

Applications updating with PT and FCT CODESYS

Application note

Doc. TR032101
Ed. 1.0 - English - 25 gen 2021

1. Introduction	1
2. Procedure description	1
3. Configuration of communication interruption and restore	2
3.1. Introduction	2
3.2. Implementation on HMI application	3

1. Introduction

The purpose of this application note is to guide the user in the implementation of some expedients in the panel application development, in order to avoid potentially critical communication problems between the panel and the controller during the update of their software. For more complete information about the panels or the controller, please refer to the documents that are available in the <http://www.cmz.it> website or contact CMZ SISTEMI ELETTRONICI S.r.l..

This instructions regard the operator panels devices of PTxxx or PT2xxx series and a controller FCTxxx with CODESYS.

The communication between the panels and the FCT happens through the Ethernet port by using a protocol that is native in the controller development environment.

The development environments to which this document refers to are:

1. CODESYS V3.5 SP14 Patch 3
2. Panel Master Designer version 2.1.9.84 for the operator panel.

The FCTxxx controller has the firmware SP 11 rev 6.

2. Procedure description

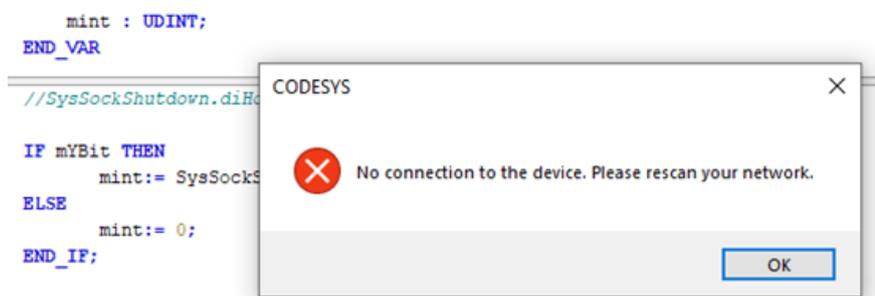
It is considered that the panel and the controller have already installed an application that provides the communication between them with “CODESYS V3 TCP/IP” protocol.

The following procedure' aim is to prevent the possibility of communication interruption between the panel and the controller, which can occur due to:

- a download of the application in the FCTxxx controller;

- a download of the application in the PTxxx or PT2xxx panel.

In both cases the FCTxxx controller enter in a status in which it cannot communicate neither with the panel nor with the CODESYS development environment on PC.



To avoid this situation it is necessary to disconnect from the network the device in which the download is not executed (it could be turned off).

But the physical disconnection of a device from the network often results difficult and sometimes not possible. So it is suggested to manage a temporary deactivation of the communication directly from the operator panel through a button. To do it, proceed as the following instructions:

- communication disable through the button;
- download in the controller or the panel as needed;
- communication restore through the button.



Important

After the communication disable, it is necessary to wait at least 60 seconds before to restore it.

3. Configuration of communication interruption and restore

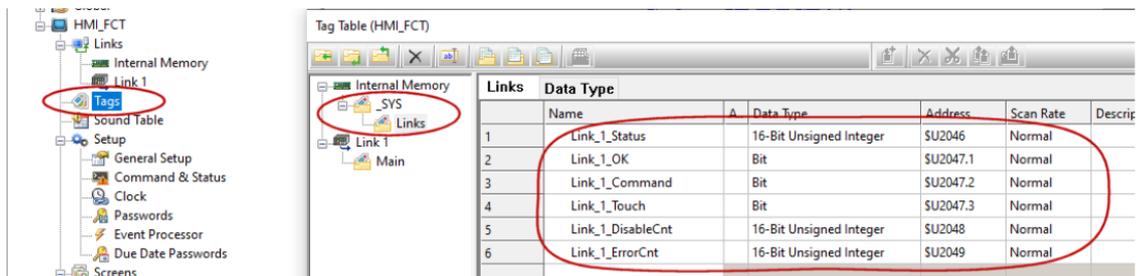
3.1. Introduction

The proposed intervention consists of the import of the application project for the panel:

