



Substation Automation Products

Transformer voltage control Relion[®] 670 and 650 series User's Manual



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Conformity

This product complies with the directive of the Council of the European Communities on the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC Directive 2004/108/EC) and concerning electrical equipment for use within specified voltage limits (Low-voltage directive 2006/95/EC).

This conformity is proved by tests conducted by ABB AB in accordance with the generic standard EN 50263 for the EMC directive, and with the standards EN 60255-5 and/or EN 50178 for the low voltage directive.

This product is designed and produced for industrial use.

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Section 1 Introduction

1.1 Preface

Welcome to the User's Manual of Transformer voltage control object in SA-LIB of SYS600. The installation package name is VCTR 2.x which is an add-on package to SYS600.

This document will provide you with the necessary information for installing, configuring and modifying the different parts in Transformer voltage control object. To be able to understand this document the user should be familiar with MicroSCADA Pro 9.2 or later.

1.2 Abbreviations and Definitions

BBONE	Back Bone
SCADA	Supervisory Control and Data Acquisition
VCTR	Voltage Control
HW	Hardware
LAN	Local Area Network
SA-LIB	Substation Automation – Library
IX	(Process Object) Index Number
SFT	Standard Function Tool
SW	Software
DS	Data Set
CCT	Communication Configuration Tool
BI	Binary Input
BO	Binary Output
AI	Analog Input
AO	Analog Output
MCC	Minimizing the Circulation Current
MF	Master Follower
EH	Event Handling
SX	Translated State Texts
IN	Item Name
LVA	Load Voltage Adjustment

Section 2 System requirements

2.1 Terminal end

IEC61850 communication. The following terminal is supported

- RET 670 & RET 650
- REC 670

2.2 The MicroSCADA Pro PC

- MicroSCADA Pro 9.2 or later.

2.3 The Transformer voltage control package

- 1800KB Disk Space

Section 3 Installation

Before using Transformer voltage control the software has to be installed on the hard disk of the MicroSCADA Pro computer.



In order to avoid problems, it is recommended not to have the MicroSCADA Pro active during the installation.

3.1 Installation of the MicroSCADA Pro software

Before the installation of the Transformer voltage control add on package, the user must make sure that the MicroSCADA Pro software is already installed on the PC.

3.2 Installation of the Transformer voltage control software package

The Transformer voltage control package can be downloaded from the MicroSCADA website.

- Download the Transformer voltage control package into your local hard disk.
- Run [drive]:\VCTR.EXE
- Follow the instructions on the screen
- The Transformer voltage control package is now properly installed on the hard disk of the computer. PC.
- After installation - read and follow any package specific instruction in the Read me file.

The software is now installed in the following directories.

- [drive]:\sc\sa_lib\base\bbone\inst
- [drive]:\sc\sa_lib\base\bbone\lang0
- [drive]:\sc\sa_lib\base\bbone\use
- [drive]:\sc\sa_lib\base\bbone\init
- [drive]:\sc\prog\graphicsEngine\Palette\02 - SA_IEC
- [drive]:\sc\sys\active\sys_



See also the list of files in Sec 7.0, Appendix

3.3

Read me file

It is important to read and follow the instructions in the README.TXT file, which is installed in the directory.

[Drive]:\sc\sa_lib\base\bbone

Any specific release information, known errors and limitations are stated in this file. It is therefore very important that you ALWAYS read the README.TXT file.

Section 4 Creating and Preparing an application

The installed function demands that process objects are created to work properly in run-time mode. This will avoid appearance of error codes.

4.1 Changes in the Sys_Bascon.com file

Transformer voltage control does not use the text database of the SA-LIB. So a separate text database is to be used. After installation, the TD attribute definition is to be added in the Sys_Bascon.com file.

For MS 9.2

```
#CREATE APL:V = LIST(-  
    TT = "LOCAL",-      ;Translation Type  
    NA = "ABB",-      ;Name of application directory  
    AS = "HOT",-      ;Application state  
                        (COLD,WARM,HOT)  
    TD = VECTOR("Sys_text_vctr.sdb",- ;Added for VCTR  
    PH = %l_Global_Paths,-
```

For MS 9.3

```
;Application Object APL attributes  
;  
#local Apl_Modify = list(-  
    TT = "LOCAL",-      ;Translation type  
    AS = "COLD",-      ;Application state  
    TD = VECTOR("Sys_text_vctr.sdb",- ;Added for VCTR  
    PQ = 5,-           ;Parallel queues
```



The TD attribute definition has to be removed if Transformer voltage control package is un-installed.

4.2 Station function

A station object has to be installed prior to installation of the bay object. The order of the installation should be Station -> Bay -> Transformer voltage control. The station control shows the operator location information of the substation, that is, whether the control is authorized from the station locally or from an external control center.

4.3 Bay function

The operator place for the Transformer voltage control object is decided by the process object IX 10 (Bay Local/remote switch) of the standard Bay object. If the switch state of the Bay is either disabled or local, it is not possible to operate Transformer voltage control object.

The IX 10 of Bay object is recommended to be mapped to Subnetwork.IED1.LD0.QCBAY1.SrcOpPrm.stVal in the IEC 61850 communication.

Section 5 Overview

The Transformer voltage control package is an add-on to SYS 600. Transformer voltage control function supports the voltage control & tap regulation of the transformer.

5.1 Target System

- REC 670
- RET 670 & RET 650

5.2 Communication Support

- IEC-61850-8-1 protocol

5.3 Features

- Blocking/Deblocking of alarms, events, printout, update.
- Acknowledge alarms
- Change operation mode
- Change control mode
- Show different control voltages
- Control the voltage control by Raise / Lower commands
- Load voltage adjustment
- Show blocking status
- Maintenance information
- Operation information
- Parallel blocking information

Section 6 Technical description

In this section the functionality and performance of Transformer voltage control is described. All the details related to the process object IX are mentioned for Parallel VCTR_TYPE. For Single type, users are advised to exclude the process objects which are there only for parallel VCTR_TYPE.

6.1 History Registrations

Always when the following process objects change value an event is generated, provided that no blocking is prevailing.

(IX=10-13,19,20,22,23,25-27,31,35-46,49,51-54,56-59,63,65,67-70,72,74,79,82-100,103,107-111,116-121)

6.2 Blockings

These are internal blockings within the MicroSCADA Pro database.

Process signals 10-121 can be blocked from the blockings tab (events, alarms, printout, control, update).

6.3 Alarm Generation

When the following process objects gets the value “1” alarms are generated.

(IX = 19, 22, 25, 27, 31, 45, 49, 52, 53, 54,56, 63, 72, 82, 83, 84, 85 , 99, 100, 103, 107, 108,109, 110, 111, 118, 119,120,121)

6.4 System start-up

All the process objects are updated at system start up.

6.5 Process Commands

Process commands can be issued for:

- Change the tap position. (Raise or Lower)
- Change control mode.(Manual or automatic)
- Adjust set point voltage with factor 1 to 4.
- LVA Reset
- Set to Master.

- Set to Follower.
- Operation Counter Reset.
- Remaining life Reset.

6.6 Internal Blockings

- Block/Unblock Alarms
- Block/Unblock Events
- Block/Unblock Printouts
- Block/Unblock Update
- Block/Unblock Control
- Block/Unblock Action



Note that these blockings are set within the MicroSCADA Pro database. No external blockings are available for this function.

6.7 Graphical Representation

The following are the 4 different representations available for Transformer voltage control. The objects are chosen from the Object Browser in Display builder.

SI No.	Run time Symbol	Representation Symbol	Representation Name
1			VCTR2w.sd
2			VCTR2w H.sd
3			VCTR3w.sd
4			VCTR3w H.sd

Table 1 Transformer voltage control Picture Representations

In the table below the color coding details are shown.

Description	Attribute used	Color	Comment
Not sampled or Not updated.	OS=10	Magenta	
Obsolete value	OS=1-9	Magenta	Last known value presented
Unack active alarm	AL = 1 and AR=0	-	
Acknowledged alarm or faulty state	AL=1	-	
Update blocked	UB=1	Magenta	
Manual state	SS=1	Blue	
Alarm blocked (internal)	AB=1	-	Only for indices specified in Section 6.3□
Event blocked (internal)	HB=1	Yellow	For all input objects.
Printout blocked (internal)	PB=1	Yellow	
Control blocked (internal)	BI =1	Brown	For all output objects.
Normal state		Green	

Table 2 Color-coding in general





			
Manual state	OS = 1 – 9 or Updated blocked	Control blocked	Event / Printout / Action blocked

Figure 1 Color representation in Run time

6.8 Configurable for Transformer voltage control function

The configurable for the Transformer voltage control in the Standard Function Tool

D650 - Standard Function

Attributes | Programs | Tools

STATION_NAME
st650

BAY_NAME
by650

DEVICE_NAME
t650

MIN_POSITION
1

MAX_POSITION
19

P_OBJECT_LN
d650

TRANSFORMER_NAME
t650

STATION_TYPE
IEC 61850-8

RELAY_SERIES
RELAY_650

VCTR_TYPE
PARALLEL

☒ DEFINE_ITEM_NAME

OPC_ITEM_PREFIX
IEC61850 Subnetwork.IED4.LD1

OPC_LN_INSTANCES
["TR8ATCC1","TCLVLT1"]

AUTO_MANUAL_IND_TYPE
0=MANUAL, 1=AUTO (BI)

AUTHORIZATION_GROUP
MV_CONTROL

TRANSFORMER_TYPE
2-winding

OK
Cancel
Apply
Help...

RELAY_SERIES includes type of relay.

OPC_ITEM_PREFIX includes Sub network Name, IED or Device Name and the Logical Device Name, separated by delimiter "."

OPC_LN_INSTANCES depends on which instances are used in the Transformer voltage control object. It includes Logical Node Instances and is a 2 -D vector.

from Product:
SYS 600

Figure 2 Configurable for Transformer voltage control object in SFT

Configurable	Description
STATION_NAME	Text string defining the station name. Default is "".
BAY_NAME	Text string defining the bay name. Default is "".
DEVICE_NAME	Text string defining the name of the Voltage Control. Default is "". Max 5 characters can be entered for Device Name. The Station Name, Bay Name and Device Name together are used as OI attribute in the Event and Alarm list.

