Feb 04, 2005

PRODUCT SOFTWARE BULLETIN
PSB-REL350 V2.72

PURPOSE OF NOTIFICATION
Inform customers of new REL350 Firmware V2.72, modifications developed to improve a few issues connected with communication, autoreclose, change detectors, front LCD display and display/recording of ACB phase systems etc.

WHAT IS AFFECTED? ☑ **PROTECTION** ☑**AUTOMATION**
New firmware may be applied to existing REL350 units at both ends.

FIRMWARE UPGRADE RECOMMENDATION
☑ Perform upgrade immediately
☐ Perform upgrade at earliest convenience.
☑ Enhancement
Note: It is always recommended that the customer upgrade their interface software to the most recent version available, which in this case is WinRCP1.22. This is available via inter-net at www.abb.com/substationautomation, select REL350 from Transmission Products and then Configuration Software.

SOFTWARE CHANGES
New Features / Functionality Added

V2.72

1 An interlock has been provided on the final feedback loop circuit of the trip circuit. This improves the relay immunity to induced noises when applied much in excess of standard testing levels.

2 Errors in the Out of step trip logic, when selected to trip on *Wayout*, have been corrected.

3 The direct trip transfer signal has been made more secure. The direct trip selection In/Out not only controls the trip signal going out to the channel, it also interlocks the direct trip signal when received, thereby making it doubly secure. This would also mean that keeping the In/out switch in position OUT would block signal transfer either way but it is recommended to keep both end switches OUT for additional security. Both local and remote ends will have a delay of half a cycle to transfer trip.

4 Security of operation of the relay with longer channel delays has been improved.

5 The following signals have been added in the oscillography:

DTTR - Direct Trip Transfer from remote relay

DTTL (XDTT) -Direct Trip Transfer binary input from local relay

3PT -Three pole Trip

SPTL -Single Pole Trip bypass signal from binary input of Local relay

SPTR -Single Pole Trip bypass signal from Remote relay

BK1A,BK1B,BK1C- Breaker 1 Trip seal in signals, phases A, B,C

BK2A,BK2B,BK2C- Breaker 2 Trip seal in signals, phases A, B,C

TRPA, TRPB,TRPC- Final Trip logic outputs in the relay, Phases A, B, C

PLTA, PLTB, PLTC, PLTG- Pilot Trip, Phases A, B, C, G

SBT- Stub bus trip

The following signals were changed in display-

CDIV- Change detector with delay on drop out. The signal has been renamed as CDT

OBKT- Open breaker trip

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6 Corrections were done in SOBT+LDT of remote breaker open trip logic.

In view of all the above feature as well as security enhancements, fault recording enhancements it is strongly recommended that all installations upgrade the firmware to V2.72

V2.71

7 If the channel measurement delay is more than 24.5mSec (the earlier value 24.1), an internal signal Ctdly is set, which will generate channel alarm in addition to existing channel monitoring signals. Accordingly after the set delay the backup protection will be brought into service.

8 With the new firmware, the following will scroll when a fault occurs.

FYTP

DMI/DMK based on setting selection

DATE

TIME

The scrolling will stop as soon as any key is pressed on the front panel, external reset or reset command from RCP/WinRCP.

9 An error in PTOG logic in the implementation was corrected. Operation of either PTA or PTB or PTC is supposed to block PTOG after a 30msec delay. The earlier implementation used the signals prior to the 30mSec timer block.

10 With reference to logic diagram Sh. 9, the signal reference CD, the signal CD asserts after a delay on drop out of setting of signals such as dVdI, IACD, IBCD etc., Earlier the fault record was recording the signal prior to the timer block under the name CD. In the latest firmware the proper signal CD after the time delay is recorded. It is accordingly named CDT.

11 Earlier, at regular intervals, the display showed CHRX=INIT which is anyway not a valid value. This was a display issue introduced in V2.62 firmware. This issue has been resolved.

