 87TS50 module has encountered an unexpected error situation. The messages before and after this message show what has happened so far.
 User action: Analyze the messages before and after this message.

Message code: T_EXCEPT_DLT

Message text: exceptionhandler, delete task, taskid: %d reason: 0x%04x
 Severity code: Error
 Explanation: A task on the 87TS50 module generating this message was canceled by the exception handler. This error triggers a 87TS50 restart. The following list indicates possible causes of the error:
 0x9999 => Parity error
 0xaaaa => Address error
 0xbbbb => Bus error
 User action: Please contact the ABB service department.

Message code: T_LOCKERROR

Message text: lock error, lockdata: 0x%02x at addr: 0x%08x, error (1=lock/2=unlock): %d
 Severity code: Error
 Explanation: The interlocking time preset for a 87TS50 register has been exceeded by the bus interface. This problem is solved automatically, however, data intended for the telegram stored under the register address displayed may be lost.
 User action: No user action required.

Message code: T_SYSTIMEINV

Message text: system time invalid, year: %d, month: %d, day: %d, msec: %d
 Severity code: Error
 Explanation: One or more segments of the system time are outside of the admissible range.
 User action: Check whether the PROCONTROL system clock is working correctly (including sending of time telegrams to the PROCONTROL bus).

Message code: T_SYSTIMEVAL

Message text: system time is now valid
 Severity code: Informational
 Explanation: This is the OK message following a T_SYSTIMEINV message.
 User action: No user action required.

5.2.3 Interrupt service handler messages

Message code: T_NAORD

Message text: try to send not allowed order: %d to isr handler task

Severity code: Warning

Explanation: A task tried to send an inadmissible order to the isr handler task. This order will be ignored. This is an internal 87TS50 software problem which does not affect telegram/dataset processing.

User action: Please contact the ABB service department.

Message code: T_NAORDV

Message text: try to send order: %03d from task with tid: %03d to isr handler task

Severity code: Warning

Explanation: An unauthorized task tried to send an order to the isr handler task. This order will be ignored. This is an internal 87TS50 software problem which does not affect telegram/dataset processing.

User action: Please contact the ABB service department.

Message code: T_NAORDR

Message text: try to get rtn for order: %03d from task with tid: %03d from isr handler task

Severity code: Warning

Explanation: An unauthorized task on the 87TS50 module tried to get a response from the isr handler task for a certain order. This order will be ignored. This is an internal 87TS50 software problem which does not affect telegram/dataset processing.

User action: Please contact the ABB service department.

Message code: T_VECUNKN

Message text: bad vector: %d send to isr handler task

Severity code: Error

Explanation: An unknown message has been generated by the bus interface and sent to the processing section.

User action: Please contact the ABB service department.

Message code: T_BADDSTORDO

Message text: receive bad destination tlg order from ba, no of orders: %02d out of range (%02d..%02d)

Severity code: Error

Explanation: A destination-telegram order from the bus interface to the processing section contains too many destination telegrams. This order will not be executed by the processing section.

User action: Please contact the ABB service department.

Message code: T_BADDSTORDR

Message text: receive bad destination tlg order from ba, reg no: %02d out of range (%02d..%02d)

Severity code: Error

Explanation: An invalid destination-telegram register address has been indicated in a destination-telegram order from the bus interface to the processing section. This destination-telegram order will not be executed by the processing section.

User action: Please contact the ABB service department.

Message code: T_BADDSTORDV

Message text: receive bad destination tlg order from ba, reg: %02d invalid

Severity code: Error

Explanation: A destination telegram order from the bus interface to the processing section contains a destination telegram register that is not valid in the destination-register receive memory. This destination-telegram order will not be processed by the processing section.

User action: Please contact the ABB service department.

Message code: T_FIFOOVERFL

Message text: ba sysmsg, receive section fault (fifo overflow)

Severity code: Error

Explanation: The internal telegram FIFO in the 87TS50 module is overflowed. Telegram data were lost.

User action: Check whether the module's telegram/dataset throughput is within the admissible range (cf. Section 'Technical Data' in the Module Description).

Message code: T_WARMSTART

Message text: ba sysmsg, newstart bus interface, reason: 0x%4x
 Severity code: Informational
 Explanation: After a fatal error, the bus interface has performed a restart. Analyze the preceding messages to identify the cause.
 The following list indicates the possible causes for a bus interface (BA) restart:

0x0000 =>	Initial value
0x1111 =>	Fatal breakdown
0x2222 =>	Hardware watchdog
0x3333 =>	Software watchdog
0x4444 =>	Stack pointer error
0x5555 =>	Interrupt vector/timer error
0x6666 =>	PROT device address error
0x7777 =>	VA watchdog/Vcc supervisor
0x8888 =>	SSE mode
0x9999 =>	SSE overrun
0xaaaa =>	AP mode
0xbbbb =>	Address pointer table error
0xcccc =>	AP device address error
0xdddd =>	AP address list error
0xeeee =>	SAB16 mode
0xffff =>	PS input buffer error

User action: No user action required.

Message code: T_REMBUS_OUT

Message text: ba sysmsg, procontrol remote bus fault
 Severity code: Error
 Explanation: The PROCONTROL remote-bus connection is disturbed. It is not possible to receive any telegrams from outside of the station where the 87TS50 module is installed.
 User action: Check the PROCONTROL hardware. As soon as the connection is okay again, the telegrams from outside the 87TS50 station will be received again automatically.

Message code: T_STABUS_OUT

Message text: ba sysmsg, procontrol station bus fault
 Severity code: Error
 Explanation: Fatal error on the station bus. This station cannot receive any data.
 User action: Check the PROCONTROL hardware. As soon as the station bus is okay again, telegram data receiving will continue automatically.

Message code: T_BUS_NOW_OK

Message text: ba sysmsg, procontrol remote/station bus ok
 Severity code: Informational
 Explanation: The remote-bus connection is okay again after a failure.
 User action: No user action required.

Message code: T_CONN_ABORT

Message text: ba sysmsg, connect aborted, reason: %d
 Severity code: Error
 Explanation: A connect order was aborted by the bus interface. The reason for this is indicated in the order. The following list gives the codes of possible causes:

1	=>	Parameter NOADR in connect order out of range
2	=>	Station bus failure
3	=>	Recording fifo overflow
4	=>	Station address not in ascending order for cyclic operation, e.g. first bus telegram for a cyclic station call is sent in event mode
5	=>	Timeout. No cyclic telegrams received for 15 seconds
6	=>	Address list overflow in first station recorded, e.g. filling level in connect order is too low

User action: Check the preceding messages to analyze these problems.