Configurable	Description
MIN_POSITION	The minimum position of the nominal voltage. Default is 1. Default value is used when Min value (IX 97) is not coming from the process. Not editable.
MAX_POSITION	The maximum position of the nominal voltage. Default is 19. Default values are used when Max value (IX 98) is not coming from the process. Not editable.
P_OBJECT_LN	The logical name of the database process objects. Max length is 10 characters. Does not accept any of the special characters. An object name cannot begin with an underscore or point. Default is “ ”.
TRANSFORMER_NAME	The same name should be given of what is present in IED. Default is “ ”.
STATION_TYPE	The type of control device protocol. Default is IEC61850. Options are IEC 61850-8 and Not Defined.
RELAY_SERIES	RELAY type which gives an option to select whether RELAY_670 or RELAY_650.
VCCTR_TYPE	Transformer type whether Single or Parallel. Default type is Parallel.
DEFINE_ITEM_NAME	This should be checked to define OPC_ITEM_PREFIX and OPC_LN_INSTANCES. If it is unchecked the OPC_ITEM_PREFIX and OPC_LN_INSTANCES are dimmed.
OPC_ITEM_PREFIX	Default is “ IEC61850 Subnetwork.IED1.LD1”. IN attribute of the Process Object is used for defining this.
OPC_LN_INSTANCES	It should be a vector type. Default is (“TR8ATCC1”, “TCLYLTC1”). The following LN instances are used. TR8ATCC1-4 for parallel, TR1ATCC1-4 for single, TCLYLTC1-4 for 32 bin, TCMYLTC1-4 for 6 bin.
AUTO_MANUAL_IND_TYPE	The default is BI (Binary Input) with Auto =1 and Manual = 0. Not editable.

Configurable	Description
AUTHORIZATION_GROUP	Selects the authorization group among the ones defined in the User Management tool. The default value of this attribute is MV_CONTROL.
TRANSFORMER_TYPE	The no of windings in the Transformer. Default is 2-winding. Options available are 2-winding 3-winding.
DIRECT_TAP_POSITON_SETTING	This attribute is disabled for future use.

Table 3 Configurable for Transformer voltage control function

6.9 Transformer voltage control Faceplates

Faceplate is opened in the run time mode. The tabs in the faceplate have the control and monitoring information of the Transformer voltage control function.

The tabs in the faceplate are:

1. Main
2. Messages
3. Adj SetPt Volt
4. Operation counters
5. Parallel (MCC) – Visible only when VCTR_TYPE = Parallel and IX 26 (Parallel Operation) = 1 (MCC).
6. Parallel (M/F) - Visible only when VCTR_TYPE = Parallel and IX 26 (Parallel Operation) = 2 (MF).
7. Power
8. Blocking
9. Alarms
10. Forced operation

6.9.1 General Conditions for Dimming of Control Buttons

All the control buttons are dimmed under the following conditions in general.

- When Station inhibits Control: (The control is blocked when the operator place (Station L/R switch) is Station and control location is network control centre and also when the operator place is Remote and control location is Substation centre)
- If the device connected to Bay is in Local or Off (See IX 10 of Bay).
- If in the Message tab “ The device is selected on other Monitor” appears
- If Control Blocked

- Tap Changer in operation, IX 74 = 1
- User Authority Level < 1
- Transformer voltage control object is in Not Sampled state.

In addition, the Control buttons are dimmed under the conditions mentioned in the tables for the face plate tabs below from Section 6.9.2 to 6.9.10.

6.9.2 Main Tab

The Main Tab is used mainly for Raise / Lowering the voltage, setting to Auto or Manual mode and displaying the voltage and current values.

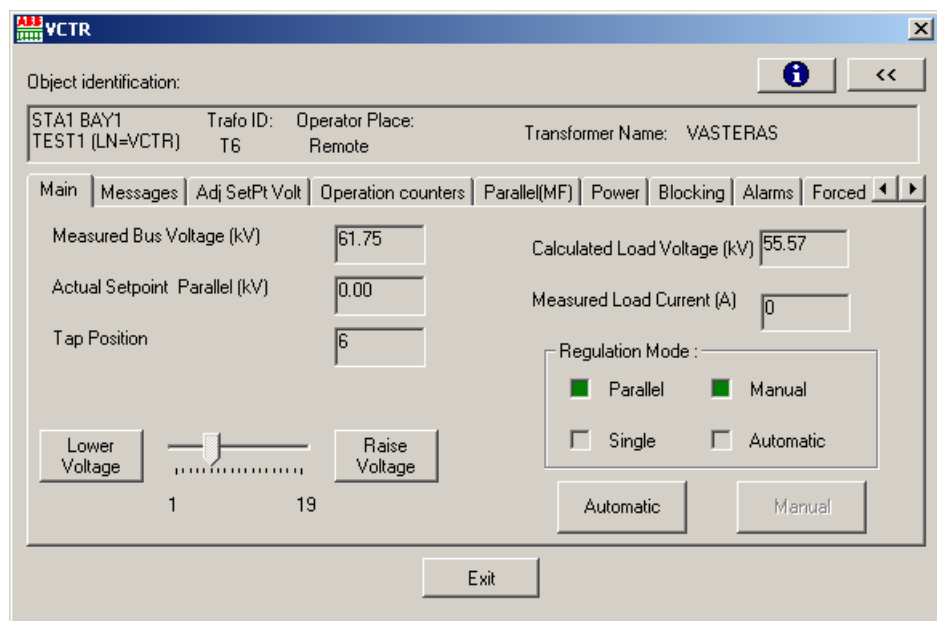


Figure 3 Main Tab

Reverse logic for Voltage Control: The Transformer voltage control object supports the reverse logic for tap operation. i.e., if tap position min voltage (IX 97) is greater than the tap position max voltage (IX 98).

Lower Voltage command is executed: The tap position increases but voltage decreases and the slider moves from right to left.

Raise Voltage command is executed: The tap position decreases but voltage increases and the slider moves from left to right.

The table below explains the buttons and values shown on the Main tab.

Function	Condition(s) for control buttons to be enabled	Action Description
Trafo ID		Indicates the ID of the transformer. IX 35 - 42
Operator Place		This is dependent on the IX 10 of Bay to which VCTR is connected to.
Transformer Name		Transformer Name defined in SFT.
Monitoring Information		
Measured Bus Voltage(kV)		It shows the Control voltage.
Actual set point Single / Parallel(kV)		Single / Parallel text changes depending on whether transformer is in Single or Parallel mode respectively and so also the Actual Set Point values.
Tap Position		Shows the present tap position.
Calculated Load Voltage		Load Voltage
Measured Load Current		Load Current
Parallel		Indicates whether transformer is in parallel operation.
Single		Indicates whether transformer is in single operation.
Automatic		Indicates voltage control is in Automatic state.
Manual		Indicates voltage control is in Manual state.

Function	Condition(s) for control buttons to be enabled	Action Description
Controls		
Lower Voltage	IX 10 <> IX 97 (i.e., Tap has not reached the min voltage position) IX 11 = 0 (In Manual mode), General Conditions mentioned in Section 6.9.1	Used to lower the tap position.
Raise Voltage	IX 10 <> IX 98 (i.e., Tap has not reached the max voltage position) IX 11 = 0 (In Manual mode), General Conditions mentioned in Section 6.9.1	Used to raise the tap position.
Automatic	IX 11 = 0 (In Manual mode), General Conditions mentioned in Section 6.9.1	This command button is used to set the Voltage Control to Automatic mode.
Manual	IX 11 = 1 (In Automatic mode), General Conditions mentioned in Section 6.9.1	This command button is used to set the Voltage Control to Manual mode.

Table 4 Main tab details

6.9.3 Messages Tab

This tab displays the status information.



Figure 4 Messages tab

The table below explains the buttons shown on the Messages tab.

Function	Condition(s) for control buttons to be enabled	Action Description
Control		
Refresh		Refreshes the status information.

Table 5 Messages Tab details

The following messages will appear in the Message tab.

- Not Connected to Process
- Object is selected on another monitor.
- Update blocked, Control blocked, Event blocked, Printout blocked, Alarm blocked, Action blocked.
- Object status is uncertain.
- Tap Changer in operation.
- Operation counter limit reached.

6.9.4 Adjust Set Point Voltage Tab

This tab is mainly used to adjust the Voltage Set Point to the 4 available LVA values.

Figure 5 Adj SetPt Volt tab

The table below explains the buttons and values shown on the Adj SetPt Volt tab.

Function	Condition(s) for control buttons to be enabled	Action Description
Monitoring Information		
Measured Bus Voltage (kV)		Displays the value of Measured Bus Voltage in (kV)
Original Target Voltage Uset (kV)		Actual Voltage set by the User.
Voltage Set Point Single (kV)		Indicates Voltage Set Point in Single Mode. This varies depending on the LVA factors. LVA1 – LVA4.
Load Compensation for Rated Load.		Load dependent auto reduction.
Controls		
LVA1	IX 93 <> 1	Load Adjust factor 1
LVA2	IX 94 <> 1	Load Adjust factor 2
LVA3	IX 95 <> 1	Load Adjust factor 3

Function	Condition(s) for control buttons to be enabled	Action Description
LVA4	IX 96 <> 1	Load Adjust factor 4
Refresh		Updates the values on the screen.
LVA Reset	IX 93 = 1 or IX 94 = 1 or IX 95 = 1 or IX 96 = 1, General Conditions mentioned in Section 6.9.1	Resets the Set Point back to the the Original Target Voltage.

Table 6 Adj SetPt Volt tab details

6.9.5 Operation counters Tab

This is used to monitor the counter value, reset the counter value and set the counter limit value. The operation counter values are the number of raise and lower operations done.

Figure 6 Operation counters Tab

The table below details the buttons and values appearing on the Operation Counter tab.

Function	Condition(s) for control buttons to be enabled	Action Description
Monitoring Information		
Operation counter value		No. of tap raise and lower operations done.
Operation counter limit		This is the internal MicroSCADA Pro limit value. If the operation counter value exceeds the Set Limit, an alarm is generated.
Reset date of operation counter.		Date of reset of operation counter value.
Remaining contact life		No. of remaining contact life for the transformer. Initially value is 250000. The life goes on reducing as the usage of the transformer increases.
Restore date of Remaining life.		Date of reset of remaining contact life.
Controls		
Refresh		Refreshes the status information
Op counter Reset	General Conditions mentioned in Section 6.9.1	Resets the Operation counter value.
Set		Sets the operation counter limit value. This is internal to MicroSCADA Pro.
Remaining life Restore	General Conditions mentioned in Section 6.9.1	Will Restore the number of remaining contact life to 250000.

