Quick – Start Programming Guide



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INTRODUCTION

CAUTION

The equipment covered by this publication must be selected for a specific application and it must be operated by qualified persons who are thoroughly trained and who understand any hazards that may be involved. This publication is written only for such qualified persons and is not intended to be a substitute for adequate training and experience in safety procedures for this type of equipment.

This document is intended to be used as a guide for programming the protection functions of a ZIV type **BCD** relay with the provided *ZIVercom*[®] communications software. Standard requirements to operate this program are:

- An IBM PC AT or compatible computer using an Intel 80386 processor or higher. A minimum of 8 MB or RAM is required (16 MB recommended). Either an accessible CD-ROM or 3.5" 1.44 MB floppy disk drive, and at least 20 MB of available hard disk space are required for software installation and storage. The computer must utilize Windows 3.x or higher for its operating system. Serial port COM 1 or COM 2 must be available.
- A DB-9 (9 pin) serial communications cable with a null modem adapter (pins 2 and 3 crossed).

ZIVercom[®] is a powerful, user friendly software package intended to aid the user with setting changes, data collection and oscillography (optional). Settings can be made off line and downloaded locally or remotely, or can be made while being physically connected to the relay.

To ease the process, the user should be familiar with the keypad and menu structure of the LCD interface screen. Please refer to Chapter 7 of the **8BCD** Manual or Chapter 8 of the **7BCD** manual.

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USING ZIVercom[®] COMMUNICATION SOFTWARE

Installing *ZIVercom*[®] on the Computer Hard Drive

NOTICE

If you have been provided with 3.5" floppy disks, we recommend that you back these up at this time. Refer to your Microsoft Windows manual if you are unfamiliar with this procedure. Store the original disks in a safe place and use the backup copy henceforth.

Insert Disk 1 in to the appropriate drive of the computer. Your version of windows will determine how to access and execute the file named **setup.exe**.

If you are using the CD-ROM version of the software, the **setup.exe** file is located in the following directory **d:\setup\Disk 1\setup.exe**. If d: is not your CD-ROM drive, please substitute with the appropriate drive letter.

Running ZIVercom®

NOTICE

There are two ways to load setting from the ZIVercom[®] software to the BCD terminal units. Settings files can be created off-line and downloaded remotely or locally. Settings can also be edited while the relav is connected to a PC. The instruction set described next applies to adjusting relay settings while being connected to a PC. Instructions for off-line settings adjustments are located in the Appendix on page 23.

Step 1

With the PC off, connect the DB-9 communication cable with null modem adapter between the serial port of the computer and the local communication port of the relay located on the front panel. (Note: it may be possible to connect the communication cable with the PC powered up, please consult you PC manufacturer). Be sure the proper auxiliary voltage has been connected to the terminal units power supply (see external connection diagram(s) at the end of the appropriate instruction manual).

Step 2

Turn on computer and initiate the *ZIVercom*[®] software program by double-clicking on the *ZIVercom*[®] icon. The *ZIVercom*[®] application screen will appear, as depicted below.

ZIVERCOM		- 6
	ZIVERCIM	
	[
	Version <i>1.70 Rev. 0002</i> FLL <i>1.20</i> Serial #: 0000	

Note that this screen indicates the software version and serial number.

Click **OK**. The identification screen will appear, as depicted below.



Enter the appropriate "User" name and "Password". The default is "ZIVERCOM" and "ziv" respectively.

Step 4

Click **OK**. The main menu screen will appear, as depicted below.

Step 5

Highlight and select **Configuration** on the menu bar. A pull-down menu screen will appear, as depicted below, listing configuration options.



Step 6

Highlight and select **Communications.** The **COMMUNICATIONS** dialog box will appear, as depicted below, listing communications and modem data options.

Communications Data	
Port COMI Address TCP/IP Speed 4800 Parity Even Stop bit 1 Brt	
Modem Data Modem Hayas * Dialing Mode Tones * Commend	

Enter the following settings for the local communication port:

- Port: COM 1 or COM 2, as appropriate.
- Speed: 4800 bps.
- Parity: Even.
- Stop bit: 1 Bit.

BZIVERCOM Out Configuration Cognection Help

Also enter the appropriate modem data to allow remote communication with the **BCD** terminal unit.

Step 7

Clicking **Exit** on this, or any other, dialog box will close the dialog box and revert back to the previous screen, typically the main menu screen (as depicted below) or the default information screen.

1 E X

自己的

Highlight and select **Connection** on the menu bar. A pull-down menu will appear, as depicted below, listing various connection options.



Step 9

Highlight and select **Local**. A dialog box will appear, as shown below, for specifying substation and equipment number information.

ZIVERCOM-LOCAL		
azzvenkulukulukuluku Rati Çariğunakin Cognection Help	LOCAL CONNECTION	
	Substation:	

This dialog box is utilized when the **BCD** is connected in a system with multiple relays for addressing purposes. For connecting to a single relay locally, clicking **OK** without any additional input is acceptable.

Step 10

The software will perform a "handshake" function with the **BCD** terminal to determine the correct model number and gather settings actively being used in the relay. The default information screen will appear to alert you that the software is communicating correctly with the terminal unit.

NUPTIC OF THE DAY	and the second second	in a second s
Substation	Model 7BCDG	Number 0
TRANSFORMER RATIO	METERING	Bay
CT Ratio 0 CT Ground 0	IA 0.00 A	Line
VT Ratio B VI Ratio U 0	A 00.0 BI	Date 12/10/99
INT AUT	IC 0.00 A	Time 13.32.03
MEASURING ELEMENTS	1G 0.00 A	Data 12/10/00
PICKUP ACTIV	VAB 0.00 V	Time 15 72-02
eins A einp A eins A einp A	Q 0.00 MVA	TRUE L
elns Celmp C elns Celmp C	V. 0.00 V	LAST TRIP
Ølns.G ØTmp. G Ølns. G@Tmp. G		@ INST. A @ TIME A
Vilgent & Vilgent & Vilgent & Vilgent &	HISTURY	🧶 INST. B 🔮 TIME B
@VUnb1@VUnb3 @VUnb1@VUnb3	@EVENT @FAULT @I @V	🕘 INST. C 🎯 TIME C
INPUTS AND OUTPUTS	ALARMS	ØINST. G Ø TIME G
12345678		INST.OV O TIME OV
NP 33333333	Lanon Auc	INST.UV @ V.Unb 2

Real-time information is polled from the unit and is displayed on the default information screen. (Note: in this representation, the analog inputs are not connected to currents or voltage, therefore all metering data will read zero.) Verify that the "**Status**" indicator in the lower left-hand corner displays **LOCAL**.

Clicking the **Cyclical** button will continuously update screen information. Press any key to exit this function. Clicking the **Status** button will perform a one-time status update of screen information.

Creating a Default Settings Record

NOTICE

Before creating a new settings file, it is recommended that a default settings record be created, reflecting the settings of the device as shipped. The user can adopt the same techniques used to create a default settings file in the following steps to create specific settings files in the future.