Message code: T_TLGCNT_NOK

Message text: ba sysmsg, addrlist generation fault, act/prev cyclecnt: %d, diff: %d, detected at sta: %d(prev) and sta: %d(act)
 Severity code: Warning
 Explanation: An inconsistency has been detected while the address list was being generated. For address list generation, a number of generations are performed. If the number of telegrams received differs every time this message is produced, the reason for this could be that modules were added to or removed from the PROCONTROL bus while the first address list was being generated.
 User action: No user action required.

Message code: T_ADLIST_FUL

Message text: ba sysmsg, addrlist full, learning stopped
 Severity code: Error
 Explanation: The internal 87TS50 address list is full. The 87TS50 cannot receive any new telegrams. This message should not occur with this 87TS50 application. Please contact the ABB service department.

Message code: T_CHKSUM_NOK

Message text: ba sysmsg, addrlist checksum error, calculated: 0x%08x, received: 0x%08x

Severity code: Error

Explanation: The checksum of the predefined address list calculated by the bus interface differs from the checksum calculated by the processing section. The address list will not be activated by the bus interface.

User action: Withdraw the 87TS50 module and plug it in again. If the error should still occur, there is a hardware or software error on the module, and the module needs to be replaced.

Message code: T_ADLL_ABORT

Message text: ba sysmsg, addrlist rejected, reason: %d

Severity code: Error

Explanation: A connect order has been aborted by the bus interface. The reason for this is indicated in the order. The following list gives the codes of possible causes:

1	=>	Address list pointer error
2	=>	Receive register address error
3	=>	Address list overflow

User action: This message should not occur with this 87TS50 application. Please contact the ABB service department.

5.2.4 Receive telegram processing messages**Message code: T_BADFIFOSRA**

Message text: bad tlg index in fifo entry: sra=%d val=0x%X rs=0x%X time=0x%X

Severity code: Error

Explanation: Problems with the bus interface. FIFO receive register address out of range. This error could mean that the software of the 87TS50 is defective or that there is a coding error. All the other telegrams will be processed as usual.

User action: Reconnect the 87TS50 to eliminate this error. Should this error occur again, please contact the ABB service department.

Message code: T_FIFOFREE

Message text: receive section ok (fifo free)

Severity code: Informational

Explanation: The telegram data FIFO on the 87TS50 module is free again, following an overflow. Receive telegram processing is running without data losses.

User action: No user action required.

Message code: T_BADFIFOSTA

Message text: bad tlg status in fifo entry: sra=%d val=0x%X rs=0x%X time=0x%X

Severity code: Error

Explanation: Problems with the bus interface. The register status rs is not admissible for the respective FIFO receive register address. If this error should occur, the 87TS50 software might be defective or there may be a coding error. All the other telegrams will be processed as usual.

User action: Reconnect the 87TS50 to eliminate this error. Should this error occur again, please contact the ABB service department.

Message code: T_BADSNCHAIN

Message text: pointer error in rcvTlg list at reg: %d (root: sta: %d mod: %d reg: %d)

Severity code: Error

Explanation: Problems with the bus interface. A pointer error has been detected in the receive telegram list of the 87TS50. This error could mean that the 87TS50 software might be defective or there may be a coding error. All the other telegrams will be processed as usual.

User action: Reconnect the 87TS50 module to eliminate this error. Should this error occur again, please contact the ABB service department.

Message code: T_FIFOCONFUS

Message text: bad entry in fifo header: status: 0x%02x rd-idx: 0x%04x wr-idx: 0x%04x max-idx: 0x%04x

Severity code: Error

Explanation: Inconsistent data in FIFO header on the 87TS50 module producing this message. The software on the 87TS50 module is defective or contains a coding error. The cause of this error could also be a hardware error on the 87TS50 module. This error message triggers a 87TS50 restart.

User action: Please contact the ABB service department.

Message code: T_BLKCREAERR

Message text: resource error: block create for sta: %d mod: %d reg: %d da: %d aborted

Severity code: Error

Explanation: The 87TS50 module address list is full. No more telegrams can be received from PRO-CONTROL. The displayed telegram has not been added to the address list. The telegrams that are already stored in the address list are received and processed as usual.

User action: This message should not occur with this 87TS50 application. Please contact the ABB service department.

Message code: T_BLKMEMBERR

Message text: block member count mismatch: for sta: %d mod: %d reg: %d members: %d

Severity code: Error

Explanation: The PROCONTROL bus has received a telegram that cannot be processed. This telegram will be ignored.

User action: If this message is generated often, check the PROCONTROL bus. Something could be wrong there (e.g. a defective module may be send telegrams to the remote/station bus that cannot be processed).

Message code: T_DSCMDTMOUT

Message text: dataset command timeout, cmd (0=active/1=passive/2=delete): %d timeout: %d ms

Severity code: Error

Explanation: This timeout indicates that the time since the beginning and the end of the dataset-write control command has elapsed for one or several send datasets.

User action: Check whether a bus administrator is active on the Advant Fieldbus 100. Stop and start the coupling module again with the current configuration list.

5.2.5 Supervision messages**Message code: T_TSKOFFLINE**

Message text: offline flag group: 0x%08x, group mask: 0x%08x

Severity code: Error

Explanation: A monitored 87TS50 task has been terminated. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_TSKDELETE

Message text: task delete by suvi, taskid: %d

Severity code: Informational

Explanation: A task on the 87TS50 module has been terminated by the supervisor task. Check the preceding messages to analyze the error.

User action: No user action required.

Message code: T_TSKTIMEOUT

Message text: online flag group: 0x%08x, group mask: 0x%08x timeout: %d sec

Severity code: Error

Explanation: The 87TS50 supervisor detects a task not operating properly. This error message triggers a 87TS50 restart. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this error should occur after system restart, please contact the ABB service department.

Message code: T_BATIMEOUT

Message text: timeout bus interface

Severity code: Error

Explanation: The 87TS50 supervisor task receives no life signal from the bus interface. Consequently, a fatal error is detected in this software segment. The 87TS50 module producing this message will be restarted automatically.

User action: Please contact the ABB service department.

Message code: T_TSKMISSING

Message text: task not found, taskid: %d

Severity code: Informational

Explanation: A non-critical 87TS50 task has been terminated. The task will be restarted again automatically. Non-critical tasks do not participate in telegram/dataset processing.

User action: No user action required.