Table 7 Operation counters Tab details

6.9.6 Parallel (MCC) Tab

6.9.6.1 Parallel (MCC) Tab – RELAY_670

This tab is visible only when the VCTR_TYPE is parallel and IX 26 (Parallel Operation) has the value = 1. (MCC). It gives the information of the transformer in Parallel MCC mode.

Figure 7 Parallel (MCC) Tab

The table below describes the values on the Parallel (MCC) tab.

Function	Condition(s)	Action Description
Monitoring Information		
Measured Mean Bus Voltage (kV)		Displays the value of Measured Mean Bus Voltage. Same value as in the Main Dialog.
Voltage Set point Parallel (kV)		Indicates Voltage Set Point in Parallel Mode. This is set by LVA values and USET.
Circulation Current		Displays the value of Circulation Current with 1 decimal point precision.
CC Adjusted Voltage		Circulating Current Adjusted Voltage

Simultaneous Tapping prohibited		Indicates if the Simultaneous Tapping is prohibited.
Bay to Bay Communication Error		Indicates Bay to Bay Communication Error. (Horizontal communication)
Max Circulation Current Blocking		Indicates the Max Circulation Current blocking
Q1(MVAr)		Reactive Compensation 1
Q2(MVAr)		Reactive Compensation 2
Q3(MVAr)		Reactive Compensation 3
Tr in PG		Indicates the Transformers in parallel Group.
Homing		Indicates if the transformer is in Homing state.
Adapt		Indicates whether the transformer is in Adapt mode or not.

Table 8 Parallel (MCC) Tab

6.9.6.2

Parallel (MCC) Tab – RELAY_650

This tab is visible only when the VCTR_TYPE is parallel and IX 26 (Parallel Operation) has the value = 1. (MCC). It gives the information of the transformer in Parallel MCC mode.

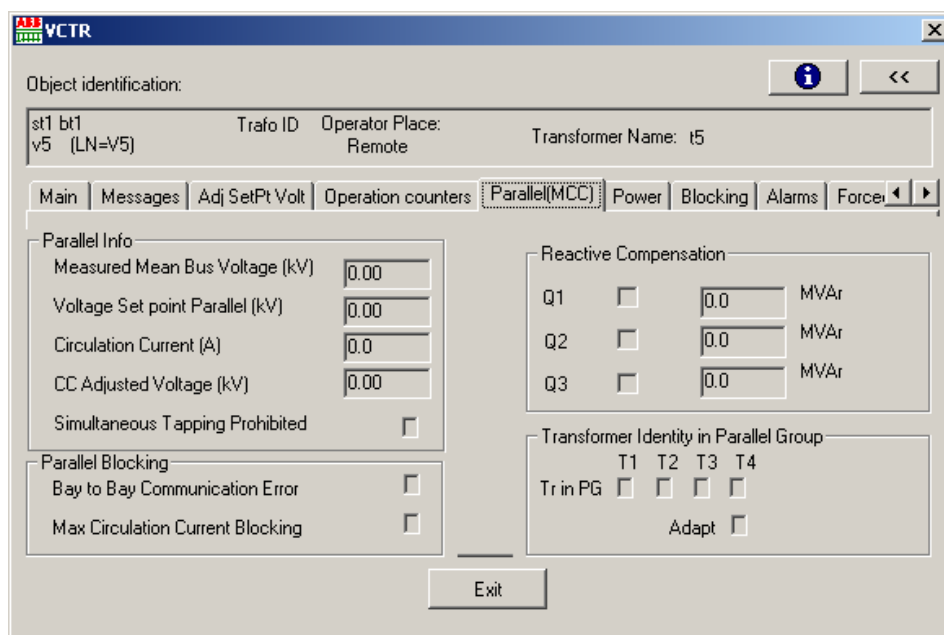


Figure 8 Parallel (MCC) Tab

The table below describes the values on the Parallel (MCC) tab.

Function	Condition(s)	Action Description
Measured Mean Bus Voltage (kV)		Displays the value of Measured Mean Bus Voltage. Same value as in the Main Dialog.
Voltage Set point Parallel (kV)		Indicates Voltage Set Point in Parallel Mode. This is set by LVA values and USET.
Circulation Current		Displays the value of Circulation Current with 1 decimal point precision.
CC Adjusted Voltage		Circulating Current Adjusted Voltage
Simultaneous Tapping prohibited		Indicates if the Simultaneous Tapping is prohibited.
Bay to Bay Communication Error		Indicates Bay to Bay Communication Error. (Horizontal communication)
Max Circulation Current Blocking		Indicates the Max Circulation Current blocking

Function	Condition(s)	Action Description
Q1(MVAr)		Reactive Compensation 1 (Not used for RELAY_650)
Q2(MVAr)		Reactive Compensation 2 (Not used for RELAY_650)
Q3(MVAr)		Reactive Compensation 3 (Not used for RELAY_650)
Tr in PG		Indicates the Transformers in parallel Group.
Homing		Indicates if the transformer is in Homing state.
Adapt		Indicates whether the transformer is in Adapt mode or not.

Table 9 Parallel (MCC) Tab

6.9.7 Parallel (M/F) Tab

6.9.7.1 Parallel (M/F) Tab – RELAY_670

This tab is visible only when the VCTR_TYPE is parallel and IX 26 (Parallel Operation) has the value = 2. (MF) It gives the information of the transformer in Parallel Master Follower mode.

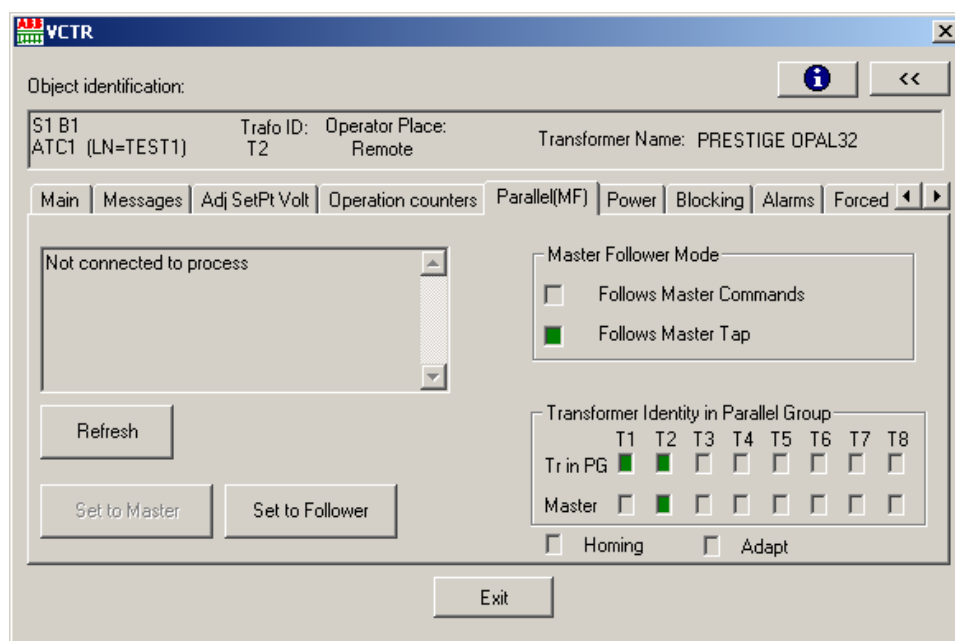


Figure 9 Parallel (M/F) Tab

The table below describes the values on the Parallel (MF) tab.

Function	Condition(s) for control buttons to be enabled	Action Description
Monitoring information		
Follows Master Commands		Follows according to the commands given to Master transformer.
Follows Master tap		Follows the tap positions of the Master.
Tr in PG (T1-T8)		Indication of Transformers(T1 –T8) selected in the parallel group
Master (T1-T8)		Indication of the Master transformer in the parallel group
Homing		Homing status of the Transformer

Adapt		Indicates whether the transformer is in Adapt mode or not.
Controls		
Refresh		Refreshes the screen
Set to Master	IX 47 = 0, IX 12 = 1, General Conditions mentioned in Section 6.9.1	Sets the Selected Transformer as Master
Set to Follower	IX 47 = 1, IX 12 = 1, General Conditions mentioned in Section 6.9.1	Resets the Master and sets the transformer to follower.

Table 10 Parallel (M/F) Tab details

6.9.7.2

Parallel (M/F) Tab – RELAY_650

This tab is visible only when the VCTR_TYPE is parallel and IX 26 (Parallel Operation) has the value = 2. (MF) It gives the information of the transformer in Parallel Master Follower mode.

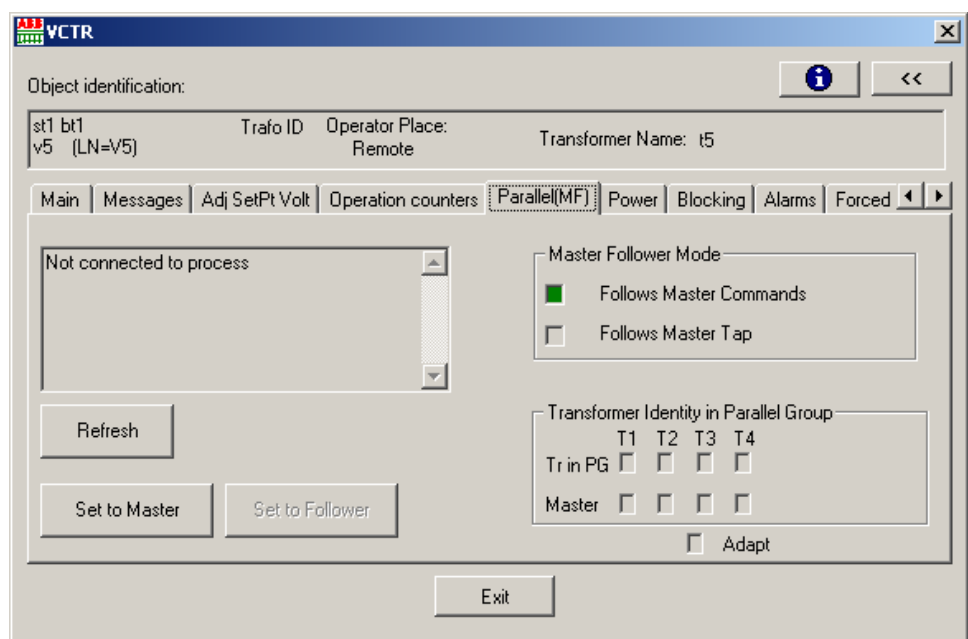


Figure 10 Parallel (M/F) Tab

The table below describes the values on the Parallel (MF) tab.