Highlight and select **Settings** from the main menu bar. A pull-down menu will appear, as depicted below, listing setting options.

Lists of Settings Settings Reports			
Oscillos Activate Group User Curve	THE DAY	Model 78CD5	Number 0
General	FORMER RATIO	METERING	Bay
Protection	• 0 CT Ground 0	A 0.00 A	Line
Automatic Control Logic Super <u>v</u> ision 52 History	0 VT Ratio U 0 AUT URING ELEMENTS	18 0.00 A 1C 0.00 A 1G 0.00 A	Date 12/10/99 Time 13:32:03
Inputs Outputs and Lede	ACTIV	VAB 0.00 V	Time 12:32:02
elns. C	oTmp. B. ∂Ins. B.∂Tmp. B. ∂Tmp. C. ∂Ins. C.∂Tmp. C. ∂Tmp. G. ∂Ins. G.@Tmp. G.	Q 0.00 MVA: Vu 0.00 V	LAST TRIP
@InsUV @InsUV @VUnb1	Propuv elnstive Impliv evunb2 evunb3 evunb3 evunb1 evunb3	ØEVENT ØFAULT ØI ØV	ØINST. BØTIME B ØINST. CØTIME C ØINST. GØTIME G
INP	2 3 4 5 6 7 8 • • • • • • • •	E2PROM ADC ERROR CLOCK BATTERY	INST.OV ITIME OV INST.UV IV V.Unb 2 V.Unb. 1 V.Unb 3
275	Status LOCAL	Cyclical Reset Comm Statu	a Exil

Step 12

Highlight and select **General**. The **GENERAL SETTINGS** dialog box will appear, as depicted below, listing general settings options.

INTRAL SETTINGS			
Substation	Group 1	Hodel 7BCDG	Number 0
CT Ratio Phase V_Unbalance VT Ratio Scale Factor CT Plus Resistor Co	Culpment	In Service CT Ratio Ground 0 VT Ratio 0 Line 0 Bay 0	
Reset sitter block due to Pro Reactive Power automatic is Clockicalendar automatic is switch to automatic mode Switch to manual mode End of operation Operation inhibit	Event Mask stection trip control selected ontrol selected	8	Qolete New

Step 13

Click **Add**. The **LISTS** dialog box will appear, as depicted below, providing a list of all available settings records. In this instance, there are none.

Substation	Model 7BCDG	Number 0
	Available Lists	
CT Ratio P		
V_Unbalar		~
Scale Fact		<u> </u>
CT Plus		Add
[] Reset after b		P Rolete
[] Reactive Pov Go	de Hodel Description Default Settings	
[] switch to aut [] switch to ma		Concel
[] End of operar	<u>QK</u> <u>Cancel</u>	-

Enter a code number and description to label the setting file. In this instance, select "0001" and "Default Settings," respectively.

Step 14

Click **OK**. The **GENERAL SETTINGS** dialog box will appear again, as depicted below.

ENERAL SETTINGS			
Substation		Model 7BCDG	Number 0
	Group 1	Lint DEFAULT SETTINGS	28
C I Ratio Phase V_Unbalance VT Ratio Scale Factor I Reserved Advances I Served Advances I	OF C OF V OOF L Chon B Event Mosks on trip ol selected i selected	r Halio Ground); T Ratio ine ay	Add Delete New Cancel

Click the up or down arrow key until the **List** field reads "Default Settings," as depicted below. Note that the data source box at the lower right-hand corner changes from **RELAY** to **DBASE**.

Substation		Model 7BCDG	Number
	Group	List DEFAULT SETTIN	GS
	Equipment in :	service	
CT Ratio Phase	0# C1	Ratio Ground	0
V Unbalance VT Ratio		T Ratio	0H
Scale Factor	0.00		
CT Plus Resistor Conn	ection B	ay []	<u>Ad</u>
	Event Masks		Dele
I Reactive Power automatic con Clackicalendar automatic con Clackicalendar automatic con Switch to automatic mode Switch to manual mode End of operation	trol selected trol selected		Lan

Step 17

Highlight and select **Settings**. A pull-down menu will again appear, as depicted below, listing settings options.

ettings Reports 🔸			
Qscilles Activate Group + User Curve +	THE DAY	Madel 2020	(Municipal de la Constantina d
Canacal	TOOMED BALLO	MELERINE	(Homber U
Protection Automatic Control Logic Supervision 52 History Inputs and Leds Outputs and Leds Outputs and Leds Ins. C 0 Ins. C 0	Surrent und 0 Voltage inio 0 AUT 0 0 UNING ELEMENTS ACTIV mp. A 4 Ins. A @ Tap. A mp. B 4 Ins. B @ Tap. B mp. G 4 Ins. @ Tap. C mp. G 4 Ins. @ Tap. D mp. G 4 Ins. @ Tap. DV Vinbal # UnbalV @ VinbalV Vinbal # Unbal@ VinbalV	IA 0.00 A IB 0.00 A IC 0.00 A VAB 0.00 V Q 0.00 NVAU VW 0.00 V HISTORY @EVENT @FAULT @1 @V	Lise Date 12/10/99 Time 13 42:96 Date 12/10/93 Time 13 42:96 Last THUP INST. & THUE INST. & THUE INST. C & THUE C INST. C & THUE C INUE C & THUE C
	ITS AND OUTPUTS 3 4 5 6 7 8 3 4 5 6 7 8 3 4 5 6 7 8 3 4 5 6 7 8 3 4 5 6 7 8 3 4 5 6 7 8 3 4 5 6 7 8	ALARMS E2910M ADC ERROR CLOCK BATTERY	INST. G TIME G INST. OV TIME OV INST. UV TIME OV INST. UV V.Unb 2 V.Unb. 1 V.Unb 3
ET Ste	atus LOCAL	Cyclical Reset Comm. State	ua Exil

Step 16

Click **Exit**. The default information screen will appear again, as depicted below.

ATROPTIC OF THE		ri godinene - landere	
Substation		Model 78CDG	(Number 0
THANSFORM	AER RATIO	METERING	Bay
CT Ratio 0	CT Ground 0	A 00.0 A	Line
VT Hatin D	VI Ratio U 0	18 0.00 A	Date 12/10/99
INT	AUT	IC 0.00 A	Time 13.32.03
MEASURIN	G ELEMENTS	IG 0.00 A	
PICKUP	ACTIV	VAB 0.00 V	Date 12/10/99
@Ins. A @Tmp. A	@Ins. A@Imp. A	0 00 10/4	Time 12.32.02
Ins. B Imp. B	ølnz. BøTmp. B	1 0.00 MV/0	LAST TRIP
@Ins. C @Tmp. C	Ins. Colimp. C	Vu 0.00 V	amer + a run +
@Ins0V@Tmp0V	JIns0V@Tmp0V	HISTORY	
InsUV IVUnb2 InsUV IVUnb2 InsUV IVUnb3	@ InsUV @ VUnb2 @ VUnb1@ VUnb3	ØEVENT ØFAULT Ø1 Ø	INST. C INST. C
INPUTS AN	ID OUTPUTS	ALARMS	INST. G O TIME G
1 2 3 INP 0 0 0 OUT 0 0 0	4 5 6 7 8 • • • • • •	E29910M ADC ERRO	INST.UV @ TIME OV INST.UV @ V.Unb 2 V.Unb. 1 @ V.Unb 3

Step 18

Highlight and select **Protection, Current**. The **CURRENT SETTINGS PROTECTION** dialog box will appear, as depicted below, listing current protection settings.