Message code: T_BAWARMSTRT

Message text: newstart bus interface

Severity code: Error

Explanation: The bus interface restarts automatically because a non-recoverable error situation has been detected.

User action: Please contact the ABB service department.

Message code: T_TSKRESTART

Message text: task restart, taskid: %d

Severity code: Informational

Explanation: A non-critical 87TS50 task was restarted. This message is sent after T_TSKMISSING.

User action: No user action required.

Message code: T_SYSHUTDOWN

Message text: new start module, reason: 0x%4x

Severity code: Informational

Explanation: The 87TS50 module restarts, because a non-recoverable error has been detected (see preceding error messages). The following list gives the possible causes of a restart. These causes will also be indicated in the message:

0x2222 =>	Software startup
0x6666 =>	Watchdog error
0x7777 =>	TCP/IP error
0x8888 =>	Warmstart bus interface
0xdddd =>	Task offline
0xffff =>	Task timeout

User action: No user action required.

Message code: T_TNXSIGNAL

Message text: received trx signal: 0x%02x for socket: 0x%02x

Severity code: Error

Explanation: An error in the Ethernet connection has been detected by the 87TS50 TCP/IP interface. The 87TS50 triggers a restart.

signal:

0x0d SIGPIPE, write on pipe that is not being read

0x10 SIGURG, critical condition ('out of band' message) on socket

0x17 SIGIO, possible input/output on socket

User action: Check Ethernet connection.

Message code: T_TNXPANIC

Message text: received trx panic, panicnumber: 0x%02x

Severity code: Error

Explanation: An error in the TCP/IP interface of the 87TS50 module has been detected. This error message triggers a 87TS50 restart.

User action: Check the Ethernet connection.

5.2.6 Send telegram processing messages

Message code: T_BADSRCOORD

Message text: send tlg order(insert/delete) with number of tlgs: %d >max(%d)

Severity code: Warning

Explanation: A send telegram order with too many telegram members was sent to the send telegram output task. This order is ignored. The reason for this could either be defective or errored 87TS50 software or a hardware defect on the module.

User action: If this message should occur after a system restart, please contact the ABB service department.

Message code: T_UNKSRCOORD

Message text: send tlg order(1=insert/2=delete): %d unknown, tlg number: %d

Severity code: Warning

Explanation: An unknown send telegram order was received by the send telegram output task. The order is ignored.

User action: If this message should occur after a system restart, please contact the ABB service department.

Message code: T_BADPMODADR

Message text: send tlg order(mod: %d, reg: %d) bad module address, ownmod: %d, tlg number: %d

Severity code: Warning

Explanation: An order with an inadmissible module address was sent to the 87TS50 module. The order is ignored.

User action: If this message should occur after a system restart please contact the ABB service department.

Message code: T_BADPREGADR

Message text: send tlg order(mod: %d, reg: %d) bad register address, tlg number: %d

Severity code: Warning

Explanation: An order with an inadmissible register address was sent to the 87TS50 module. The order is ignored.

User action: If this message should occur after a system restart, please contact the ABB service department.

Message code: T_BADPDAVAL

Message text: send tlg order(mod: %d, reg: %d, da: %d) bad data type value, tlg number: %d

Severity code: Warning

Explanation: An order with an inadmissible data type was received by the send-telegram output task. The order is ignored.

User action: If this message should occur after a system restart, please contact the ABB service department.

Message code: T_BADSRCHAIN

Message text: pointer error in sendtlg list at addr: 0x%08x (mod: %d, reg: %d), tlg number: %d

Severity code: Error

Explanation: A pointer error has been detected in the send-telegram list. If this error should occur, the 87TS50 software might be defective or there may be a coding error. Other telegrams might not be processed as usual.

User action: Reconnect the 87TS50 module to eliminate this error. Should this error occur again, please contact the ABB service department.

Message code: T_ORDSTNEXEC

Message text: send tlg order stop not executable

Severity code: Warning

Explanation: The order has not been executed. The reason for this is a previous error.

User action: Check the preceding system messages to find out the reason for this message.

Message code: T_ORDINNEXEC

Message text: send tlg order insert(mod: %d, reg: %d) not executable, tlg number: %d

Severity code: Warning

Explanation: The order has not been executed. The reason for this is a previous error.

User action: Check the preceding system messages to find out the reason for this message.

Message code: T_ORDDLNEXEC

Message text: send tlg order delete(mod: %d, reg: %d) not executable, tlg number: %d

Severity code: Warning

Explanation: The order has not been executed. The reason for this may a previous error, deletion of a non-existent register, or deletion of an already deleted register.

User action: This message should not occur with this 87TS50 application. Please contact the ABB service department.

5.2.7 Communication messages

Message code: T_SETCONSERR

Message text: order(1=connect/0=disconnect): %d request mask: 0x%08x, response mask: 0x%08x, timeout: %d msec

Severity code: Error

Explanation: The order has not been responded to by one or more tasks. Pay attention to difference between mask and response mask. The task id corresponds to the bit position in the mask.

User action: Check whether the 87TS50 is properly connected to the bus systems. Check whether earlier system messages can provide a hint. Try to start the 87TS50 again from the user monitor (configuration list menu: start) again. If the message occurs again despite of these measures, please contact the ABB service department.

Message code: T_GETFDTATMO

Message text: firstdataprocessing timeout: request mask: 0x%08x, response mask: 0x%08x, timeout: %d msec

Severity code: Error

Explanation: This timeout indicates that the time since beginning and end of the first data processing session has elapsed for one or several tasks. The bit positions on the request mask represent the task ids. The 87TS50 does not enter the 'Data processing active' state.

User action: Check the connection to the PROCONTROL system and the Advant Fieldbus 100. Try to start the coupling module again with the current configuration list.

Message code: T_REDMODON

Message text: redundancy mode on, redundancy state (0=passive/1=active): %d

Severity code: Informational

Explanation: This message indicates the connect parameter of the redundancy mode and informs about the current redundancy status.

User action: No user action required.

Message code: T_REDMODOFF

Message text: redundancy mode off

Severity code: Informational

Explanation: This message indicates the connect parameter of the redundancy mode.

User action: No user action required.

Message code: T_SW_PASSIVE

Message text: switch redundancy state from active to passive

Severity code: Informational

Explanation: The PROCONTROL station, where the 87TS50 is located, has changed its redundancy status, and the 87TS50 sending this message is now passive.

User action: No user action required.