Function	Condition(s) for control buttons to be enabled	Action Description
Monitoring information		
Follows Master Commands		Follows according to the commands given to Master transformer.
Follows Master tap		Follows the tap positions of the Master.
Tr in PG (T1-T4)		Indication of Transformers(T1 –T4) selected in the parallel group
Master (T1-T4)		Indication of the Master transformer in the parallel group
Homing		Homing status of the Transformer
Adapt		Indicates whether the transformer is in Adapt mode or not.
Controls		
Refresh		Refreshes the screen
Set to Master	IX 47 = 0, IX 12 = 1, General Conditions mentioned in Section 6.9.1	Sets the Selected Transformer as Master
Set to Follower	IX 47 = 1, IX 12 = 1, General Conditions mentioned in Section 6.9.1	Resets the Master and sets the transformer to follower.

Table 11 Parallel (M/F)Tab details

6.9.8 Power Tab

This tab shows the Active and Reactive Power information.

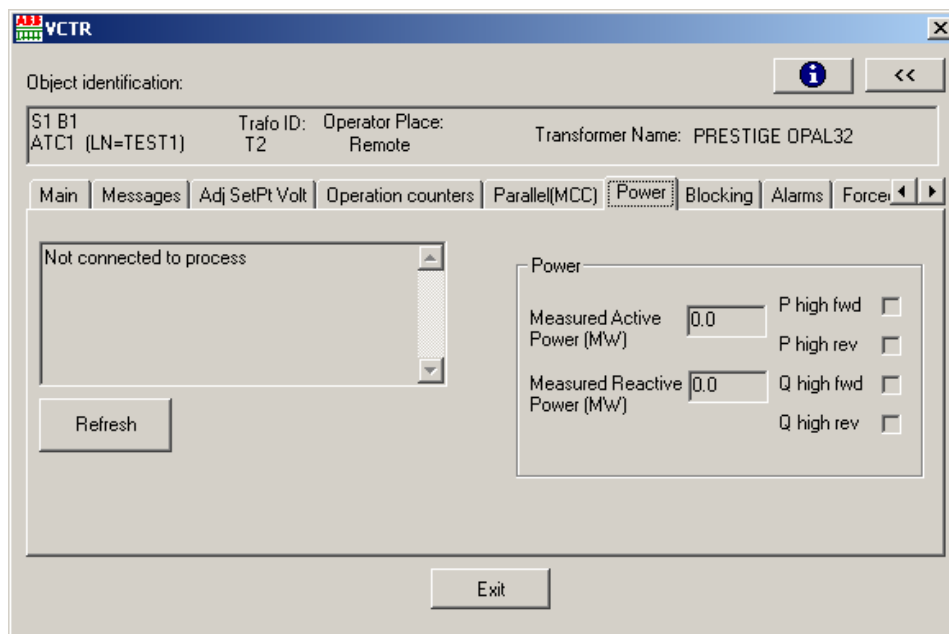


Figure 11 Power Tab

The table below describes the values appearing on the power tab.

Function	Condition(s) for control buttons to be enabled	Action Description
Monitoring Information		
Measured Active Power(MW)		Displays the active power value
Measured Reactive Power(MVAr)		Displays the reactive power value
P high fwd		Indicates if the Forward active power (P) is above the limit. Alarm is generated when the measured fwd active power is higher than the limit set for P. The box will be filled red.
P high rev		Indicates if the Reverse active power (P<) is above the limit. Alarm is generated when the measured rev active power is higher than the limit set for P<. The box will be filled red.

Q high fwd		Indicates if the Forward reactive power (Q) is above the limit. Alarm is generated when the measured fwd reactive power is higher than the limit set for Q. The box will be filled red.
Q high rev		Indicates if the Reverse reactive power (Q<) is above the limit. Alarm is generated when the measured rev reactive power is higher than the limit set for Q<. The box will be filled red.
Control		
Refresh		Refreshes the message list.

Table 12 Power Tab details

6.9.9 Blocking Tab

This faceplate provides the option for blocking and deblocking of the functions.

Note:

1. These blockings are set within the MicroSCADA Pro database. No external blockings are available for this function.
2. If blockings are not happening then in the command procedure BGU_BLOCK add "SAGR_VCTR" in the specified location as mentioned below

```
#case %dat_file.type_pf
----
----
----
#when "SAGR_TAP", "FPI_TRT_1", "FPI_TRT_2", "SAGR_VCTR" #block
@Is_Trafo = true
#block_end
#case_end
```

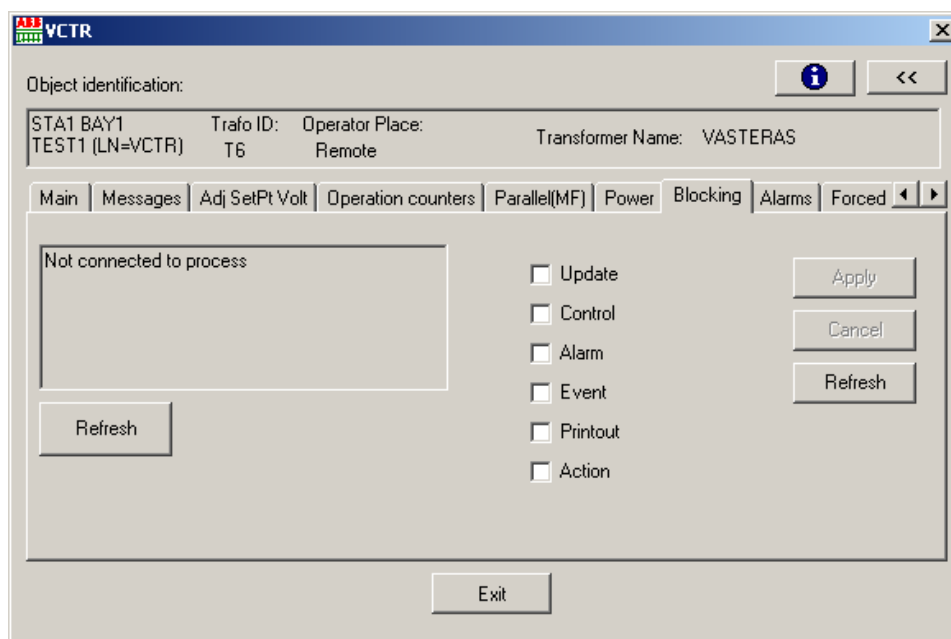


Figure 12 Blocking Tab

The table below describes the various internal blockings.

Function	Condition(s) for control buttons to be enabled	Action Description
Controls & Monitoring		
Update	Authority level ≥ 1	Blocks/Deblock the update of process object values
Control	Authority level ≥ 1	Blocks/Debblocks the control (commands) to be issued.
Alarm	Authority level ≥ 1	Blocks/ Debblocks the alarms generated.
Event	Authority level ≥ 1	Blocks/ Debblocks the history registration in the event list.
Printout	Authority level ≥ 1	Blocks/ Debblocks the print out to the event Printer.
Action	Authority level ≥ 1	Blocks/ Debblocks the action. i.e. If blocked, the operation counter value is not increased if tap raise/lower operations are done.

Table 13 Blocking Tab details

6.9.10 Alarms Tab

This tab lists all the unacknowledged and active alarms.

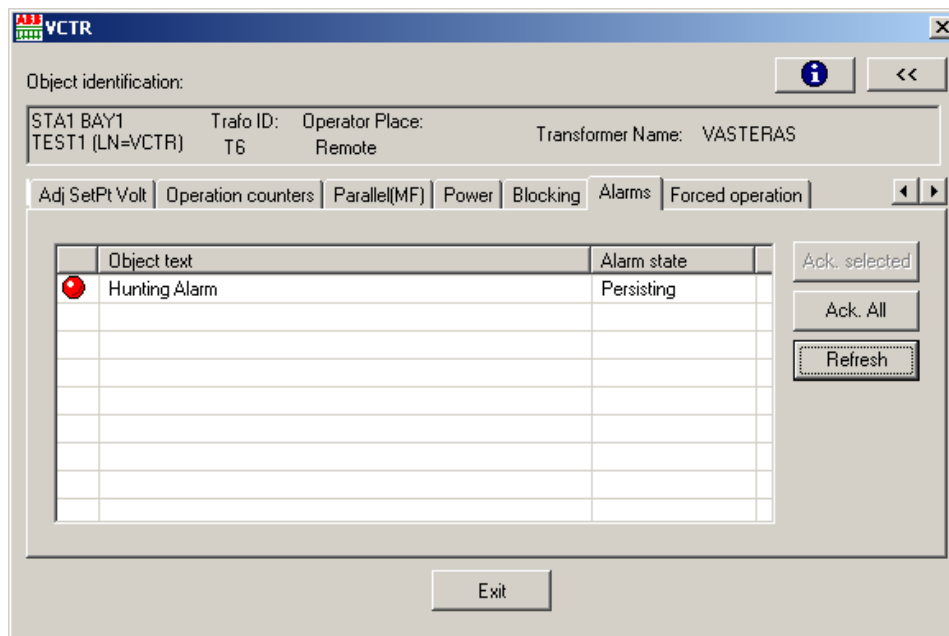


Figure 13 Alarms Tab

The table below gives the details of buttons and text appearing in the Alarm tab.

Function	Condition(s) for control buttons to be enabled	Action Description
Monitoring Information		
Object text		Object text of the process object
Alarm state		State of alarm (persisting or fleeting)
Controls		
Ack Selected	General Conditions mentioned in Section 6.9.1	Acknowledge the alarm which is selected
Ack All	General Conditions mentioned in Section 6.9.1	Acknowledges all alarms present.
Refresh		Refreshes the Screen

Table 14 Alarms Tab details

6.9.11 Forced operation Tab

The Forced operation Tab is used for Releasing device reservation when the object is selected on other Monitor.