Sub	station		Hodel 7BCD	6	Number 0
Acti	ve Group 1	Group	Lint		
Un.	Phases	Ground	Neutral Unbalance	Breaker Failure U	
1>	Very Inverse V Time dial 0.50 C	F Enable F Torque Chil Enab. Pickup 0.201 Curve Inverse T Time dial 0.501 Definite T 1.001	Enable Pickup 0.00 Curve T, diat 0.00 Det. T. 0.00	Enable I Phase 0.70 I Ground 0.70 Time 0.50 Ground Direction Finable Finable Low I (LI) 0.00 High I (HI)	
>>	IF Enable IF Torque Chil Enable Pickup 30.00 ⊕ T_Delay 0.00 ⊕	☐ Enable ☐ Tonque Chil Enab. Pickup 2.20 + T_Dolay 0.00 +	F Enoble Pickup 0.00 영 T_Delay 0.00 영	Low V (LV): 0.0 High V (HV): 0.0 1 Trip tm.: 0.0 Sw. to inst: 0.0	<u>N</u> cw

Click **Add**. The **LISTS** dialog box will again appear, as depicted below, indicating all available setting records. In this case, the only settings record is "0001 Default Settings."

Substation	Model 7BCDG	Number 0
Active Group	515	
For Enable Torque D Pickup Pickup Very Inverse Time dial	0001 78CDG Detault Settings 2	
Definite T.	Code Model Description 78CDG DK Cancel	

Step 21

Click OK. The CURRENT SETTINGS PROTECTION dialog box will again appear, as depicted below.

Substation		Model 78CDG	Number 0
Active Group 1	Group 1 +	Lint	
Corque Chi Lend Corque Chi Lend Corve Corve Very Inverse Very Inverse Very Invery Inverse Very Inverse Very Invery Inverse Very Invers	2. Torque Cht Enab. 3. Pickup 0.20[2] Curve Inverse v 1 Time dial 0.50[2] 2 Time dial 0.50[2] 3 Definite T 1.00[2] 4 Finable Finable 5 Torque Dut Enab. 1 4 Pickup 2.20[2] 4 Tupplay 0.00[2]	Lender I Croude Index I Ground Tane Curve Curve Conver Tane Conver Total Conver Conve	1015 1015

Step 20

Double-click on "0001 Default Settings" to select this settings record, as depicted below.

Substation	Nodel 78CDG	Number 0
Un Phan Un Phan Torque D 00017855 Pickup D Definite T Code Definite T Code Torque D 0001765 Pickup Code Torque D 0001765	Available Lists DG Defoult Softings Model Description CDG Defoul Settings DK Cancel	

Step 22

Click the up or down arrow key until the **List** field reads "Default Settings", as depicted below. Note that the data source box at the lower right-hand corner changes from **RELAY** to **DBASE**.

Sub	station		Model 7BCD	6	Number 0
Acti	ve Group 1	Group 1 +	List Delauts	Settings	
Un.	Phases	Ground	Neutral Unbalance	Breaker Failure U	
12	Image: Circle Enable Torque Circle Enable Pickup 7.00 m Curve Very Inverse Very Inverse Image: Circle Enable Time dial 0.50 m Definite T 1.00 m	F Enable F Torque Chil Enab. Pickup 0.201+ Curve Inverse T Time dial 0.501+ Definite T 1.001+	Enuble Ectupe Curve Curve	Enable I Phase 0.70 I Ground 0.70 Time 0.50 Ground Direction F Enable E Enable Low I (LI) 0.00 High I (HI) 0.00	
122	I Frankle □ Torque Chil Enab. Pickup 30.00 ⊕ T_Delay 0.00 ⊕	F Enable F Torque Chi Enab. Pickup 2.20 ⊕ T_Datay 0.00 ⊕	☐ Enoble Pickup [000]∰ T_Delog000 ∰	Low V (LV): 0.0 High V (HV): 0.0 1 Trip Im.: 0.0 Sw. to inst: 0.0	New Cancel

ZIVercom® Communication Software

Step 23

Click **Exit**. The default information screen will again appear, as depicted below.

TRANSFORMENT FACTO MCTERING Bay CT Ratio 0 IA 0.00 A Line VI Ratio 0 VI Ratio 0 Data 12/10/23 INT AUT IC 0.00 A Time 12/10/23 INT MCASIMENTS IG 0.00 A Time 12/45/2
CT Ratio 0 CT Ground 0 IA 0.00 A Line VT Ratio 0 VT Ratio 0 18 0.00 A Date 12/10/93 INT AUT IC 0.00 A Time 12/81/2
PERUP ATTW VAB 0.00 V Date 12/020 V Bins, A Tims, A Tims, A Tims, A Tims, B Tims, C Ti

Step 24

Repeat steps 17 through 23 for **Protection**, **Voltage** settings, as depicted below.

Substation		Model	7BCDG	Number	
Active Group	1	Group 1 💌	List	Default Settings	
U> Cui Pic U>> Picl	ive Normal kup <u>1</u> kup <u>1</u>	P Enable Def. Time Frable Def. Time Delay Undervoltage 27 Enable	0.05 0.00 0.05 0.05	Pickup 2. Def. Time 10. F Enable Pickup 6. Def. Time 5. F Enable Pickup 15. Def. Time 0. Blocking Unit	0017

Step 25

Repeat steps 17 through 23 for **Automatic Control** settings, as depicted below.

Substation				Model	7BCDG	Nmbero	0
Active Group	1	Group		Lint	Default Settings		
Vadd Voltage Vadd T_Delay Wenkday Connection Disconnec.	Automa oje 0.0je 1 Schedul 0je : 0 0je : 0	0.00 A	voltage T_Delay s sloys Schedu able Satu stion 0 ₹ : hec. 0 ₹ :	이는 Au 이는 Co 이는 Co 이는 Co eday Dis 이는 Dis	0.01 (Control by reac nnect. threshold % nnection Timer ic. threshold % iconnection Timer		idd ilote icw ncel

Step 26

Repeat steps 17 through 23 for **Logic** settings, as depicted below.