Message code: T_SW_ACTIVE

Message text: switch redundancy state from passive to active

Severity code: Informational

Explanation: The PROCONTROL station, where the 87TS50 is located, has changed its redundancy status, and the 87TS50 sending this message is now active.

User action: No user action required.

Message code: T_SW_ACT_ERR

Message text: cannot switch redundancy state from passive to active

Severity code: Error

Explanation: The 87TS50 will become the active redundant module, but the station status of the partner module indicates that the partner module is already the active one.

User action: The partner module may be defective. Check the partner module.

Message code: T_PROCSTART

Message text: module starts processing with config. list from (0=ram/1=flash): %d, list id: *here follows the actual list id*

Severity code: Informational

Explanation: This message informs about the configuration list: active list (RAM or FLASH), list id of the active list

User action: No user action required.

Message code: T_PROCNOSTRT

Message text: module cannot start processing with config. list from (0=ram/1=flash): %d, no config. list loaded

Severity code: Warning

Explanation: There has been an attempt to start the 87TS50 with an unavailable configuration list.

User action: Load a configuration list onto the 87TS50 and start the module with this list.

Message code: T_DSCNFTMOUT

Message text: dataset configuration timeout, timeout: %d ms
 Severity code: Error
 Explanation: This timeout indicates that the time since the beginning and the end of the dataset configuration session has elapsed for one or several send datasets.
 User action: Check whether a bus administrator is active on the Advant Fieldbus 100. Stop the coupling module with the current configuration list and start it again.

Message code: T_RDSPARTNER

Message text: partner module station status (1=missing/0=received again): %d
 Severity code: Error (if missing), Informational (if received again)
 Explanation: Message sent by the receive monitoring function indicating the status of the redundant partner module. The ST/SG LEDs are set/reset according to the receive monitoring status. A redundancy switchover might take place.
 User action: Check the Advant Fieldbus 100 connection for the redundant 87TS50 pair. Check the system message buffer for previous system messages that may provide additional hints.

Message code: T_RDSOWNMISS

Message text: partner module as dataset owner missing
 Severity code: Error
 Explanation: The partner module, which the send datasets belong to, cannot be reached.
 User action: Check the Advant Fieldbus 100 connection for the redundant 87TS50 pair.

Message code: T_RDSCHKMISM

Message text: partner module configuration list checksum mismatch
 Severity code: Error
 Explanation: The checksum of the partner-module configuration list is not identical with the checksum of own configuration list.
 User action: Load the redundant module pair with the same configuration list.

Message code: T_CI520_STAT

Message text: ci 520
 variant a:set to 'operational' ok
 variant b:set to 'operational' failed
 variant c:not in 'ready/notready' state, actual state: %d
 variant d:set to 'connect' failed
 variant e:set to 'disconnect' failed
 Severity code: Error
 Explanation: These are status messages upon requests sent to the Advant Fieldbus 100 interface.
 User action: Check whether the 87TS50 is properly connected to the bus systems. Check whether earlier system messages can provide a hint. There might be an 87TS50 hardware defect: Replace the module.

5.2.8 Configuration list processing messages

Message code: T_ADL_ASSIGN

Message text: ba address list: item: sy: %d, sta: %d, mod: %d, reg: %d already assigned, ba addresslist indexes: %d and %d

Severity code: Error

Explanation: There are two items on the address list for the bus interface having the same PROCONTROL address (station, system, module, register).

User action: Check the configuration list for the PROCONTROL address indicated. Please contact the ABB service department.

Message code: T_RTI_ASSIGN

Message text: config. list: rti: %d, sta: %d, mod: %d, reg: %d already assigned at rti: %d

Severity code: Error

Explanation: The PROCONTROL address (station, module, register) for the indicated receive telegram index has already been assigned to a previous receive telegram index. The configuration data for this receive telegram index are rejected.

User action: Check and correct the configuration list for the PROCONTROL address indicated.

Message code: T_RDS_ASSIGN

Message text: config. list: rdsi: %d, sta: %d, id: %d already assigned at rdsi: %d

Severity code: Error

Explanation: The Advant Power address (station, ident) for the indicated receive dataset index has already been assigned to a previous receive dataset index. The configuration data for this receive dataset index are rejected.

User action: Check and correct the configuration list for the Advant Power address indicated.

Message code: T_STI_ASSIGN

Message text: config. list: sti: %d, sta: %d, mod: %d, reg: %d already assigned at sti: %d

Severity code: Error

Explanation: The PROCONTROL address (station, module, register) for the indicated send telegram index has already been assigned to a previous send telegram index. The configuration data for this receive telegram index are rejected.

User action: Check and correct the configuration list for the PROCONTROL address indicated.

Message code: T_SDS_ASSIGN

Message text: config. list: sdsi: %d, sta: %d, id: %d already assigned at sdsi: %d

Severity code: Error

Explanation: The Advant Power address (station, ident) for the indicated send dataset index has already been assigned to a previous send dataset index. The configuration data for this send dataset index are rejected.

User action: Check and correct the configuration list for the Advant Power address indicated.

Message code: T_SDI_BITASI

Message text: config. list: rti: %d, sdi(tlg bit: %d, snd ds index: %d, dat ref: %d, dat bit: %d) already assigned

Severity code: Error

Explanation: The dat bit in the send dataset index for the indicated receive telegram index has already been assigned to a previous receive telegram index. The configuration data for this send dataset index are rejected.

User action: Check and correct the send dataset index for the receive telegram index indicated.

Message code: T_STI_BITASI

Message text: config. list: rdsi: %d, dat ref: %d, sti(dat bit: %d, snd tlg ind: %d, tlg bit: %d) already assigned

Severity code: Error

Explanation: The telegram bit in the send telegram index for the indicated receive dataset index has already been assigned to a previous receive dataset index. The configuration data for this send telegram index are rejected.

User action: Check and correct the send telegram index for the receive dataset index indicated.

Message code: T_SDI_TLGASI

Message text: config. list: rti: %d, sdi(snd ds index: %d, dat ref: %d) already assigned

Severity code: Error

Explanation: The dat reference in the send dataset index for the indicated receive telegram index has already been assigned to a previous receive telegram index. The configuration data for this send dataset index are rejected.

User action: Check and correct the send dataset index for the receive telegram index indicated.

Message code: T_STI_TLGASI

Message text: config. list: rdsi: %d, dat ref: %d, sti(snd tlg index: %d) already assigned

Severity code: Error

Explanation: The send telegram index for the indicated receive dataset index has already been assigned to a previous receive dataset index. The configuration data for this send telegram index are rejected.