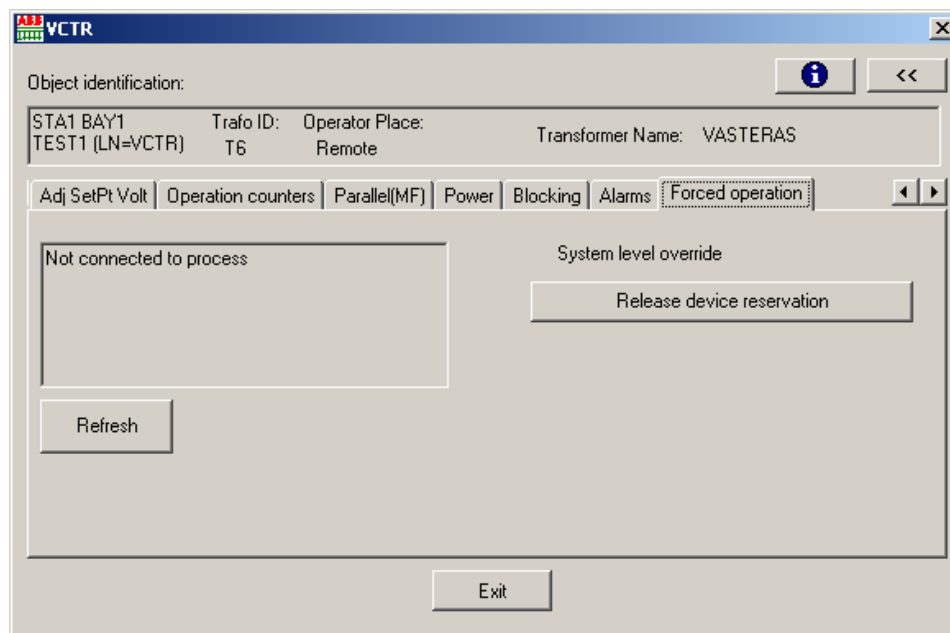


Figure 14 Forced operation Tab

The table below gives the details of buttons and text appearing in the Forced operation tab.

Function	Condition(s) for control buttons to be enabled	Action Description
Controls		
Refresh		Refreshes the status information.
Release device reservation		Releases the device reservation. If a message appears like "Device is selected on the other Monitor", pressing this button will release the device.

Table 15 Forced operation Tab details

Section 7 Appendix

7.1

Procedure to add a new Event Handling Object in SYS_TEXT_VCTR.SDB file

If a new event text is needed for any of the Process objects of Transformer voltage control or an existing event text has to be changed, then Event Handling Objects are to be created or modified respectively. The following are the steps to be followed.

Step 1: Go to Tool Manager -> User Interface -> Text Tool.

Open sys_text_vctr.sdb by giving the path.

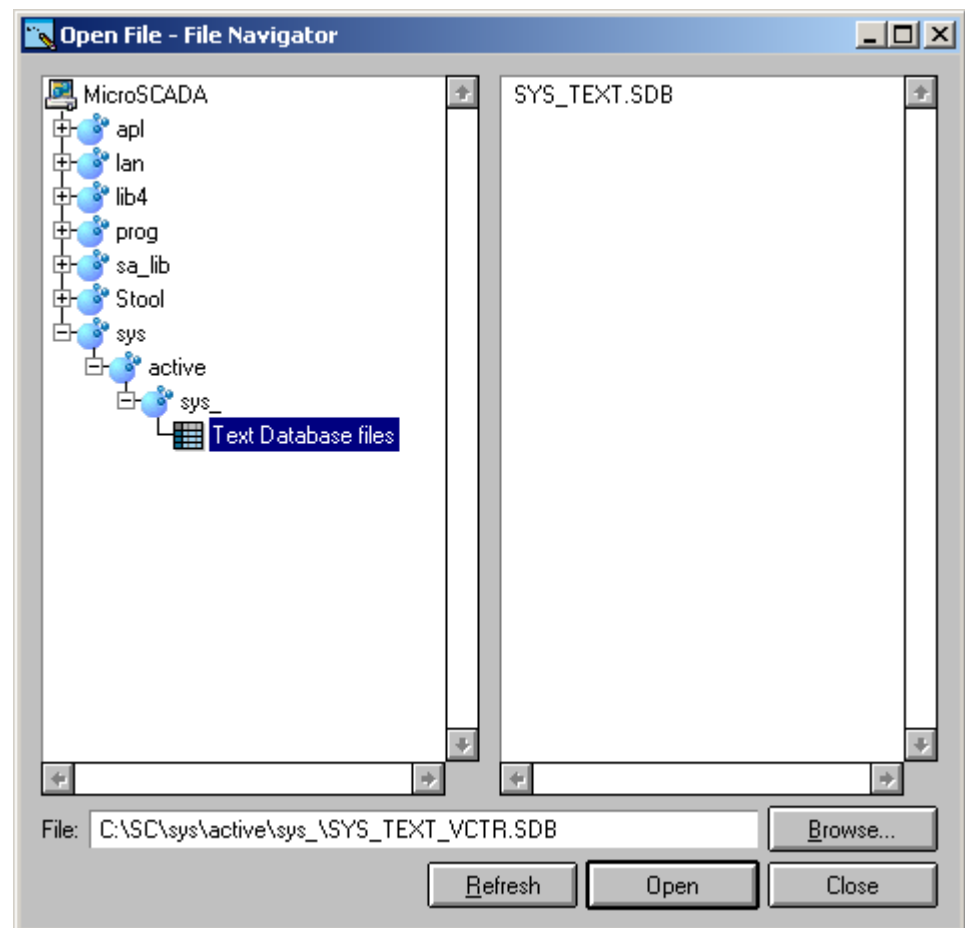


Figure 15 Text Tool

Step 2: For adding a new Text, go to Texts -> New Line or Press Ctrl + N.

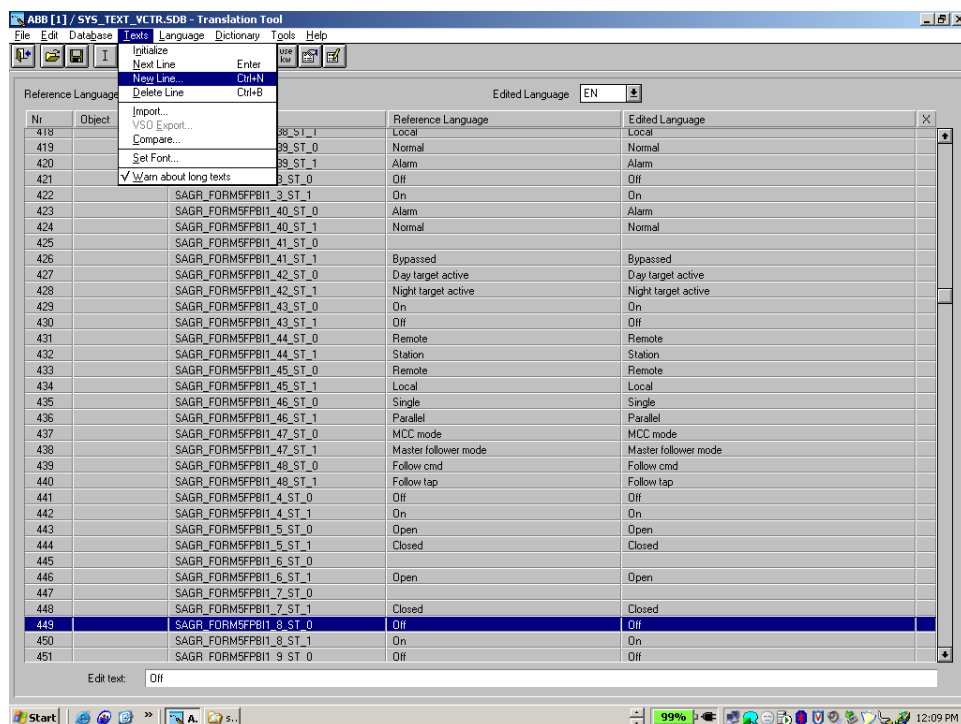


Figure 16 New text

Step 3: Give a new text Id and the required text.



Figure 17 New Text ID

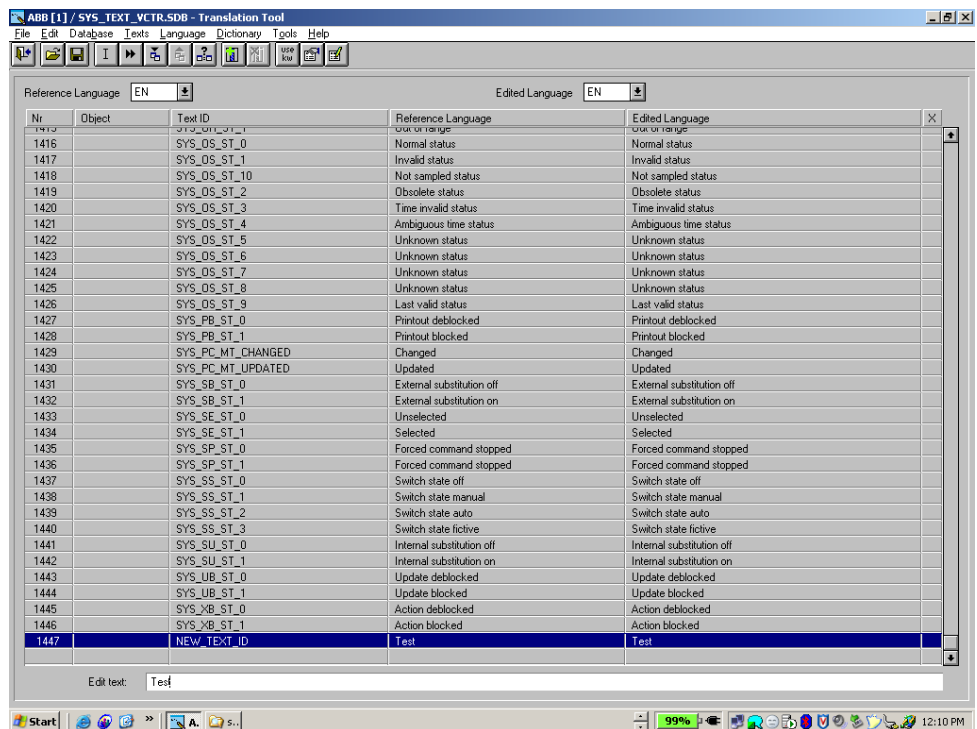


Figure 18 Text translation

Save the sdb file.