Substation	1	lodel 70/D/5	Number 0
Active Group 1 G	roup 1 💌 🗍	List Default Settings	, manual o
Operatio	ins	Loss of Potential	Detection
Closing Failure Time	r <u>0.00</u> 骨 S. Trip Mosks		<u>A</u> dd Delete
F Phase Inst. (PI) F Phase Time 0/C (PT)	☐ Ground Inst. (GI) ☐ Ground Time O/C (GT)	nh: ()CU) New ()CU) ()Current ()
Inst. Overvoltage (IOV)	Time Overvoltage	TOV) 🗖 Voltage Unbal	ance 2

Repeat steps 17 through 23 for **Supervision 52** (**Breaker**) settings, as depicted below.

Active Eiroop 1 Eiroop 1 Lint Detail Setrop	Contraction of the second seco	ROOM /BCDG	Number 0	
Circuit Breaker Monitoring Close Circuit Monitoring Trip Circuit Monitoring	Group 1 Group 1	List Delauk Settings		
Crock Breaker Menitoring Close Circuit Monitoring Trip Circuit Monitoring			-	
Close Circuit Monitoring Trip Circuit Monitoring	Circuit Brea	aker Monitoring	-	
Trip Circuit Monitoring	Close Circuit Monite	oring		
	Trip Circuit Monitor	ing	Add	
Excessive number of Trips 20	Excessive number of	Trips 201	Qelete	
Alarm ΣΚΑ ^ε 1.00 🛱	Alarm ΣKA*	1.00	New	
Actual Value of KA* 23.68	Actual Value of KA*	23.68		
<u>C</u> e			Gancel	

Step 28

Repeat steps 17 through 23 for **History** (**Historical Records**) settings, as depicted below.

isar nireon	DISETTINGS				-	
Substation		-	Model	/BCDG	Number	0
Active Grou	P. 1	Proob 1	Let	Jelauk Settings	1000	
		Time set	tings (1			
	Cale Time	Internal		a		
	Data Dasa	underven of laborard] m]. []#]		
	Dala Heco					
	Time at the	beginning of histo	record.	h 15m	Ade	
	Time at the	end of histo, reco	rd. [11]	h 595 m	Dele	le
		Day Ma	sk D		Mon	
	Sunday	🖸 Tuesday	Thursday	Saturday	[c	
	🖸 Monday	🖸 Wednesday	🖸 Friday		(<u>L</u> anc	-
	11 come	l ent l	Hale] [[[]]	DRA	

Step 29

Repeat steps 17 through 23 for **Inputs** settings, as depicted below.

Substatio	a		Model 7	BCDG	Num	ber Ö
-	Boa	ed number 1	Lint D	elauk Settings		
Input 1	19 Change to Au	tonatic node	-		IN1	
Input 2	18 Change to Ma	wual mode	-		INZ	
Input 3	22 Transformer B	lieaker	-	- 0=	IN3	-
Input 4	17 Open Breaker	status (52b Contact)	-		IN4	
Input 5	01 Trip Coil Circu	uit Supervision with 52	closed v		IN5	Delete
Input 6	03 Trip Coil Circu	ait Supervision with 52	Open 🔹		INS	New
Input 7	02 Close Coil Cire	cuit Supervision with !	52 Open 💌		IN7	Cancel
Input 8	04 Close Coil Cire	cuit Supervision with !	52 closed +		INS	

Step 30

Repeat steps 17 through 23 for **Outputs and Leds** settings, as depicted below. (Note: the user needs to click the **LEDS** button to access the **LED** settings options.)

ubstation	Discipal Output 1	Model 78CDG	Number 0
	Physical Dutput 1 •	Unt Default Settings	(C
Automatic Control	noi Tr		
Not used	-C	DLLD.	
Not used	-f- m	Nand	~
Not used	F- Not used		× .
Not used	Not used		Add
Not used	Not used	C AND output	ut Delete
Not used	Not used		New
Not used	- Not used		
	Not used	PULSE	01 Cancel
LEDS	Not used		(Autor)
ot used	Not used		Lencel

Highlight and select **Settings**. A pull-down menu will again appear, as depicted below, listing setting options.

Settings Heports	- 50		
Oscillos Acthente Group	THE BAY		
User Curve	1	Model 78CDG	Number 0
General	TORMER BATIO	METERING	Bar
Protection	• 0 CT Ground 0	IA 0.00 A	Line
automatic Control	0 VI Ratio U 0	18 0.00 A	Date 12/10/99
,ogic Supervision 52	AUT	IC 0.00 A	Time 13.5558
History	URING ELEMENTS	1G 0.00 A	
nputs	ACTIV	VAB 0.00 V	Date 12/10/99
Jutputs and Leds	mp. A @Ins. A@Imp. A	0 0.00 10/4	Time 125558
Jins. B	Tanp. B. Jinz. B. Tanp. B	10 0.00 MV/U	LAST TRIP
@Ins.C	OTmp. C Olns. COTmp. C	Vu 0.00 V	amer . A mir .
@ Ins(IV	Vilant & Vilant & Vilant &	HISTORY	WINST, A WITHE A
@ InsUV	/ ●VUnb2 ●InsUV ●VUnb2 1 ●VUnb3 ●VUnb1●VUnb3	ØEVENT ØFAULT Ø1 ØV	INST. C ITIME B
	INPUTS AND OUTPUTS	ALARMS	🕘 INST. G 🔮 TIME G
	2 3 4 5 5 7 8	Transmitter (Transmitter)	INST.OV ITHE OV
		CLOCK BATTERY	 INST.UV V.Unb. 1 V.Unb 3
-	Status LOCAL	Cyclical Beset Conn. Statu	n Exil

NOTICE

Model variations of the **BCD** may dictate different **Settings** menu items. In any case, repeat steps 17 through 23 until all settings have been backed up as default settings.

Step 32

To confirm that all settings have been saved in the settings record, highlight and select **List of Settings**. The **LIST OF SETTINGS** dialog box will appear, as shown below, indicating all available settings records. In this case, only the settings record is "0001 Default Settings."

Code Mode	Available Lists Description		Ibject Disk
0001 75	DG Default Sett	ibgs C	Create
		G	reate Disk
	Selected List		Disk 💌
			Read disk
	Protection I	General F Supervision S	2



Double-click on "0001 Default Settings" to select it.

Code	Availe Model	able Lists Descriptio	on	06	ect Disk
0001	7BCDG	Default S	ettings 😰	C L	ineate Ipdate
				<u>Cre</u>	ate Disk nce Disk
0001	Sele 78CDG	icted List Default Settings		D	isk 💌 sad disk
		Sett	ings in List		
	• • • • • • •	atection I stecion V	General F F History F	7 Supervision 52 7 Inputs	

There should be a check mark on all available **Settings in List** field boxes, indicating that these settings are included in the settings record.

To create a back-up copy of the settings record, insert a diskette into the appropriate floppy drive on the PC and click **Create Disk**.

Click **Exit**. The default information screen will again appear, as depicted below.