User action: Check and correct the send telegram index for the receive dataset index indicated.

Message code: T_RTI_BITASI

Message text: config. list: rti: %d, sta: %d, mod: %d, reg: %d, tlg bit: %d already assigned

Severity code: Error

Explanation: The telegram bit in the PROCONTROL address for the indicated receive telegram index has already been assigned to a previous receive telegram index. The configuration data for this telegram bit are rejected

User action: Check and correct the telegram bit or the PROCONTROL address for the receive telegram index indicated.

Message code: T_RDS_BITASI

Message text: config. list: rdsi: %d, sta: %d, id: %d, dat ref: %d, dat bit: %d already assigned

Severity code: Error

Explanation: The dat bit in the Advant Power address for the indicated receive dataset index has already been assigned to a previous receive dataset index. The configuration data for this dat bit are rejected.

User action: Check and correct the dat bit or the Advant Power address for the receive telegram index indicated.

Message code: T_SDI_DBMISM

Message text: config. list: rti: %d, tlg data type: %d, cannot assigned (not tlg db bit: %d), sdi(tlg bit: %d, snd ds ind: %d, dat ref: %d dat bit: %d)

Severity code: Error

Explanation: The bit of an analog or counter telegram cannot be assigned to the specified dataset index. The bit is not a disturbance bit.

User action: Correct the telegram bit for the receive telegram index indicated.

Message code: T_STI_DBMISM

Message text: config. list: rdsi: %d, dat ref: %d, cannot assigned (not tlg db bit: %d), sti(dat bit: %d, snd tlg ind: %d, tlg bit: %d)

Severity code: Error

Explanation: The bit of a Boolean dat cannot be assigned to the specified telegram bit in the analog/counter telegram. The telegram bit is not a disturbance bit. The configuration data for this send telegram index are rejected.

User action: Correct the telegram bit for the receive dataset index indicated.

Message code: T_SDI_DAMISM

Message text: config. list: rti: %d, tlg data type: %d cannot assigned to dat data type(l=1,L=2,B=3,R=4): %d, variant a:sdi(snd ds ind: %d, dat ref: %d) variant b:sdi(tlg bit: %d, snd ds ind: %d, dat ref: %d dat bit: %d)

Severity code: Error

Explanation: The sending dat's data type does not match the data type of the receive telegram. The configuration data for this send dataset index are rejected.

User action: Check and correct the telegram/dat data types.

Message code: T_STI_DAMISM

Message text: config. list: rdsi: %d, dat ref: %d, dat data type(l=1,L=2,B=3,R=4): %d cannot assigned to tlg data type: %d, sti(snd tlg ind: %d)

Severity code: Error

Explanation: The send telegram data type does not match the data type of the receive dat. The configuration data for this send telegram index are rejected.

User action: Check and correct the telegram/dat data types.

Message code: T_STI_BITMOD

Message text: config. list: rdsi: %d, dat ref: %d, sti(dat bit: %d, snd tlg ind: %d, tlg bit: %d) mod adr: %d out of range (%d..%d)

Severity code: Error

Explanation: The PROCONTROL module address for the specified send telegram index is not within the valid range. The configuration data for this send telegram index are rejected.

User action: Compare the module address indicated for the send telegram index with the PROCONTROL address and correct it.

Message code: T_STI_TLGMOD

Message text: config. list: rdsi: %d, dat ref: %d, sti(snd tlg index: %d) mod adr: %d, out of range (%d..%d)

Severity code: Error

Explanation: The PROCONTROL module address for the specified send telegram index is not within the valid range. The configuration data for this send telegram index are rejected.

User action: Compare the module address specified for the send telegram index with the PROCONTROL module location and correct it.

Message code: T_STI_BITDA

Message text: config. list: rdsi: %d, dat ref: %d, sti(dat bit: %d, snd tlg ind: %d, tlg bit: %d) tlg da: %d not allowed

Severity code: Error

Explanation: The telegram data type for the specified send telegram index is not admissible. The configuration data for this send telegram index are rejected.

User action: See module description for admissible PRO-CONTROL telegram data types.

Message code: T_STI_TLGDA

Message text: config. list: rdsi: %d, dat ref: %d, sti(snd tlg index: %d) tlg da: %d not allowed

Severity code: Error

Explanation: The telegram data type for the specified send telegram index is not admissible. The configuration data for this send telegram index are rejected.

User action: See module description for admissible PRO-CONTROL telegram data types.

5.2.9 Configuration list scanning messages**Message code: T_CNFTOKUNKN**

Message text: config. list: unknown token in line: %d, token: %s

Severity code: Warning

Explanation: An unknown token has been found in the configuration list.

User action: Check and correct the configuration list.

Message code: T_CNFUSUPMOD

Message text: config. list: unsupported scan mode: %d

Severity code: Warning

Explanation: The scan function has been called with an unsupported scan mode. There may be a problem in 87TS50 hardware or software.

User action: Withdraw and reconnect the module. If this message still appears, please contact the ABB service department.

Message code: T_CNFTOKNFND

Message text: config. list: token not found, token: %s

Severity code: Warning

Explanation: An expected token has not been found in the configuration list.

User action: Check and correct the configuration list.

Message code: T_CNFUNEXEOF

Message text: config. list: unexpected end of file reached

Severity code: Error

Explanation: The end of the configuration list has been reached, although configuration data are still being expected.

User action: Check and correct the configuration list.

Message code: T_CNFIDXNFND

Message text: config. list: sending tlg/ds index or dat reference not found, index: %d, dat ref.: %d, scan mode: %d

Severity code: Warning

Explanation: The specified index number or dat reference number has not been found in the configuration file.

Message code: T_CNFCHKNFND

Message text: config. list: checksum not found

Severity code: Error

Explanation: There is no checksum specified in the configuration list.

User action: Check and correct the configuration list.

scan modes:

- 0 scan common data
- 1 scan receiving ds data first one
- 2 scan receiving ds data next one
- 3 scan sending tlg data indexed
- 4 scan receiving tlg data first one
- 5 scan receiving tlg data next one
- 6 scan destination tlg data first one
- 7 scan destination tlg data next one
- 8 scan sending ds/dat data indexed
- 9 scan configuration list sizes
- 10 check checksum of config. data file
- 11 check for a valid flash config. list
- 12 check for a valid ram config. list

User action: Check and correct the configuration list.