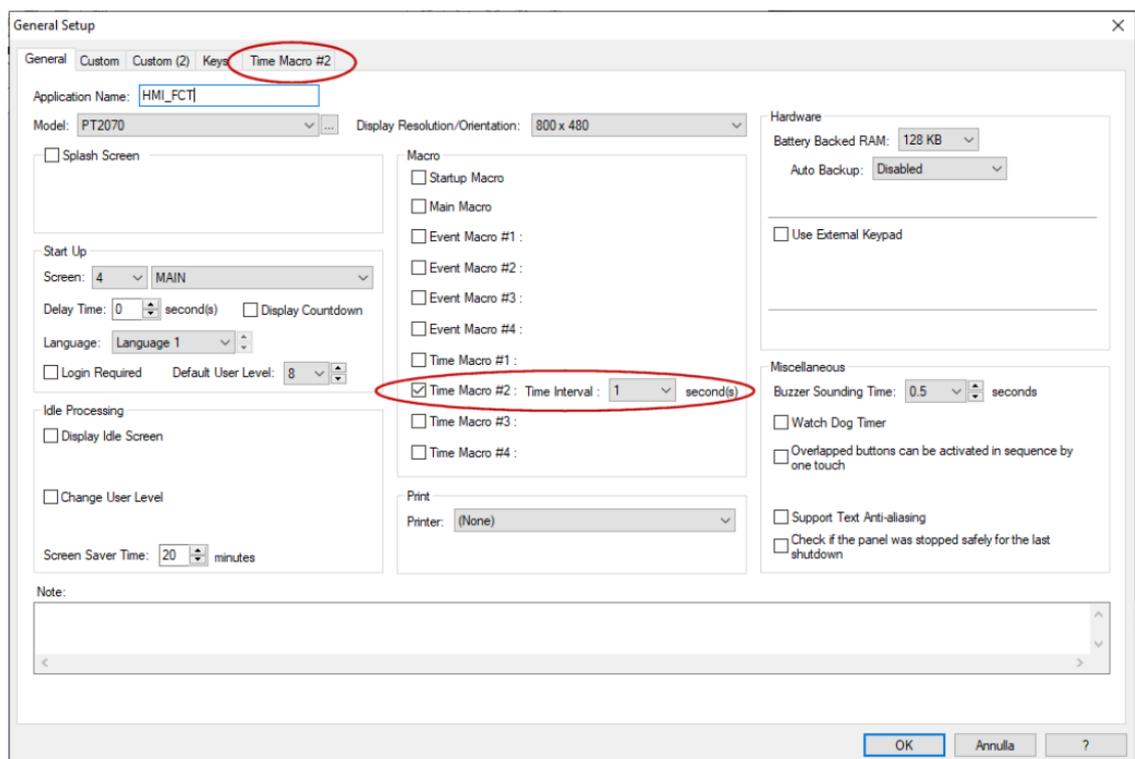
1. the file of the “Sys_Links.csv” tag;
2. the file with the “TimeMacro2.mcr” macro;
3. the button and the communication status, by copying them from the “HMI_Com-Codesys.pm3” project.

3.2. Implementation on HMI application

1. Access to the “Tags” menu on the project tree and insert the internal variables that are reported below, verifying that these addresses are not already used in the application.



2. Access the “General Setup” menu in the project tree and enable a “Time macro” by setting a waiting time of 1 second.



The macro to be inserted is the following:

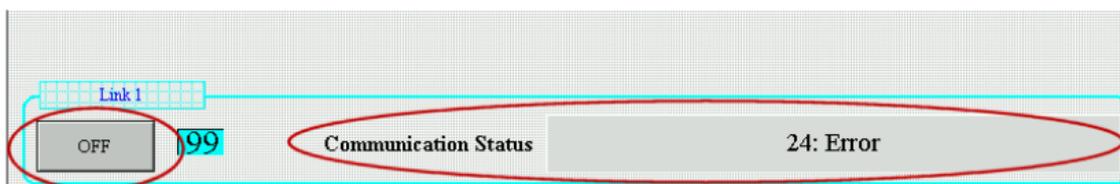
```

Script - timeMacro2
0 // Verifica lo stato di comunicazione
1 /**Link_1**
2 O\SYS\Links\Link_1_Status = LINK_STS(1,0) (U) // Link status
3 IF O\SYS\Links\Link_1_Status==0(U)
4   O\SYS\Links\Link_1_OK = 1B(B)
5   O\SYS\Links\Link_1_ErrorCnt = 0 (U)
6   O\SYS\Links\Link_1_DisableCnt = 0(U)
7 ELSE
8   O\SYS\Links\Link_1_OK = 0B(B)
9   O\SYS\Links\Link_1_ErrorCnt = O\SYS\Links\Link_1_ErrorCnt + 1 (U)
10  IF O\SYS\Links\Link_1_DisableCnt > 0(U)
11    O\SYS\Links\Link_1_DisableCnt = O\SYS\Links\Link_1_DisableCnt-1 (U)
12  ENDIF
13 ENDIF
14
15 IF O\SYS\Links\Link_1_DisableCnt == 0(U)