YNOPTIC OF THE	IAY		
Substation		Model 7BCDG	Number 0
TRANSFORM	AERI RATIO	METERING	Bay
CT Ratio 0	CT Ground 0	IA 0.00 A	Line
VT Hatio 0	VI Ratio U 0	A 00.0 BI	Date 12/10/99
INT	AUT	IC 0.00 A	Time 13.33.35
MEASURIN	G ELEMENTS	16 0.00 A	Date 12/10/39
PICKUP	ACTIV	VAB 0.00 V	Time 123234
Øins. B ØTmp. B	Ins. B Imp. B	Q 0.00 MVA	
Ølns.C.@Imp.C	@Ins. C@Tmp. C	Vu 0.00 V	Dist mile
♦ Ins. 6 ♥ Imp. 6 ♦ Ins.0V ♥ Imp.0V	Ins. 6 ♥ Imp. 6	HISTORY	MINST & MINE A
●InsUV ●VUnb2	@InsUV@VUnb2	ØEVENT ØFAULT ØI ØV	INST. C O TIME C
- ONDI OVUNDI	evunble vunb3	ALATIMS	INST. G O TIME G
INPUTS AN		ALALIA J	🕘 INST.OV 🌒 TIME OV
INP a a a a		CLOCK BATTERY	V.Unb. 1 V.Unb 3

Displaying or Printing a Settings Record

ZIVercom[®] provides two settings record viewing options. To display a settings record on screen, proceed to Step 35. To print a settings record, proceed to Step 39.

Step 35

Highlight and select **Settings**. A pull-down menu will again appear, as depicted below, listing setting options.



Step 36

Highlight and select **Settings Reporting, Group 1, Screen**. A report screen will appear, as depicted below, which includes general settings, current protection settings, voltage protection settings automatic control settings, logic setting, breaker monitor settings and historical data settings.



Click **Zoom In** and use the scroll bars to maneuver through the report screen.

Step 37

Click **OK** and the "Inputs, Outputs, and Leds?" dialog box appears, as depicted below.

Substation		Hodel 7BCDG	Number 0
TRANSFO	RMER RATIO	METERING	Bay
CT Ratio 0	CT Ground 0	IA 0.00 A	Line
VT Hatio D	VI Ratio U 0	18 0.00 A	Date 12/10/99
INT	AUT	10 0.00 A	Time 1216:24
Ins.G @Tap @InsUV @Tap @InsUV @VUn @VUnb1@VUn	6 0 0V 0 52 0 53 0	Yes No	INST. A @ TIME A INST. B @ TIME B INST. C @ TIME C
INPUTS	AND OUTPUTS	ALARMS	INST. G O TIME G
1 2 3	45678	E2PROM ADC ERF	IDR INST UV @ V.Unb 2

If report screens for these setting are *not* desired, click **No.** Proceed to Step 44.

If report screens for these settings are desired, click **Yes**. Screens displaying input settings, output settings and LED settings will appear, as depicted below.



Click **Zoom In** and use the scroll bars to maneuver through the multi-page report screens. Proceed to step 44.

Step 39

Highlight and select **Settings**. A pull-down menu will again appear, as depicted below, listing setting options.

Lists of Settin Settings Repo	igs arts P	Group 1 Screen		
Qscillos Activate Grou User Curve	P ;-	Group 2 Printer Group 3	Model 78CDG	Number 0
General Protection		TORMER RATIO 0 CT Ground 0	IA 0.00 A	Bay Line
Automatic Cor Logic Supervision 5	ntrol 52	0 VI Ratio U 0	18 0.00 A 10 0.00 A	Date 12/10/99 Time 13:33:35
Inputs Outputs and L	.eds	ACTIV mp. A @lns. A@Tmp. A	VAB 0.00 V Q 0.00 MVA	Date 12/10/39 Time 12:32:34
393	Ins. C @T Ins.G @T InsOV@T	mp. C. ⊉Ins. C. ⊉Tmp. C. mp. G. ⊉Ins. G. ♥Tmp. G. mp0V. ⊉Ins0V ⊉Tmp0V.	Vu 0.00 V HISTORY	ØINST. A Ø TIME A ØINST. P Ø TIME P
	InsUV @V VUnb1@V	/Unb2 @InsUV@VUnb2 /Unb3 @VUnb1@VUnb3	ØEVENT ØFAULT ØI ØV	OINST. COTIME COINST. GOTIME G
INI	1 2 P ∂ ∂ JT ∂ ●	3 4 5 6 7 8 • • • • • • •	E2910N ADC ERROR CLOCK BATTERY	INST.UV INE OV INST.UV V.Unb 2 V.Unb. 1 V.Unb 3
	Sta	tus LOCAL	Cyclical Beset Comm. State	n Est

Step 40

Highlight and select **Settings Reporting, Group 1, Printer**. The **Print** dialog box will appear, as depicted below, listing print parameters.

SYNUPTIC OF THE BAY	to to the grant	(m
Vinit Default Printer BIP Lassulet 4V on VVM12/pri241) Pinit tange C C Splitstom C Pinits 1 (s. 5939) Print tange Lossing Pinits 1 (s. 5939) Print tange Lossing Pinits 1 (s. 5939) Pinits tange Copies:	T X BCD6 OK B Cancel B0 D0 A D0 A D0 A D0 MVA D0 MVA D0 MVA	Number 0 Bay
Ø InaLIV @ VUIAb2 @ VUIAb1@ VUIAb12 @ VUIAb12 @ VUIAb1@ VUIAb12 @ VUIAb1	ALARMS ALARMS M ADC ERROR K BATTERY	INST. B TIME B INST. C TIME C INST. G TIME C INST. OV TIME OV INST. UV OV. Unb 2 OV. Unb. 1 OV. Unb 3

Step 41

Click **Setup**. A dialog box will appear, as depicted below, listing print setup parameters.

Printer: Default Printer (HP Lased et 4V or \\PN12\prt241)	<u>т</u> ок не	Bay	fumber 0
Print r. Print Setup		7 ×	-
C All Printer		OK	094213
C. Sp. @ Default printer		Cancel	
C Pa (currently HP LasesJet 4V on W	PN12\prt241]		4/200X 🚫
Specific grinter:		Options	
Print gu HP LaseJet 4V on \\PN12\prt.	241 🔟	Ngtwork	T THIP
Print Unentation Pape			TIME A
TIN A Pogtrant Size:	Letter 8 1/2 x 11 in		TIME B
OVI CLandscape Source	e: Auto Select		TIME G
12345578		NST.0	IV N TIME OV
INP 8 8 8 8 8 8 8 8	E2PROM ADC ERRO	📃 🥥 INST.U	V 🥘 V.Unb 2
007 8 8 8 8 8 8 8 8	CLOCK BATTERY	V.Unb.	1 🧶 V.Unb 3

Step 42

Ensure that the paper size selected is "Letter $8\frac{1}{2} \times 11$ in" and click **OK**. A report will be generated that will include general settings, current protection settings, voltage protection settings automatic control settings, logic setting, breaker monitor settings, and historical data settings.