Message code: T_CNFCHKMISM

Message text: config. list: checksum mismatch, configured: %d, calculated: %d

Severity code: Error

Explanation: The checksum in the configuration list does not match the currently calculated checksum.

User action: Load/save a configuration file with valid checksum entry.

Message code: T_CNFCNVPARA

Message text: config. list: invalid parameter value %d in line: %d for
variant a:'af-buslength'
variant b:'cycletime'
variant c:'dataset size'

Severity code: Warning

Explanation: An invalid parameter value has been specified.

User action: Check and correct the configuration list.

Message code: T_CNFBADPARA

Message text: config. list: bad parameter in line: %d, parameter

variant a:'%s' is invalid
variant b:'%d' for %s is out of range [%d..%d]
variant c:'%d' for %s is out of range [%d..%d], set to default %d
variant d:'%s', too many parameters
variant e:'dat reference'=%d must be unique, line is ignored
variant f:'rdsi'=%d must be in ascending order
variant g:'rti'=%d must be in ascending order
variant h:'dti'=%d must be in ascending order
variant i:'%s' is missing

Severity code: Warning

Explanation: One of the parameters is errored.

User action: Check and correct the configuration list.

Message code: T_CNFMISPARA

Message text: config. list: missing parameter, parameter

variant a:'%s' is invalid
variant b:'%d' for %s is out of range [%d..%d]
variant c:'%d' for %s is out of range [%d..%d], set to default %d
variant d:'%s', too many parameters
variant e:'dat reference'=%d must be unique, line is ignored
variant f:'rdsi'=%d must be in ascending order
variant g:'rti'=%d must be in ascending order
variant h:'dti'=%d must be in ascending order
variant i:'%s' is missing

Severity code: Warning

Explanation: One of the parameters is errored.

User action: Check and correct the configuration list.

Message code: T_CNFINVMODE

Message text: config. list: internal mode error, mode: %d

Severity code: Error

Explanation: The internal mode do not fit to one of the specified modes below.

modes:
0 dataset data scan
1 dat data scan
2 dat data scan
3 tlg signal data scan

User action: Please contact the ABB service department.

Message code: T_CNFSREJECT

Message text: config. list: configuration data for rdsi: %d rejected

Severity code: Warning

Explanation: The entire configuration data for the specified receive dataset index are rejected.

User action: Check and correct the configuration list.

Message code: T_CNFTREJECT

Message text: config. list: configuration data for rti: %d rejected

Severity code: Warning

Explanation: The entire configuration data for the specified receive telegram index are rejected.

User action: Check and correct the configuration list.

Message code: T_CNFDREJECT

Message text: config. list: configuration data for dti: %d rejected

Severity code: Warning

Explanation: The entire configuration data for the specified destination tlg index are rejected.

User action: Check and correct the configuration list.

5.2.10 Temperature measuring messages

Message code: T_TEMPWARN

Message text: temp warning module, temperature: %03d degree celsius out of range (%03d..%03d)
 Severity code: Warning
 Explanation: The temperature on the 87TS50 module exceeds the allowed temperature range. The hardware is not at risk yet. But the temperature might continue to rise.
 User action: Check and/or improve cooling of 87TS50 (cabinet).

Message code: T_TEMPERROR

Message text: temp error module, temperature: %03d degree celsius out of range (%03d..%03d)
 Severity code: Fatal Error
 Explanation: The temperature on the 87TS50 module exceeds the hardware security level. There is a risk that the hardware might be damaged.
 User action: Check and/or improve cooling of 87TS50 (cabinet).

Message code: T_TEMPOK

Message text: temp ok module, temperature: %03d degree celsius after warning/error, within range (%03d..%03d)
 Severity code: Informational
 Explanation: The temperature of the 87TS50 module has dropped below warning level and is now within the admissible range.
 User action: No user action required.

5.2.11 Cyclic redundancy check messages

Message code: T_CRCTNOTFND

Message text: no crc table found, crc check disabled!
 Severity code: Error
 Explanation: There is no valid CRC table in the PROMs. The CRC check is disabled. This message should not occur in an official release.
 User action: Replace the PROM set of the processing section.

Message code: T_CRCERROR

Message text: crc error in block %d, calculated crc: 0x%04x prommed crc: 0x%04x
 Severity code: Fatal Error
 Explanation: There is a CRC sum mismatch between the CRC table and the currently calculated CRC.
 User action: Exchange the PROM set of the processing section.

Message code: T_SUMCRCCHGE

Message text: sumcrc changed for (0=ba, 1=ps, 2=module): %d old: 0x%04x new: 0x%04x
 Severity code: Error, Informational
 Explanation: The summing CRC of the module has changed. If the severity level is 'Informational' CRC has changed due to a new configuration list. Otherwise, there might be problems with further execution of the signalling section.
 User action: If the severity level is 'Error', replace the PROM set of the processing section.

5.2.12 Virtual Field Interface messages

Message code: T_VFI_UNIMPL

Message text: vfi unimplemented operation system call
 Severity code: Error
 Explanation: There is a system call of the virtual field interface which is not linked to the versatile real-time executive.
 User action: Please contact the ABB service department.

Message code: T_VFI_ERRMSG

Message text: vfi errorcode: %d, data: 0x%08x, text: %s
 Severity code: Informational, Error
 Explanation: These messages come from the virtual field interface. See also 'VFI error messages'.
 User action: Please contact the ABB service department if such a message has severity level 'Error'.

Message code: T_VFI_TCREAT

Message text: vfi task create (task: 0x%08x, tid: %03d, pri: %03d, param: 0x%08x)
 Severity code: Informational
 Explanation: This message informs about a new task being created in the virtual field interface.
 User action: No user action required.

Message code: T_VFI_DEITOE

Message text: vfi call: Device_IntToExtTime(error: %d)
 Severity code: Error
 Explanation: Converting the time into the external time format has failed. Time synchronization with the Advant Power system may not work properly. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check the 87TS50 hardware. Please contact the ABB service department.

Message code: T_VFI_DERDMA

Message text: vfi call: Device_ReadObjectMap(error: %d)
 Severity code: Error
 Explanation: Reading the 'device object map' has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection.

Message code: T_VFI_DERDER

Message text: vfi call: Device_ReadObjErrors(error: %d)
 Severity code: Error
 Explanation: Reading the device object errors has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection.

Message code: T_VFI_DERDID

Message text: vfi call: Device_ReadDeviceId(error: %d)
 Severity code: Error
 Explanation: Reading the device id has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection.