16   O\SYS\Links\Link_1_Touch = 1B(B) // Set visibility of Enable/Disable link Buton
17 ELSE
18   O\SYS\Links\Link_1_Touch = 0B(B) // Set visibility of Enable/Disable link Buton
19 ENDIF
20
21 IF O\SYS\Links\Link_1_Command(B) // Command for enable/disable Link
22   IF O\SYS\Links\Link_1_OK(B)
23     O\SYS\Links\Link_1_DisableCnt = 60(U)
24     EN_LINK(1,0,0) (U)
25     O\SYS\Links\Link_1_OK = 0B(B)
26   ELSE
27     EN_LINK(1,0,1) (U)
28     O\SYS\Links\Link_1_OK = 1B(B)
29     O\SYS\Links\Link_1_ErrorCnt = 0 (U)
30   ENDIF
31   O\SYS\Links\Link_1_Command=0B(B)
32 ENDIF

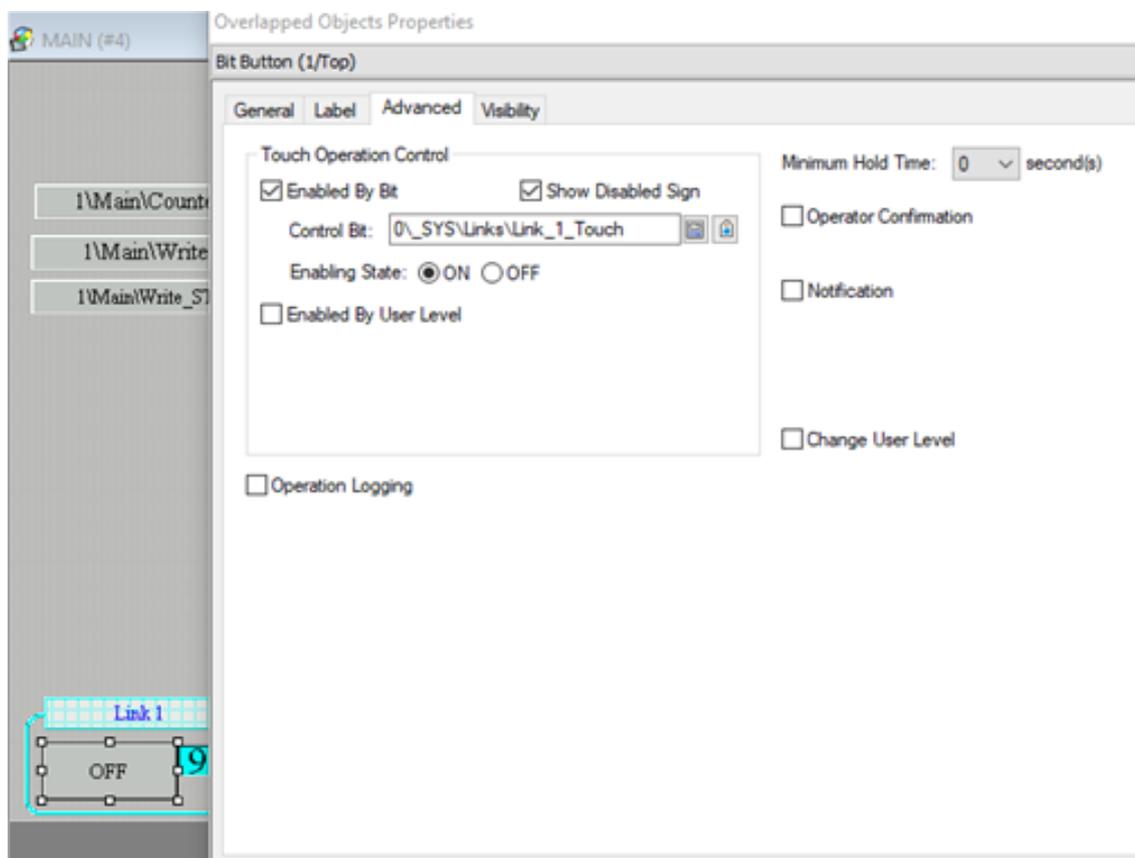
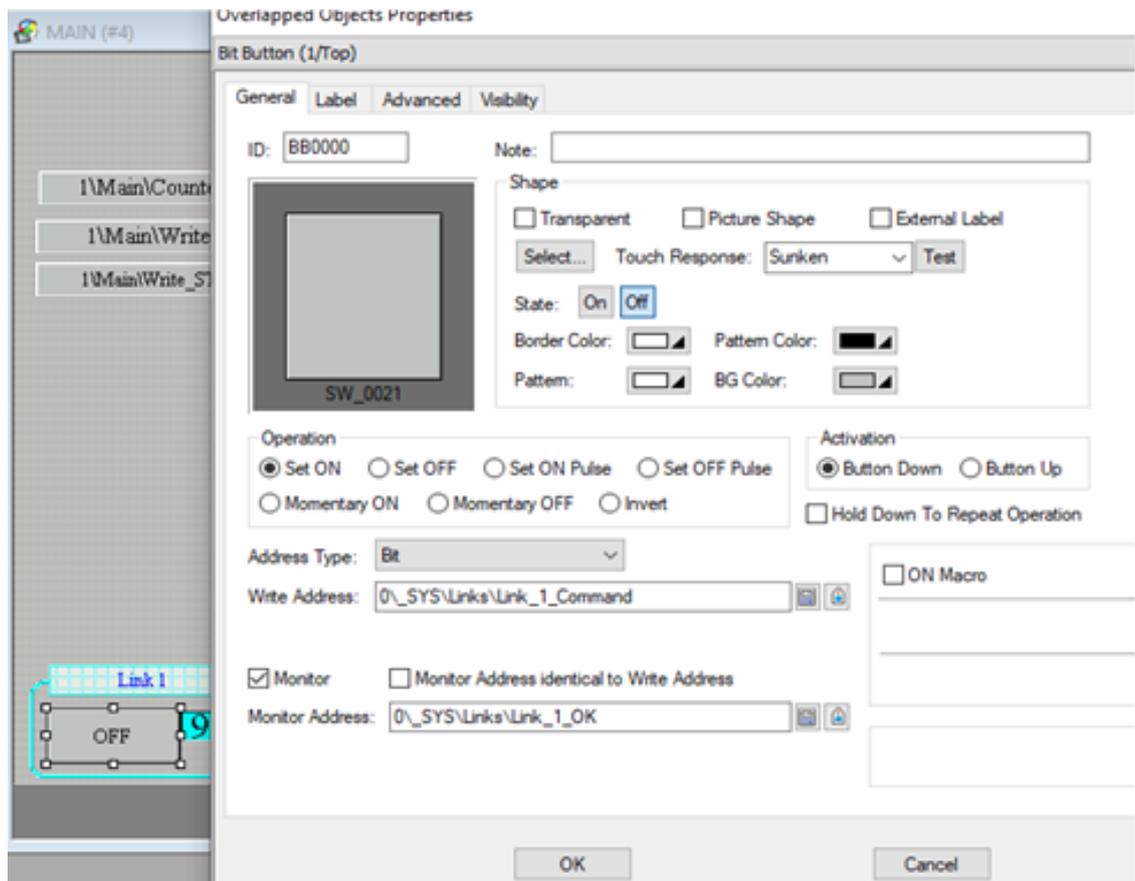
```