Step 4: Then go to Object Navigator -> Event Handling Objects.

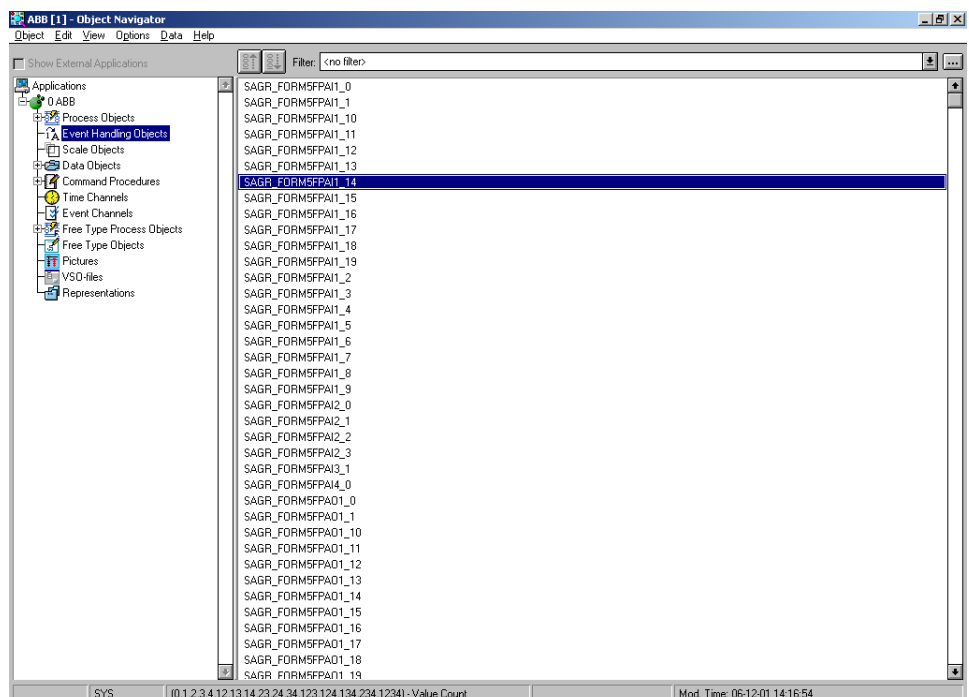


Figure 19 Event Handling Object

Step 5: Create a new EH Object. Give the same name as was defined in the sdb file.

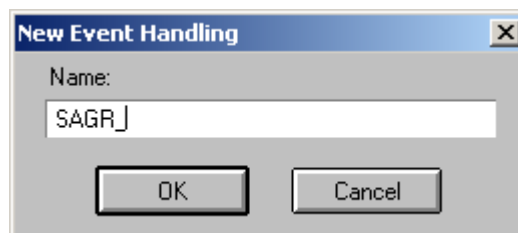


Figure 20 New Event Handling Object

Step 6: Define the Value Count (VC) and then give the correct State Texts (ST) for that.

In this example VC = 3 since there are 3 values for which the SX is defined.

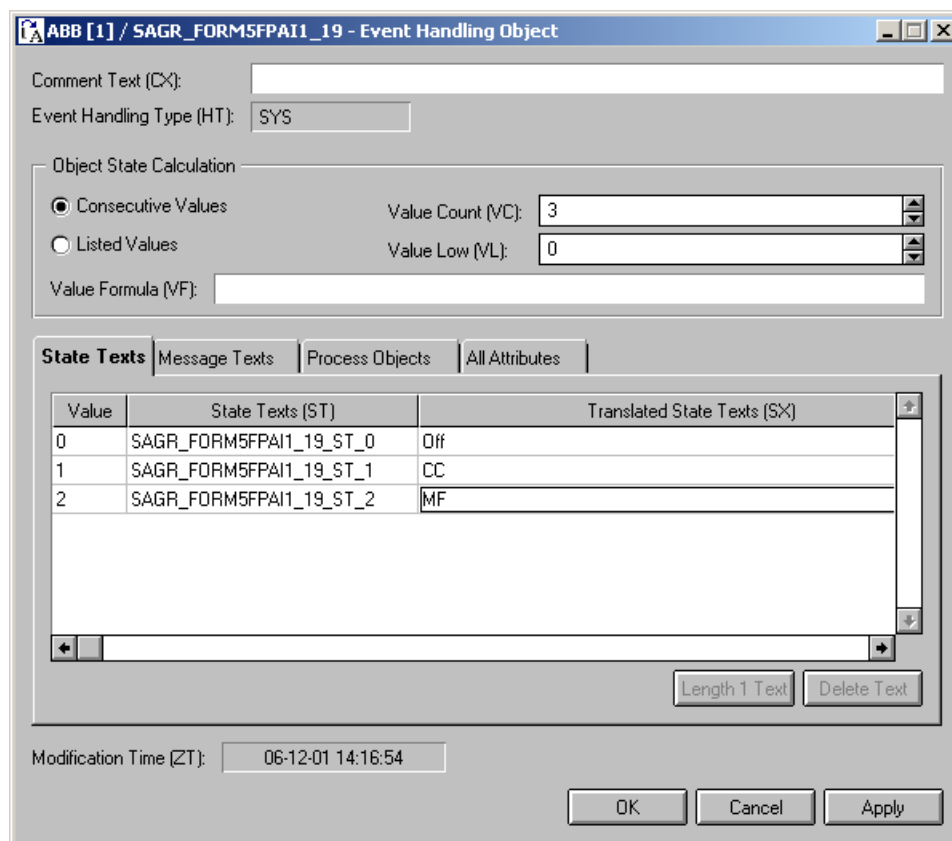


Figure 21 Defining the EH Object

7.2 Files Used for Transformer voltage control

7.2.1 Format pictures

Format pictures are used during runtime for event and alarm presentation.

Installed in C:\sc\sa_lib\base\bbone\use

Filename	Description	Location
FORM5SAGR1.PIC	Form picture	C:\sc\sa_lib\base\bbone\use

Table 16 Format pictures

7.2.2 Configuration files

Files used during installation and configuration of the function.

Installed in C:\sc\sa_lib\base\bbone\inst

Filename	Description	Location
SAI_VCTR_2.DAT	The configuration data file for the tap changer standard function	C:\sc\sa_lib\base\bbone\inst
SAI_VCTR_2.POT	Configuration file for creating process objects	C:\sc\sa_lib\base\bbone\inst
SAI_VCTR2.TPL		C:\sc\sa_lib\base\bbone\inst
SAI_VCTR3.TPL		C:\sc\sa_lib\base\bbone\inst
SAI_VCTR_23.POT		C:\sc\sa_lib\base\bbone\inst
INDEX5_S1.TXT	Installation menu structure definition file	C:\sc\sa_lib\base\bbone\inst

Table 17 Configuration files

7.2.3 Text files

Text files that are language dependent used during installation/configuration and runtime.

Filename	Description	Location
SAI_VCTR2S.TXT	File containing Object Text	C:\sc\sa_lib\base\bbone\lang0
SAI_VCTR2.HLP	Help file	C:\sc\sa_lib\base\bbone\lang0
SAI_VCTRIDX.TXT		C:\sc\sa_lib\base\bbone\inst
SAI_VCTR2.TXT		C:\sc\sa_lib\base\bbone\lang0
SAI_VCTR2R.TXT		C:\sc\sa_lib\base\bbone\lang0
SAI_VCTR3.TXT		C:\sc\sa_lib\base\bbone\lang0

Table 18 Text files

7.2.4 Run time command file

Text files containing SCIL code used during runtime.

Filename	Description	Location
BGU_VCTR.TXT	Command Procedure to	C:\sc\sa_lib\base\bbone\use
BGU_INIT_MV_VCTR.TXT	Initializing command procedures	C:\sc\sa_lib\base\bbone\init
BGU_HOBS_VCTR.TXT	Default Event Handling Objects	C:\sc\sa_lib\base\bbone\init

Table 19 Run time files

7.2.5 Representation files

Text files containing SCIL code used during runtime.

Filename	Description	Location
OBJNAV_INIT_VCTR.INI	Representations installation file	C:\sc\sa_lib\base\bbone\init

Table 20 Representation files

7.2.6 Representations

The HV/Control representations are stored in the file,
C:\sc\prog\graphicsEngine\Palette\02 - SA_IEC

Representation name	Description	Representation name
VCTR3w.sd	3 winding	VCTR3w.sd
VCTR3w H.sd	3 winding Horizontal	VCTR3w H.sd
VCTR2w.sd	2 winding	VCTR2w.sd
VCTR2w H.sd	2 winding Horizontal	VCTR2w H.sd

Table 21 Representations

7.2.7 Database file

Filename	Description	Location
SYS_TEXT_VCTR.SDB	Application text Database	C:\sc\sys\active\sys_

Table 22 Database File

7.2.8 Commands in Transformer voltage control Object

Process Object IX	Command	Value (OV)	Description
13	Raise / Lower command	0 1 2	Stop Lower Raise
14	Auto / Manual command	0 1	Manual cmd Auto cmd
47	Master / Follower command	0 1	Follower Master
48	Load Voltage Adjustment	0 1	- Off
75	Load Voltage adjustment 1 cmd	0 1	Off On
76	Load Voltage adjustment 2 cmd	0 1	Off On
77	Load Voltage adjustment 3 cmd	0 1	Off On
78	Load Voltage adjustment 4 cmd	0 1	Off On
116	Operation counter	0 1	Off Reset

Process Object IX	Command	Value (OV)	Description
117	Contact life counter	0 1	Off Restore

Table 23 Commands

7.3

Process Objects with Mapping Information



Process objects which are indicated with bolded italics in the below table, are not created if RELAY_SERIES = RELAY_650. Process Objects 57- 62 are created in RELAY_650 but are “Not In Use”