Message code: T_VFI_DERDST

Message text: vfi call: Device_ReadDeviceStatus (error: %d)
 Severity code: Error
 Explanation: Reading the device status has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection.

Message code: T_VFI_DERDDI

Message text: vfi call: Device_ReadDiagnostics(error: %d)
 Severity code: Error
 Explanation: Reading the device diagnostics has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection.

Message code: T_VFI_DESEST

Message text: vfi call: Device_SetDeviceState(state: %d, error: %d)
 Severity code: Error
 Explanation: Setting the device state has not been successful. For the meaning of the error code, refer to 'VFI error codes'.

State definitions:

- 0 Force device passive
- 1 Force device operational
- 2 Force device restart
- 3 Force device error
- 4 Force device init
- 5 Force master
- 6 Force standby
- 7 Force OSP
- 8 Reset OSP
- 9 Reset submodule 1
- 10 Reset submodule 2

User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection.

Message code: T_VFI_DAWRPA

Message text: vfi call: DataSet_WriteStdParamList(error: %d)
 Severity code: Error
 Explanation: Writing the standard parameter list has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection.

Message code: T_VFI_DAWRCO

Message text: vfi call: DataSet_WriteCommand(sta: %d, ident: %d, cmd: %d, error: %d)
 Severity code: Error
 Explanation: Writing a dataset command has not been successful. For the meaning of the error code, refer to 'VFI error codes'.

Dataset command definitions:

- 0 Activate dataset
- 1 Deactivate dataset
- 2 Delete dataset
- 3 Set dataset to error value and deactivate
- 4 Set dataset to error value and delete

User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection.

Message code: T_VFI_DAWRCL

Message text: vfi call: DataSet_WriteCommandList(error: %d)
 Severity code: Error
 Explanation: Writing a dataset command list has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection.

Message code: T_VFI_DARDAD

Message text: vfi call: DataSet_ReadAddress(sta: %d, ident: %d, error: %d)
 Severity code: Error
 Explanation: Reading a dataset address has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection.

Message code: T_VFI_DARDAI

Message text: vfi call: DataSet_ReadAddressList (error: %d)
 Severity code: Error
 Explanation: Reading a dataset address list has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection.

Message code: T_VFI_DARDDI

Message text: vfi call: DataSet_ReadDiagnosticList(error: %d)
 Severity code: Error
 Explanation: Reading the dataset diagnostic list has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection.

Message code: T_VFI_DANXDI

Message text: vfi call: DataSet_NextDiagnostics(currpos: %d, error: %d)
 Severity code: Error
 Explanation: Unpacking the dataset diagnostic list has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection.

Message code: T_VFI_SDP5IN

Message text: vfi call: SDP520a_Install(error: %d)
 Severity code: Error
 Explanation: Installing the service data protocol has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection. Check the 87TS50 hardware.

Message code: T_VFI_SDP6IN

Message text: vfi call: SDP626_Install(error: %d)
 Severity code: Error
 Explanation: Installing the slave dispatcher and master receiver task has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection. Check the 87TS50 hardware.

Message code: T_VFI_CIINHWW

Message text: vfi call: CI520Drv_InitHW failed(error: %d)
 Severity code: Error
 Explanation: Initializing the CI520 device driver has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection. Check the 87TS50 hardware.

Message code: T_VFI_CIWSPA

Message text: vfi call: CI520_WriteSpecDeviceParam (blen: %d, flg: 0x%02x, osta: %d, error: %d)
 Severity code: Error
 Explanation: Writing the CI520 device specific parameters has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check the Advant Fieldbus 100 connection. Check whether the Advant Fieldbus 100 station address in the configuraion list is correct. Withdraw and reconnect the 87TS50 module.

Message code: T_VFI_CIRDPA

Message text: vfi call: CI520_ReadSpecDeviceParam (error: %d)
 Severity code: Error
 Explanation: Reading the CI520-device-specific parameters has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection. Check 87TS50 hardware.

Message code: T_VFI_CISETI

Message text: vfi call: CI520_SetTime(error: %d)
 Severity code: Error
 Explanation: Setting the time at the CI520 has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection.

Message code: T_VFI_CISEDAA

Message text: vfi call: CI520_SetDate(error: %d)
 Severity code: Error
 Explanation: Setting the date at the CI520 has not been successful. For the meaning of the error code, refer to 'VFI error codes'.
 User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection.

Message code: T_VFI_OJRDDI

Message text: vfi call: Obj_ReadDiagnostics(chantype: %d, chanattr: %d, chaninst: %d, error: %d)

Severity code: Error

Explanation: Reading the object diagnostics has not been successful. For the meaning of the error code, refer to 'VFI error codes'.

User action: Check whether the parameters entered during the user monitor session for Advant Power diagnosis were correct.

Message code: T_VFI_FILDER

Message text: advant fieldbus fault

Severity code: Error

Explanation: A bus fault has been detected for Advant Fieldbus 100.

User action: Check connection to the Advant Fieldbus 100, modems and TK515 cables.

Message code: T_VFI_FILDOK

Message text: advant fieldbus ok

Severity code: Error

Explanation: The bus fault indicated by a previous T_VFI_FILDER message has been eliminated.

User action: No user action required.

Message code: T_VFI_CINOOOP

Message text: ci520 not operational

Severity code: Error

Explanation: The Advant Fieldbus 100 interface is not operational.

User action: Check whether the FAULT LED is on. If so, check the Advant Fieldbus 100 connection. Check 87TS50 hardware.

Message code: T_VFI_CIOFAG

Message text: ci520 operational again

Severity code: Error

Explanation: The Advant Fieldbus 100 interface is operational again.

User action: No user action required.

5.2.13 Special test message**Message code: T_TEST**

Message text: , txt = %s

Severity code: Informational

Explanation: These are messages that occur when a test mode has been activated.

User action: No user action required.