3. Add in a page of the application:

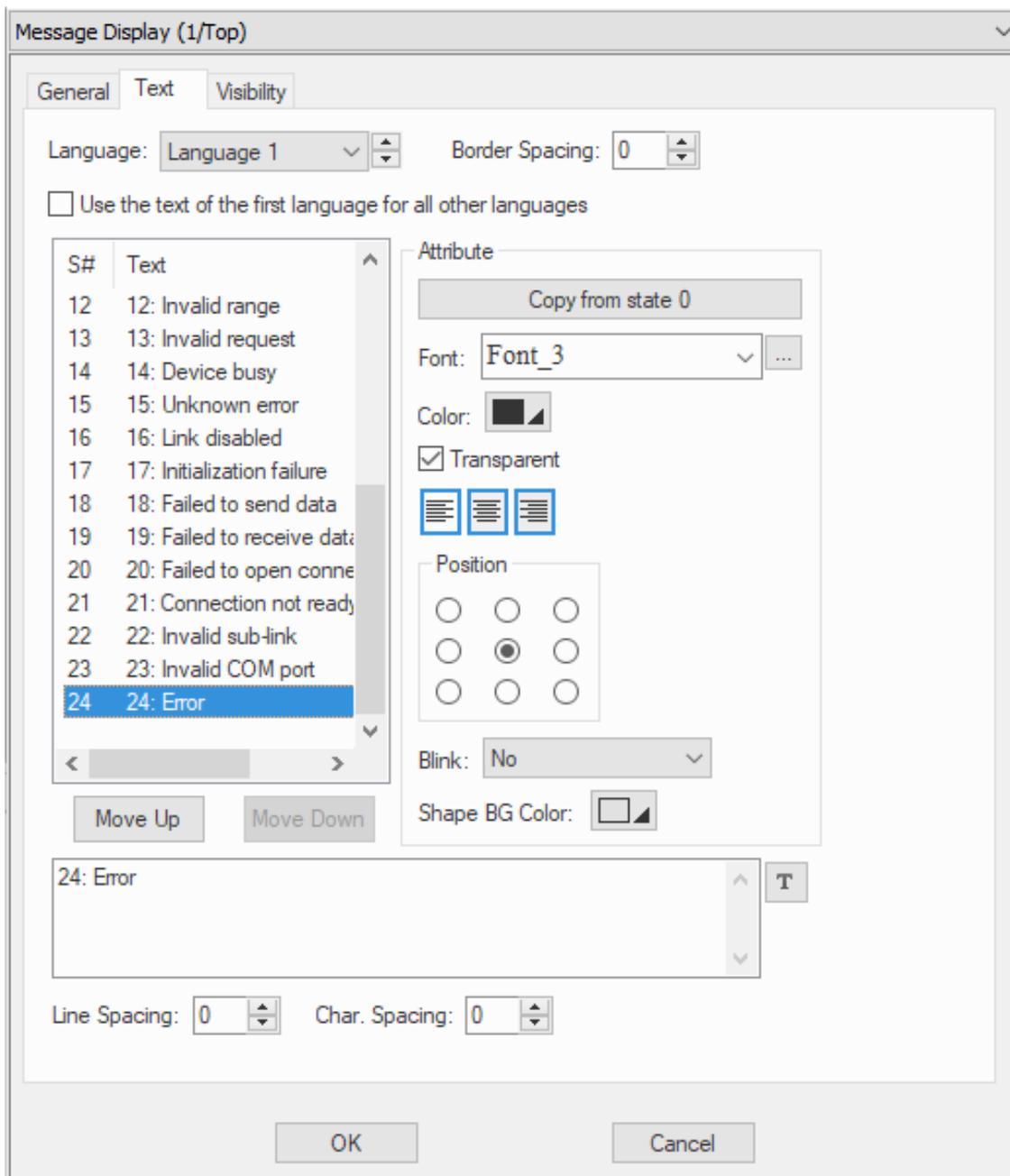
- a button for the communication enable/disable;
- the link status.



Here follow the settings fir the button configuration:



The communication status that is detected by the panel is at disposal through a system variable at the address \$S662. The meanings of the values are reported in the table.



Value	Text
0	OK
1	Overrun error
2	Break error
3	Parity error
4	Framing error
5	No response

Value	Text
6	Unrecognized response
7	Timeout
8	Inactive CTS
9	Checksum error
10	Command rejected
11	Invalid address
12	Invalid range
13	Invalid request
14	Device busy
15	Unknown error
16	Link disabled
17	Initialization failure
18	Failed to send data
19	Failed to receive data
20	Failed to open connection
21	Connection not ready
22	Invalid sub-link
23	Invalid COM port
24	Error
255	Uncertain