12 Logic has been modified to block RI/3RI outputs if RB is active. Also a common pickup timer (RIP) has been added for RI and 3RI. Its range is 0 to 20 ms in steps of 1 ms. This setting appears after LDT. Recommended value for this setting is 8 mSec.

13 In case SPT bypass input is energized at only one end, earlier this might have resulted in single pole tripping at one end and three pole tripping at the other end. In REL350 with CODEC option, an additional bit is transmitted from one end to the other indicating the SPT bypass position at the other end. Mismatch between the SPT bypass input between the two end inputs is arranged to result in 3 pole tripping at both ends. (This option is not possible using Modem option.). The output alarm Channel Fail contact gets set.

The change level detectors as existed earlier were found to be too sensitive considering measurement errors especially near zero crossings. The level detectors have been made less sensitive for currents higher than load currents.

The number of times that CD has picked up can be found against CNTD in TEST status after OPTI. The value is reset by pressing TAR ACK key on the front panel.

14 In order to account for systems with ACB phase sequence, a new setting has been added for phase sequence. Its name is PHSQ and has two values ABC or ACB. It will affect only metering and fault records.

15 The LCD driver has been revised to V1.32 and solves the earlier problems of distinguishing between ‘0’ and ‘O’ , ‘5’ and ‘S’ etc. and is compatible with the present relay firmware V2.71. Relays at site with their existing LCDs cannot take advantage of the above feature. Hence a setting LCDR (After PHSQ) is added in the relay. This has two options: YES (To go with latest V1.32LCD driver) or NO (To go with earlier LCD drivers).

16 Build number has been added to the version number display of the relay. This is displayed appended to the version number of the firmware on the front display. Build number will not appear on WinRCP

17 Differential protection is blocked, Channel alarm is raised and MLDT will display fail if MLDT is more than set limit or MLDT is off by 2 mSec from set value if ALDT is set to NO

Summary of new settings:

V2.72

No new settings.

V2.71

PHSQ- ABC/ACB

LCDR- No / Yes (Set NO when upgrading the relay firmware at site, set YES with latest relays from factory)

RIP- Adjustable time for Reclose Initiate Pickup (0-20mSec)

Display Additions:

V2.72

No new display additions

V2.71

Setting:

Name	Range	Steps	Unit
RIP	0-20	1	MS
PHSQ	ABC/ACB		
LCDR	YES/NO		

Metering:

Name	Range	Steps	Unit
SPTB	ONON /ONOF/ OFON/OFOF		

Note: The first two letters represent the SPT bypass input status (ON- Energized,

OF- De-energized) of the local end and the second two the status of the SPT bypass input at the remote end.

Status:

Name	Range	Steps	Unit
CNTD	1-	1	

Note: The above represents the number of times that the change detector operated since prior reset.

Feb 04, 2005

Software and Firmware Configuration Supported by this Version

Category	Type Designation	Valid Version
Main Board Processor	Processor -1 and 2 Firmware	V2.72
Front panel	Rel3xx/ MDAR **DISPLAY** MODULE firmware	V1.32 (Set LCDR=YES) Prev. Versions (Set LCDR=NO)
Comm card	Modem Module 1612C01(Style T)	V1.02
Comm card	Modem Module 1619C27 (Style A)	V1.20
Comm card	CODEC Module	V1.21
Configuration & Engineering Tools	WinRCP	V1.22 (Build 4)
Settings Storage	EEPROMs	V2.13
Configuration & Engineering Tools	WaveWin	VB.9

SUMMARY

1. The latest firmware release improves the operation of REL350.
2. ABB recommends customers using the latest WinRCP available via internet at www.abb.com/substationautomation, select REL350from Transmission Products and then Configuration Software.
3. Revised Instruction book IL 40-201.82 of REL350 is also available.

SOFTWARE TOOL COMPATIBILITY

Interface Software:, WinRCP V1.22 (Build 4)

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