The "Inputs, Outputs, and Leds?" dialog box will appear, as depicted below.

Substation Node 70DG Number TTRAIS OF MEET INATION MEETERING Bay Day Day	ð
TRANSTORMER RATIO METERING Day CT Ratio 0 CT Ground 0 1A 0.00 A Line VT Ratio 0 VT Ratio 0 1B 0.00 A Date 12/10/99	
CT Ratio 0 CT Ground 0 IA 0.00 A Line VT Ratio 0 VT Ratio 0 18 0.00 A Date 12/10/29	
VT Ratio 0 VI Ratio 0 0 18 0.00 A Date 12/10/99	
INT AUT IP 0.00 A	
Mindty 0 mathy 0 0 mathy 0 vtomb Yasi No Mindty 0 mathy 0 mathy 0 vtomb Yasi No Mindty 0 mathy 0 mathy 0 vtomb No No	
	nb 2 Inb 3

If a report for these settings is *not* desired, click **No.** Proceed to Step 44.

If a report on these settings is desired, click **Yes**. Repeat Steps 41 and 42. A report will be generated that includes input settings, outputs settings, and LED settings.

Creating a New Settings Record

NOTICE

Before creating any new settings records, it is recommended that a default settings file be created, reflecting the settings of the device as shipped from the manufacturer. Refer to the procedure outlined in Steps 11 through 35.

The procedure for creating a new settings record is similar to that outlined in Steps 11 through 35. A different Code number and Description will need to be entered for each new settings file.

The protection terminal may need reprogramming and/or wiring connection revision to conform to the new settings record.

In steps 45 through 55, a new record will be created with the following settings:

Step 44

Click **Exit**. The default information screen will again appear, as depicted below.

	(11 11 minut	1.00
Substation	Model 78CDG	Number 0
CT Ratio 0 CT Ground 0	10 0.00	Line
VT Ratio B VT Ratio U 0	UN 0.00 A	D.1. 10000
INT AUT	IC 0.00 A	Time 12/10/99
MEASURING ELEMENTS	16 0.00 A	13.32.35
PICKUP ACTIV	VAB 0.00 V	Date 12/10/99
@Ins. A @Imp. A @Ins. A @Imp. A	0 0.00 MVA	Time 123234
elns Bellan Cellan Cellan Cellan C	No. 0.00 V	LAST TRIP
Ølns.G ØTmp. G Ølns. G@Tmp. G	vu u u v	@ INST. A @ TIME A
VDmT & VDmT & VDmT & VDmT & VDmT	HISTORY	Ø INST. B Ø TIME B
●VUnb1●VUnb3 ●VUnb1●VUnb3	ØEVENT ØFAULT ØI ØV	INST. C I TIME C
INPUTS AND OUTPUTS	ALARMS	INST. G TIME G
12345678		WINST.OV WTIME OV
NP 3333333	The second secon	WINST.UV W V.Unu a

General Settings

CT Ratio (Phase): 1 V_Unbalance VT Ratio: 1 Scale Factor: 0 CT + Resistor Conn: NO CT Ratio (Ground): 1 VT Ratio: 1

Current Protection Settings

Phase Overcurrent Unit (50)	Phase Instantaneous Unit (51)
Enable: YES Torque Ctrl. Enable: NO Pickup: 2 A Curve: INVERSE Time Dial: 0.5	Enable: YES Torque Ctrl. Enable: NO Pickup: 4 A Time Delay: 0 s

Ground Overcurrent Unit (50N)	Ground Instantaneous Unit (51N)
Enable: YES Torque Ctrl. Enable: NO Pickup: 0.2 A Curve: INVERSE Time Dial: 0.5	Enable: YES Torque Ctrl. Enable: NO Pickup: 1.5 A Time Delay: 0 s

Breaker Failure Unit
Enable: YES
Phase Overcurrent Pickup: 0.7 A
Ground Overcurrent Pickup: 0.7 A
Time Delay: 0.5 s

Voltage Protection Settings

Overvoltage Unit (59) Undervoltage Unit (27)		
Time Element Enable: YES		
Curve: NORMAL		
Time Dial: 0.05	Enable: YES	
Pickup: 125 V	Pickup: 21 V	
Instantaneous Enable: YES	stantaneous Enable: YES Time Delay: 10 s	
Pickup: 140 V		
Time Delay: 5 s		

Voltage Unbalance Unit (64)	Blocking Unit	
Enable Element #1: YES Pickup: 3.00 A Definite Time Delay: 10 s		
Enable Element #2: YES Pickup: 6.00 A Definite Time Delay: 5 s	Enable: YES Pickup: 0.5 A	
Enable Element #3: YES Pickup: 15.00 A Definite Time Delay: 0.1 s		

Automatic Control Settings

Automatic Control	By Clock
Enable: YES Mode: By Clock Operation Time Inh.: 5.00 V off (%): 90 V off Time Delay: 1.00	V add: 100 V add Time Delay: 7 V remove: 125 V remove Time Delay: 7

Weekdays Schedule	Weekends Schedule
Enable: YES Connect: 06 h 30 m Disconnect: 18 h 30 m	Enable: YES Saturday: YES Connect: 08 h 30 m Disconnect: 14 h 30 m

Logic Settings

Operations	Loss of Potential
Trip Sealing: Disabled	Enable: YES
Open Failure Time: 1.00 s	Min. Current: 1.00
Close Failure Timer: 1.00 s	Time Delay: 2.000

Trip Masks: Disabled for every unit

Breaker Supervision Settings

Circuit Supervision	Number of operations
Close Circuit Monitoring: Disabled Trip Circuit Monitoring: Disabled	Excessive No. Of Trips: 20 Alarm Σ kA ² : 10,000
	Actual Value Σ kA ² : 0.00

Historical Records Settings

Calculation Time Interval: 1 m
Data Record Interval: 15 m
Beginning Time: 0h 00m
End Time: 24h 00m
Day Mask: Enable Mon to Fri, Disable Sat and Sun

Inputs Settings

DI No.	Assigned Signal
1	19 Change to Automatic Mode
2	18 Change to Manual Mode
3	22 Transformer Breaker
4	17 Open Breaker Status (52b contact)
5	
6	
7	
8	21 External Closing Command

Output Settings

DO No.	Assigned Signal
1	Breaker Failure Output
2	Level 1 Voltage Unbalance Trip Output
3	Level 2 Voltage Unbalance Trip Output
4	Level 3 Voltage Unbalance Trip Output
5	Automatic Mode

Leds Settings

Led No.	Assigned Signal
1	Internal Protection Trip Output
2	Capacitor Bank Connected
3	Circuit Switcher Blocked
4	Automatic Mode

Enter the appropriate listed **General Settings** from page 14, as depicted below.