Index	Description OX	Process Object Type	Faceplate name / Name in the Face plate	Part of IN Attribute	Event (E) /Alarm (A)	VCTR_TYPE
10	Tap pos	AI	Main /Tap Position	TR8ATCC1.TapChg.valW Tr.posVal	E	Single, Parallel
11	Tap ch. manual / auto ind.	BI	Main / Auto Manual	TR8ATCC1.AutoCtl.stVal 0=man, 1=auto	E	Single, Parallel
12	Single / Parallel ind.	BI	Main / Single Parallel (this changes the text for 'Actual Setpoint 'Parallel / Single')	TR8ATCC1.ParOp.stVal 0=S, 1=P	E	Single, Parallel
13	Raise/Low er cmd.	AO	Main / Raise Voltage Lower Voltage	TR8ATCC1.TapChg.ctlVal	E	Single, Parallel
14	Auto/Manu al cmd.	BO	Main / Automatic Manual	TR8ATCC1.AutoCtl.ctlVal		Single, Parallel
18	General tap position conversion error	BI	In Event, Alarm list	TCLYLTC1.ConvFlt.stVal		Single, Parallel
19	Over current	BI	In Event, Alarm list	TR8ATCC1.HiABlk.stVal	E, A	Single, Parallel
20	ATCC behaviour	A	In Event list	TR8ATCC1.Beh.stVal	E	Single, Parallel
21	Load current	AI	Main / Measured Load Current	TR8ATCC1.LodA.mag		Single, Parallel
22	<i>Reversed action</i>	<i>BI</i>	<i>In Event, Alarm list</i>	<i>TR8ATCC1.RvActBlk.stVal</i>	<i>E, A</i>	<i>Single, Parallel</i>
23	Transform er adapt mode	BI	Parallel (MCC) / Adapt	TR8ATCC1.Adapt.stVal	E	Parallel

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Index	Description OX	Process Object Type	Faceplate name / Name in the Face plate	Part of IN Attribute	Event (E) /Alarm (A)	VCTR_ TYPE
24	Busbar voltage	AI	Main and AdjSetPtVolt / Measured Bus Voltage	TR8ATCC1.CtIV.mag		Single, Parallel
25	Transform er disconnect ed	BI	In Event, Alarm list	TR8ATCC1.Disc.stVal	E, A	Parallel
26	Parallel operation	AI	Show tab Parallel (MCC) and (MF) 0=no tab, 1=MCC tab, 2=MF tab	TR8ATCC1.ParSet.stVal	E	Parallel
27	Total block activation	BI	In Event, Alarm list	TR8ATCC1.TotBlock.stVal	E, A	Single, Parallel
29	Tap changer operation counter	AI	Operation counters / Operation Counter Value	TCLYLTC1.OpCnt.stVal		Single, Parallel
30	Selected on another monitor	AI		-----		Single, Parallel
31	VT supervision alarm	BI	In Event, Alarm list	TR8ATCC1.VDif.stVal	E, A	Parallel
32	Voltage set point single	AI	Adj SetPt Volt / Voltage Set Point Single	TR8ATCC1.BndCtrSng.mag		Single, Parallel
33	Load voltage	AI	Main / Calculated Load Voltage	TR8ATCC1.LodV.mag		Single, Parallel
34	CCA voltage	AI	Parallel (MCC) / CC Adjusted Voltage	TR8ATCC1.CCAV.mag		Parallel
35	T1 connected to parallel group	BI	Parallel(MCC) and (MF) / Tr in PG- T1	TR8ATCC1.T1ParGr.stVal	E	Parallel
36	T2 connected to parallel group	BI	Parallel(MCC) and (MF) / Tr in PG - T2	TR8ATCC1.T2ParGr.stVal	E	Parallel
37	T3 connected to parallel group	BI	Parallel(MCC) and (MF) / Tr in PG - T3	TR8ATCC1.T3ParGr.stVal	E	Parallel

Index	Description OX	Process Object Type	Faceplate name / Name in the Face plate	Part of IN Attribute	Event (E) /Alarm (A)	VCTR_ TYPE
38	T4 connected to parallel group	BI	Parallel(MCC) and (MF) / Tr in PG - T4	TR8ATCC1.T4ParGr.stVal	E	Parallel
39	T5 connected to parallel group	BI	Parallel(MCC) and (MF) / Tr in PG - T5	TR8ATCC1.T5ParGr.stVal	E	Parallel
40	T6 connected to parallel group	BI	Parallel(MCC) and (MF) / Tr in PG - T6	TR8ATCC1.T6ParGr.stVal	E	Parallel
41	T7 connected to parallel group	BI	Parallel(MCC) and (MF) / Tr in PG - T7	TR8ATCC1.T7ParGr.stVal	E	Parallel
42	T8 connected to parallel group	BI	Parallel(MCC) and (MF) / Tr in PG - T8	TR8ATCC1.T8ParGr.stVal	E	Parallel
43	Homing status	BI	Parallel(MCC) and (MF) / Homing	TR8ATCC1.Homing.stVal	E	Parallel
44	Master follower mode	BI	Parallel(MF) / Follows Master Commands Follows Master Tap	TR8ATCC1.AutoSlave.stVal	E	Parallel
45	Hour hunt alarm	BI	In Event, Alarm list	TR8ATCC1.HrHuntAlm.stVal	E, A	Single, Parallel
46	Master transformer 1	BI	Parallel(MF) / Master – T1	TR8ATCC1.T1Master.stVal	E	Parallel
47	Master follower cmd	BO	Parallel(MF) / Force to Master Reset Forced Master	TR8ATCC1.ForceMast.ctlVal		Parallel
48	Load voltage adjustment	BO	Adj SetPt Volt / LVA Reset	TR8ATCC1.LVAReset.ctlVal		Single, Parallel
49	Hunting alarm	BI	In Event, Alarm list	TR8ATCC1.HuntAlm.stVal	E, A	Single, Parallel
50	Actual voltage set point	AI	Main / Actual Set Point Parallel / Single	TR8ATCC1.BndCtrAct.mag		Single, Parallel

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Index	Description OX	Process Object Type	Faceplate name / Name in the Face plate	Part of IN Attribute	Event (E) /Alarm (A)	VCTR_ TYPE
51	Oper, simultaneous tapping prohibited	BI	Parallel (MCC) / Simultaneous Tapping Prohibited	TR8ATCC1.SimTap.stVal	E	Parallel
52	Day hunt alarm	BI	In Event, Alarm list	TR8ATCC1.DayHuntAlm.stVal	E, A	Single, Parallel
53	Bay to bay communication error	BI	Parallel (MCC) / Bay to Bay Communication Error	TR8ATCC1.CommFlt.stVal	E, A	Parallel
54	Maximum circulation current	BI	Parallel (MCC) / Maximum circulation current blocking	TR8ATCC1.CircABlk.stVal	E, A	Parallel
55	Circulation current	AI	Parallel (MCC) / Circulation current	TR8ATCC1.CircA.mag		Parallel
56	Last position change was invalid	BI	In Event, Alarm list	TCLYLTC1.InvPosChg.stVal	E, A	Single, Parallel
57	Reactive compensation 1	BI	Parallel (MCC) / Q1	TR8ATCC1.Q1Conn.stVal	E	Parallel
58	Reactive compensation 2	BI	Parallel (MCC) / Q2	TR8ATCC1.Q2Conn.stVal	E	Parallel
59	Reactive compensation 3	BI	Parallel (MCC) / Q3	TR8ATCC1.Q3Conn.stVal	E	Parallel
60	Size of reactive compensation 1	AI	Parallel (MCC) / -	TR8ATCC1.Q1VAr.mag		Parallel
61	Size of reactive compensation 2	AI	Parallel (MCC) / -	TR8ATCC1.Q2VAr.mag		Parallel
62	Size of reactive compensation 3	AI	Parallel (MCC) / -	TR8ATCC1.Q3VAr.mag		Parallel
63	Busbar max voltage	BI	In Event, Alarm list	TR8ATCC1.HiV.stVal	E, A	Single, Parallel

Index	Description OX	Process Object Type	Faceplate name / Name in the Face plate	Part of IN Attribute	Event (E) /Alarm (A)	VCTR_ TYPE
64	Voltage setpoint parallel	AI	Parallel (MCC) / Voltage Set Point Parallel	TR8ATCC1.BndCtrPar.mag		Parallel
65	USET	AI	Adj SetPt Volt / Original Target Voltage Uset	TR8ATCC1.BndCtrSet.mag	E	Single, Parallel
66	Load dependent auto reduction	AI	Adj SetPt Volt / Load Compensation for Rated Load	TR8ATCC1.AutoRedV.mag		Single, Parallel
67	LVAConst1	AI	Adj SetPt Volt / LVA1	TR8ATCC1.LVA1V.mag	E	Single, Parallel
68	LVAConst2	AI	Adj SetPt Volt / LVA2	TR8ATCC1.LVA2V.mag	E	Single, Parallel
69	LVAConst3	AI	Adj SetPt Volt / LVA3	TR8ATCC1.LVA3V.mag	E	Single, Parallel
70	LVAConst4	AI	Adj SetPt Volt / LVA4	TR8ATCC1.LVA4V.mag	E	Single, Parallel
71	Remaining contact life	AI	Operation counters / Remaining Contact life	TCLYLTC1.CLCnt.mag		Single, Parallel
72	Automatic block activation	BI	In Event, Alarm list	TR8ATCC1.AutoBlock.stVal	E, A	Single, Parallel
73	Transform er identity in parallel group	AI	All / Trafo ID	TR8ATCC1.LTCId.stVal		Parallel
74	Tap changer in operation	BI	In Event list	TR8ATCC1.TapChg.valW Tr.transInd	E	Single, Parallel
75	Load voltage adjustment 1 cmd	BO	Adj SetPt Volt / -	TR8ATCC1.LVA1On.ctlVal		Single, Parallel
76	Load voltage adjustment 2 cmd	BO	Adj SetPt Volt / -	TR8ATCC1.LVA2On.ctlVal		Single, Parallel
77	Load voltage adjustment 3 cmd	BO	Adj SetPt Volt / -	TR8ATCC1.LVA3On.ctlVal		Single, Parallel