5.3 VFI error codes

All of the following VFI error codes are reported with the 87TS50 message code T_VFI_ERRMSG:

0	XComm_success, XDBS_success, XIOBa_success, XIOBb_success	8961 8962 8963 8964 8965 8966 8968 8969 8970 8971 8972 8973 8974 8975 8976 8977 8978 8980 8981 8984 8985 8986 8987 8988	XDBS_invalidParameters XDBS_commandRejected XDBS_informationNotAvailable XDBS_resourceAlreadyUsed XDBS_configurationOverload XDBS_cmdSequencyError XDBS_collision XDBS_linkError XDBS_timeOut XDBS_dataLost XDBS_conOutOfRange XDBS_messageError XDBS_dialogError XDBS_dataOverflow XDBS_accessError XDBS_paramSizeError XDBS_checkSumError XDBS_tableFull XDBS_alreadyUsed XDBS_serviceUnknown XDBS_vppLowError XDBS_eraseSuspendedError XDBS_programError XDBS_blockEraseError
2	XIOBb_context2	32769	XComm_otherBusConfigured
35	XDBS_context	32770	XComm_busNumberTooLarge
64	XFatal_base	32771	XComm_invalidObject
64	XFatal_IECTC57	32772	XComm_invalidInstance
128	XFatal_I8250, XComm_context	32773	XComm_invalidAttribute
129	XIOBa_context	32774	XComm_invalidMessage
130	XIOBb_context	32775	XComm_notSupported
192	XFatal_IOBbInst	32776	XComm_bufferTooSmall
256	XFatal_IOBbMTP	32777	XComm_badMessageSize
320	XFatal_PcktMgr	32778	XComm_busNotConfigured
384	XFatal_Routing	32779	XComm_invalidDate
448	XFatal_RS232MTP	32780	XComm_invalidTime
512	XFatal_RS232PTP	32781	XComm_conversionError
513	XIOBb_noBuf	32782	XComm_invalidDevice
514	XIOBb_noServer	32783	XComm_invalidstation
515	XIOBb_errMsgTyp	32784	XComm_invalidAddress
516	XIOBb_errPackCount	32785	XComm_invalidEvent
517	XIOBb_errMVlInst	32786	XComm_invalidVector
518	XIOBb_errMalloc	32787	XComm_alreadyConnected
519	XIOBb_errNolnit	32788	XComm_broadcastNotAllowed
520	XIOBb_errMsgTyp2	32789	XComm_bufferTooLarge
521	XIOBb_errPackCount2	32790	XComm_adapterPassive
522	XIOBb_unexplnit	32791	XComm_adapterFailure
523	XIOBb_errStateOut	32792	XComm_noAdapter
524	XIOBb_errStateDisc	32793	XComm_routeTooSmall
525	XIOBb_errStateWait	32794	XComm_routeTooLarge
526	XIOBb_errState	32795	XComm_timeSyncLost
527	XIOBb_errNoServT	32796	XComm_timeout
528	XIOBb_recPackFail		
529	XIOBb_mviExpt	33025	XIOBa_writeProtectError
530	XIOBb_noPendMsg	33026	XIOBa_CRCError
531	XIOBb_illSrcNode	33027	XIOBa_timeOut
532	XIOBb_mviNotInst	33028	XIOBa_nonExistentMemory
533	XIOBb_unsolResp	33029	XIOBa_cableBreak
534	XIOBb_errStateDorm	33030	XIOBa_otherTypeConfigured
535	XIOBb_errRespBuff	33031	XIOBa_busNotConfigured
536	XIOBb_errMsgTyp3	33032	XIOBa_invalidBus
537	XIOBb_errInitState	33033	XIOBa_invalidstation
538	XIOBb_errMsgTyp4	33034	XIOBa_invalidDevice
539	XIOBb_errMsgCnt2		
540	XIOBb_errInitRec		
541	XIOBb_errState2		
542	XIOBb_recPackFail2		
543	XIOBb_noMem		
544	XIOBb_wrongSeq		
545	XIOBb_routeTooBig		
546	XIOBb_slavePcktTmo		
547	XIOBb_masterPcktTmo		
8960	XDBS_ctx		
8960	XDBS_objectNotSupported		

5.3 VFI error codes (continued)

33035	XIOBa_invalidPort	33057	XIOBa_messageTooLarge
33036	XIOBa_invalidAddress	33058	XIOBa_noMoreResources
33037	XIOBa_bufferTooSmall	33059	XIOBa_busError
33038	XIOBa_bufferTooLarge	33060	XIOBa_vbiWrongModule
33039	XIOBa_wantTimeOut	33061	XIOBa_vbiMissingModule
33040	XIOBa_unknownError	33062	XIOBa_vbiMissingCarrier
33041	XIOBa_internalError	33063	XIOBa_vbiModNotReady
33042	XIOBa_broadcastNotAllowed	33064	XIOBa_vbiBadValue
33043	XIOBa_adapterFailure	33065	XIOBa_vbiCommandFailed
33044	XIOBa_alreadyConnected		
33045	XIOBa_invalidVector	33281	XIOBb_noMoreResources
33046	XIOBa_noAdapter	33282	XIOBb_invalidstation
33047	XIOBa_sendCollision	33283	XIOBb_messageTooLarge
33048	XIOBa_portTimeOut	33284	XIOBb_illSlaveAnswer
33049	XIOBa_receptionAborted	33285	XIOBb_receptionAborted
33050	XIOBa_commTimeOut	33286	XIOBb_bufferTooSmall
33051	XIOBa_sendingAborted	33287	XIOBb_invalidMessage
33052	XIOBa_syncTimeOut	33288	XIOBb_commInit
33053	XIOBa_noRoutingSupport	33289	XIOBb_commTimeOut
33054	XIOBa_commInit	33290	XIOBb_noPendingMsg
33055	XIOBa_invalidDialogue	33291	XIOBb_badRouteSize
33056	XIOBa_protViol		

5.4 VFI error messages

All of the following VFI error message texts are reported with the 87TS50 message code T_VFI_ERRMSG:

CI520Drv_InitHW failed, no device found

CI520Drv_InitHW failed, wrong device found

CI520Drv_InitHW failed, could not assign to interrupt

vbulntAssign: interrupt already assigned

resetting CI520 by MIB ...

No buffer available

No server installed

Wrong message type

Wrong packet count

MVI addressed but not installed

SPEICHER allocation failed

Init bit expected

Wrong message type 2

Wrong packet count 2

Unexpected init-bit received

Wrong protocol state: answerOutstanding

Wrong protocol state: discardAnswer

Wrong protocol state: waitForReceiveTask

Wrong protocol state

No server task installed

Receive packet failed

Call from MVI bus expected

Receive called but no pending message

Received from illegal source node

MVI bus addressed but not installed

Unsolicited Confirm or Response

Illegal protocol state: dormant

Response buffer too small

Wrong message type 3

Wrong init bit state

Wrong message type 4

Wrong message count 2

Wrong init bit state received

Wrong protocol state 2

Receive packet failed

Could not allocate memory

Wrong sequence bit in received message

Route size exceeds packet size

Packet receive timeout

Packet receive timeout

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