NERAL SETTINGS		
Substation	Hodel 7BCDG	Number
Group 1	List DEFAULT SETTINGS	123
CT Ratio Phase C V_Unbelance VT Ratio C Scale Factor 000F L C T Plus Resistor Connection E Event Masks 1 Practic Power administ control selected 1 Switch in administre and endel 1 Switch in manual mode 1 Switch in manual mode 1 Switch in manual mode 1 Switch in manual mode 1 Switch in manual mode	T Ratio Ground 18 T Ratio 18 ine	Add Delete New
Collect Send	Help Exit	DRASE

Step 46

Click **Add** in the **GENERAL SETTINGS** dialog box. Enter an appropriate code number and description for the record, in this case "0002" and "Sample Settings," respectively, as depicted below.

Substation	Model 7BCDG	Number 0
1	Available Lists	
CT Ratio P 0001 780	DG Detault Settings	
V_Unbalar		V
Scale Fact		
CT Plus		Add
LI Beset after in		2 Delete
LI Reactive Pov Code	Hodel Description BCDG Sample Settings	New
[] switch to aut		Cancel
[] switch to ma [] End of operar	<u>QK</u> <u>C</u> ancel	1

Step 47

Click **OK** to return to the **GENERAL SETTINGS** dialog box. Click the up or down arrow key until the **List** field reads "Sample Settings," as depicted below.

NERAL SETTINGS	(
Substation Group 1	List SAMPLE SETTINGS	Number 0
V_Unbalance VT Ratio	VT Ratio	Add Delete New Cancel

Step 48

Enter the appropriate listed **Current Protection Settings** from page 14, as depicted below.

Sub	tation		Model 7BCD	6	Number 0
Acti	ve Group 1	Group 1 ·	Lint		100
Un.	Phases	Ground	Neutral Unbalance	Breaker Failure Ur	
1>	Finable Torque Chi Eneb Sckup 2 00 Curve Inverse Time dial 0.50 Curve Torque T. 1.00	Frable Torque Chi Enab Corque Chi Enab Corve Inverse Time dial 0.50 Definite T 1.00	Curve	M Enable I Phase 0.70 I Ground 0.70 Tane 0.50 Ground Directions C Enable C Enable Low I (L) 0.000 High I (H): 0.000	Add
	Image: Free Free Free Free Free Free Free Fr	✓ Enable ✓ Torque Cbl. Enab. Pickup 1.50 ± T_Dolay 0.00 ±	F Enoble Pickup 0.00 1	Low V (LV): 0.00 High V (HV): 0.00 1 Trip tax: 0.00 Sw. to inst: 0.00	Les <u>New</u>

Click Add in the CURRENT SETTINGS PROTECTION dialog box.

Substation	Hodel 7BCDG	Number 0
Un Phase	Available Lists	
Torque D 0001 /8C 0002 /8C 0002 /8C 0002 /8C 1> Curve Inverse Time dial Definite T.	20a - Detout settings 20a - Sample Settings	
Code Code Code Code Code Code Code Code	Hodel Description BCDG DK Cancel	Dia Leve

Step 50

Select the **Sample Settings** record by doubleclicking the appropriate text field.

Substation	Model 7BCDG	Number 0
Image: Constraint of the state of the st	Available Lists BCDG Defoult Settings BCDD Bample Settings	
Time dial Definite T	Nodel Description 78CDG Sample Settings	· · · · · · · · · · · · · · · · · · ·

Step 51

Click **OK** to return to the **CURRENT SETTINGS PROTECTION** dialog box. Click the up or down arrow key until the **List** field reads "Sample Settings," as depicted below.

Sub	station		Hodel 7BCD	6	Number 0
Acti	ve Group	Group 1 💌	List Sample	Seltings	
Un	Phases	Ground	Neutral Unbalance	Breaker Failure	
12	F Enable Torque Cirl. Enab. Pickup 2.00 + Curve Inverse Inverse * Time dial 0.50 + Definite T. 1.00 +	F Enable □ Torque Chi Enab. Pickup 0.201⊕ Curve Inverse Inverse ▼ Time dial 0.501⊕ Definite T 1.001⊕	Enuble Pickup 0.00 Curve Curve Curve Curve Curve Curve Curve Curve Curve Curve Curve Curve	IPhase 0.7 I Phase 0.7 I Ground 0.7 Time 0.5 Ground Direction 1 Tradie 1 Tradie 1 Cradie 1 Low I (U) 0 High I (H) 0	
122	Frankle Torque Chil Enable Pickup 4.00 + T. Delay 0.00 +	F Enable Torque Chil Enab. Pickup 1.50 + T. Delay 0.00 +	F Enoble Pickup 0.00	Low V (LV): 0. High V (HV): 0. 1 Trip ta.: 0. Sw. to inst: 0.	New

Step 52

Enter the appropriate listed **Voltage Protection Settings** from page 14, as depicted below.

Substatic	in		Model	7BCDG	Number 0
Active G	roup 1	Group 1 *	List	Sample Settings	
Un.		OvervoRage 59		Voltage Unbalance	
	Pickup	FZ Enable 140 ⊕ Time Delay Undervoltage 27 F Enable	5.00	Pickup 6.01 fm Def. Time 5.01 fm If Enable F Enable Pickup 15.01 fm Def. Time 0.10 fm Blocking Unit 100 fm	Add Polote New Cancel

Enter the appropriate listed **Automatic Control Settings** from page 14, as depicted below.

Substation			Model	70/06	Nabaro
Active Group	1	Group 1	List	Sample Settings	
Vadd Voltage Vadd T_Delay Weekday	Demation 5 Automatic 100 7.0 1 Schedule nable	In Service Time Inhibit Voll 00 🐨 Control by clock Vremove Voltage Vremove Tolage Hysteresis Hofdays Schee F Enable F Sa	C By Reac [21] 90	tive Power Volf Time Delay 100 2 tennic Control by react nnect. threshold & nnection Timer rc. threshold &	Dower Add

Step 55

Enter the appropriate listed BREAKER SETTINGS from page 14, as depicted below.

Subestation		Hodel 78CDG	Number	0
Active Group	Group 🔳	List Sample Se	flingt	
				×
	Circuit Break	er Monitoring		-
	Close Circuit Monitori	ng	-	¥.
	Trip Circuit Monitoring	1	-	
) clote
	Alorm SKAL	ps 20		New
	Actual Value of KAT	1000.00	I (L	II.e.
	Actual value of KA.	0.001		ancel
			1.00	

Step 54

Enter the appropriate listed **Logic Settings** from page 14, as depicted below.

Substation		Model 78CDG	Number (
Active Group 1 G	noup 1 💌	List Sample Settings	
Operatio	ins	Loss of Potentia	Detection
Closing Failure Time	r 1.00 🖶 S. Trip Masks		Add Qelete
Phase Inst. (PI) Phase Time 0/C (PT) Inst. Overvoltage (IOV)	Ground Inst. (GI) Ground Time 0/4 Time Overvoltag	(GT) Fine Current (GT) Undervoltage (TOV) Voltage Under	Unit. (CU) Unit. (TCU) (UV) slance 2

Step 56

Enter the appropriate listed **Historical Records Settings** from page 14, as depicted below.