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Index	Description OX	Process Object Type	Faceplate name / Name in the Face plate	Part of IN Attribute	Event (E) /Alarm (A)	VCTR_ TYPE
78	Load voltage adjustment 4 cmd	BO	Adj SetPt Volt / -	TR8ATCC1.LVA4On.ctlVal		Single, Parallel
79	Transform er is forced to master	BI	In Event list	TR8ATCC1.ForceMast.stVal	E	Parallel
80	Active power	AI	Power / Measured Active Power	TR8ATCC1.TotW.mag		Single, Parallel
81	Reactive power	AI	Power / Measured Reactive Power	TR8ATCC1.TotVAr.mag		Single, Parallel
82	Forward Hi active power	BI	Power / P high fwd	TR8ATCC1.HiWFwd.stVal	E, A	Single, Parallel
83	Reverse Hi active power	BI	Power / P hi rev	TR8ATCC1.HiWRv.stVal	E, A	Single, Parallel
84	Forward Hi reactive power	BI	Power / Q high fwd	TR8ATCC1.HiVArFwd.stVal	E, A	Single, Parallel
85	Reverse Hi reactive power	BI	Power / Q hi rev	TR8ATCC1.HiVArRv.stVal	E, A	Single, Parallel
86	Master transform er 2	BI	Parallel(MF) / Master – T2	TR8ATCC1.T2Master.stVal	E	Parallel
87	Master transform er 3	BI	Parallel(MF) / Master – T3	TR8ATCC1.T3Master.stVal	E	Parallel
88	Master transform er 4	BI	Parallel(MF) / Master – T4	TR8ATCC1.T4Master.stVal	E	Parallel
89	Master transform er 5	BI	Parallel(MF) / Master – T5	TR8ATCC1.T5Master.stVal	E	Parallel
90	Master transform er 6	BI	Parallel(MF) / Master – T6	TR8ATCC1.T6Master.stVal	E	Parallel
91	Master transform er 7	BI	Parallel(MF) / Master – T7	TR8ATCC1.T7Master.stVal	E	Parallel

Index	Description OX	Process Object Type	Faceplate name / Name in the Face plate	Part of IN Attribute	Event (E) /Alarm (A)	VCTR_ TYPE
92	Master transformer 8	BI	Parallel(MF) / Master – T8	TR8ATCC1.T8Master.stVal	E	Parallel
93	LVAConst 1	BI	Adj SetPt Volt	TR8ATCC1.LVA1On.stVal	E	Single, Parallel
94	LVAConst 2	BI	Adj SetPt Volt	TR8ATCC1.LVA2On.stVal	E	Single, Parallel
95	LVAConst 3	BI	Adj SetPt Volt	TR8ATCC1.LVA3On.stVal	E	Single, Parallel
96	LVAConst 4	BI	Adj SetPt Volt	TR8ATCC1.LVA4On.stVal	E	Single, Parallel
97	Tap position for min voltage	AI	Main	TCLYLTC1.LoTapPos.stVal	E	Single, Parallel
98	Tap position for max voltage	AI	Main	TCLYLTC1.HiTapPos.stVal	E	Single, Parallel
99	Busbar min voltage	BI	In Event, Alarm list	TR8ATCC1.LoV.stVal	E, A	Single, Parallel
100	Busbar block voltage	BI	In Event, Alarm list	TR8ATCC1.BIkV.stVal	E, A	Single, Parallel
103	External auto block	BI	In Event, Alarm list	TR8ATCC1.LTCBlk.stVal	E, A	Single, Parallel
105	Measured average bus voltage	AI	Parallel(MCC) / Measured Mean Bus Voltage	TR8ATCC1.AvBusV.mag		Parallel
106	Maximum of phase currents	AI		TR8ATCC1.AverA.mag		Single, Parallel
107	Tap changer operation error	BI	In Event, Alarm list	TCLYLTC1.TapChgFlt.stVal	E, A	Single, Parallel
108	Tap in high voltage position	BI	In Event, Alarm list	TCLYLTC1.EndPosR.stVal	E, A	Single, Parallel

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Index	Description OX	Process Object Type	Faceplate name / Name in the Face plate	Part of IN Attribute	Event (E) /Alarm (A)	VCTR_ TYPE
109	Tap in low voltage position	BI	In Event, Alarm list	TCLYLTC1.EndPosL.stVal	E, A	Single, Parallel
110	External lower block	BI	In Event, Alarm list	TR8ATCC1.ExLowerBlk.stVal	E, A	Single, Parallel
111	External raise block	BI	In Event, Alarm list	TR8ATCC1.ExRaiseBlk.stVal	E, A	Single, Parallel
116	Operation counter	BO	Operation counters / Op Counter Reset	TCLYLTC1.OpRs.ctlVal	E	Single, Parallel
117	Contact life counter	BO	Operation counters / Remaining life Restore	TCLYLTC1.CLRs.ctlVal	E	Single, Parallel
118	Master follower PosDiffLi m exceeded	BI	In Event, Alarm list	TR8ATCC1.DiffPosMF.stVal	E, A	Parallel
119	Number of masters not equal to 1	BI	In Event, Alarm list	TR8ATCC1.MFFlt.stVal	E, A	Parallel
120	Tap changer command error	BI	In Event, Alarm list	TCLYLTC1.CmdFlt.stVal	E, A	Single, Parallel
121	Tap changer position error	BI	In Event, Alarm list	TCLYLTC1.TapPosFlt.stVal	E, A	Single, Parallel
240	Transform er switch1	BI	----	----		Single, Parallel
241	Transform er switch2	BI	----	----		Single, Parallel
242	Transform er switch3	BI	-----	-----		Single, Parallel
246	Transform er passive node 1	AI	----	----		Single, Parallel

Index	Description OX	Process Object Type	Faceplate name / Name in the Face plate	Part of IN Attribute	Event (E) /Alarm (A)	VCTR_ TYPE
247	Transform er passive node 2	AI	----	----		Single, Parallel
250	Transform er active color 1	AI	----	----		Single, Parallel
251	Transform er active color 2	AI	-----	-----		Single, Parallel
253	Transform er switch6	BI	-----	-----		Single, Parallel
254	Transform er switch7	BI	-----	-----		Single, Parallel

Table 24 Process Objects

7.3.1

Process Objects to be mapped manually in CCT

While engineering the MicroSCADA Pro system for IEC 61850 communication, some signals need to be added manually in the Data Set in the Communication Configuration Tool (CCT). Those signals are listed in the table below. Signals which are marked in bold in the below table, are to be added only for Parallel VCTR_TYPE.

Homing, RvActBlk , T5Master-T8Master , T5ParGr-T8ParGr, Q1VAr-Q3VAr and Q1Conn-Q3Conn are only for VCTR670

Already mapped to DS			Needed to be mapped to DS			
TR8ATCC1-4 TR1ATCC1-4(not BOLD)	TCLYLTC1-4 TCMYLTC1-4	QCBAY1, QCBAY2	TR8ATCC1-4 TR1ATCC1-4, in BOLD not needed for TR1ATCC1-4		TCLYLTC1-4, TCMYLTC1-4	
StatUrg ST	StatUrg ST	StatUrg ST	MeasFlt MX	StatUrg ST	MeasFlt MX	StatUrg ST
TapChg	OpCnt	SrcOpPrm	CtlV	Beh	CLCnt	CLRs
HiV	CmdFlt		LodA	ParOp		HiTapPos
Homing	ConvFlt		CircA	LTCBlk		LoTapPos
CommFlt	EndPosL		AutoRedV	HiTapPos		OpRs
HiWFwd	EndPosR		AvBusV	LoTapPos		
HiWRv	InvPosChg		AverA	Adapt		
HiVArFwd	TapChgFlt		BndCtrAct	AutoCtl		
HiVArRv	TapPosFlt		BndCtrPar	Auto Slave		
CircABlk			BndCtrSet	BlkV		
HiABlk			BndCtrSng	ExLowerBlk		
RvActBlk			CCAV	ExRaiseBlk		
DayHuntAlm			LodV	ForceMast		
HrHuntAlm			LVA1V	LoV		
HuntAlm			LVA2V	LTCId		
VDif			LVA3V	LVA1On- LVA4On		
AutoBlock			LVA4V	LVAReset		
DiffPosMF			Q1VAr	Q1Conn – Q3Conn		
MFFlt			Q2VAr	SimTap		
			Q3VAr	T1Master- T8Master		
			TotVAr	T1ParGr- T8ParGr		
			TotW	Disc		
				TotBlock		
				ParSet		

Table 25 CCT Mapping information

7.4 Known Issues

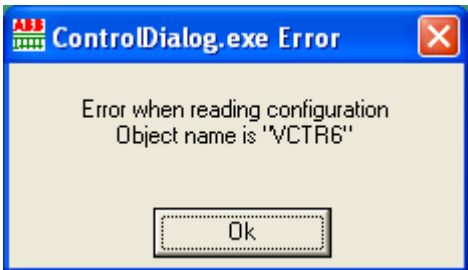
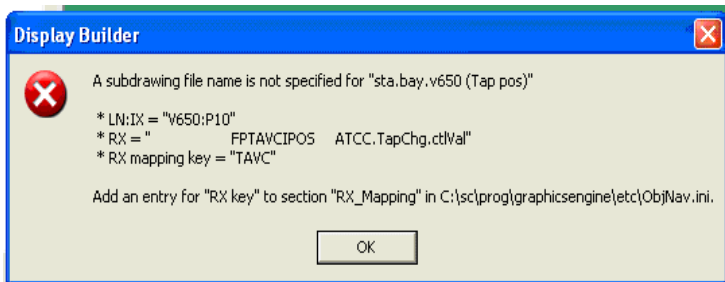
S.No	Issue	Workarounds, Clarifications and Helpful Hints
1	If the Transformer voltage control object has white color in Monitor Pro, when installed.	In the Display Builder, Go to Edit->Data Variables and do Rescan.
2	If the below error comes when we open face plate of installed Transformer Voltage Control object 	1. Delete the command procedure SA_LIB_REV:C from the object navigator -> command procedures. 2. Close the Monitor Pro 3. Restart the MicroSCADA. This error comes when the version of VCTR is less than SA_LIB version.
3	If below dialog comes when installing Transformer Voltage Control Object in Display Builder->Object Browser 	1. Delete the command procedure SA_LIB_REV:C from the object navigator -> command procedures. 2. Close the Monitor Pro 3. Restart the MicroSCADA. This error comes when the version of VCTR is less than SA_LIB version.

Table 26 Known Issues

Contact us

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