Substation		Model 7	BCDG	Number 0
Active Group	1 Group 1	List S	ample Settings	
	Tir	ie settings ()		
	Calc. Lime Interval		m	-
	Data Record Interval	0	h 15 m	
	Time at the beginning of	histo. record. 0	h 00m	Add
	Time at the end of histo.	record. 24	h 🕀 m	Delete
	D	ay Maski 🗆		Mom
i i i	🗆 Sunday 🛛 Tuesda	y 🖸 Thursday	🗆 Saturday	Cancel
				Land Land Land
	🗆 Sunday 🖾 Tuesda	y 🖸 Thursday	Saturday	Cancel

Enter the appropriate listed **Inputs Settings** from page 14, as depicted below.

Substation	Board manber 1 -	Model 7BCDG	lingi	Number 0
Input 1 19 Cl	hange to Automatic mode]= INI	
Input 2 18 C	hange to Manual mode]: IN2	
Input 3 22 T	ansformer Breaker]: IN3	×
input 4 17.0	pen Breaker status (52b Contact)	- C]⊐ IN4	
Input 5]:: IN5	Delete
Input 6]: IN5	Now
Input 7];; IN7	Cancel
Input 8 21 E	iternal closing command			

Logical inputs are selected by clicking on the text windows. For example, for Logical Input 2, click **18 Change to Manual mode.** Then click on the highlighted text **below the text window** to view all available logical inputs as depicted below.

Juditudia	Mode	7BCDG	Number 0
CONNECTIONS			
Available logical inputs		Asigned logical	inputs
05 External Protection Trip	A Connect at	13 Change to Automa	fic mode
07 Bypass Time Phase Time Overcu 08 Bupass Time Ground Time Overcu	Interst Contractor	1	
03 Block Phase Instantaneous Over 10 Block Ground Instantaneous Over	current Trip]	
11 Block Phase Time Overcurrent To 12 Block, Ground Time Overcurrent	rip Disconnect All]	
13 Torque Control Phase Instantane 14 Torque Control Ground Instantane	eous 0/C		
15 Forque Control Phase Time Over	current 💌		<u>.</u>
	Help Exit		

Select the logical input(s) to be associated with a particular physical input by clicking **Connect**.

A particular logical input can be assigned to only one physical input. To *reassign* a logical input to a different physical input, first select that logical input, then click **Disconnect.**

Step 58

Enter the appropriate listed **Outputs Settings** from page 14, as depicted below.

Substation		Model 78CDG	Number 0
	Physical Output 1 *	List Sample Settings	
Breaker Failure 0	Nor		
Not used	-C	DLD.	
Not used		Nand	~
Not used	F- Not used		<u> </u>
Not used			Add
Not used	Not used	- 08 out	put Qelete
Not used	Not used		New
Not used	Not used	C- Course	
	Not used	POLSE	0 Sancel
LEDS		-	

A pull-down menu labled **Physical Outputs**, is used to select which output the user is assigning signals to.

Logical outputs are selected by clicking on the > symbol adjacent to the respective text fields. Performing this action reveals the **CONNECTIONS** dialog box. Use the scroll bars to view the various output connection signals. Select the logical output signal to be associated with a particular physical output and click **Connect**.



Clicking on the **LEDS** button in the lower left-hand corner of the **OUTPUT SETTINGS** dialog box reveals the **LEDS SETTINGS** dialog box.

Substation	Model 78CD5	Number 0
Informal Protection Not used Not used	Denied	C AND output & OR output // Latched

A pull-down menu labled **Led**, is used to select which LED the user is assigning signals to.

Select signals to activate LEDs by clicking on the ▶ symbol adjacent to the respective text fields. In this example, enter the LED settings to reflect the screen depicted below.

Jaaron	Model	78/10/5	Number
CONNECTIONS	(Thouse	TOCO'O	Trancer
Available Logical Outputs	D	Logical output asigned to: Physical LED 1	
In Canadaine Adam Level Deva command Hernel Reversion 113 Duty A Deva on the command Palane Coment detected and Hosen Busines State Trip Lockar Due In Incoment Mask Endels To Due Phase A Nin oncource Mask Endels To Due Phase B Inte overcuret Mask Endels To Due Her	Connect =>) <= Disconnect All Disconnect All Lp Lp	Ī	10 JA

Step 60

Verify, in the **List of Settings**, a check mark on all available **Settings in List** field boxes, indicating that these settings are included in the "Sample Settings" record.

Code	Availat	ble Lists Description	Object Disk
0001	7BCDG 7BCDG	Default Settings Sample Settings	C Create C Update
0002	Select 7BCDG Se	ted List ample Settings Settings in List	i Source Disk Disk ¥ Read disk
	v v Prot v v Prot v v V Auto	ection I IF General ection V IF History mate: control • • F Loose	Supervision 52 Supervision 52 Supervision 52 Supervision 54 Super

To create a back-up copy of the settings record, insert a diskette into the appropriate floppy drive on the PC and click **Create Disk**.

Downloading a Settings Record

Step 61

To send this "Sample Settings" record to the relay, click **Send**. A confirmation dialog box will appear, as depicted below. Click **Yes**.

Code	Availa Model	able Lists Description	Object Disk
0001	7BCDG 7BCDG	Default Settings Sample Settings	A:\ -
	20/680	04	C Update
0002	78CDG	Do you want to send settings a	Disk w Read disk
	• • F Pro	otection I 🛛 🖓 General 🕅	Supervision 52
	• • 🕫 Pre	otecion V 🖓 History 🖓	Inputs

Shortly thereafter, a second confirmation dialog box will appear. To configure the inputs and outputs of the **BCD** terminal unit, the user must follow steps 63 through 66 below before clicking **Yes**. This is to ensure that input and output settings are not altered accidentally.



Step 63

Press the **ESC** on the keypad of the **BCD** terminal.

Step 64

Select **0. CONFIGURATION** from the main menu of the **BCD** terminal.

Step 65

Enter the required password (the default is 2140).

Step 66

Select **2. CONFIGURE INPUTS** from the configuration menu of the **BCD**. The following message will appear on the display of the relay.



Click Yes on the aforementioned dialog box.

After a brief time delay, another confirmation dialog box will appear, as depicted below, alerting the user to enter a code to change the output settings. Proceed with Step 67 before clicking **Yes**.

Code	Avail	able Lists	Object Disk
0001	7BCDG 7BCDG	Default Settings Sample Settings	Create
0002	Z Sere ralid	VERCON LOCAL 78CDG FRONT CONNECTION OUTPUT CONFIGURATION OPTION Yes No Com	Create Disk
		Settings in List	Summiting 52
	• • 17 Pi	notection I I I General I I notection V I History I I	Supervision 52 Inputs

Step 67

Select **3. CONFIGURE OUTPUTS** from the configuration menu of the **BCD** terminal. The following message will appear on the display of the terminal.

TO MODIFY
ACCESS THROUGH
LOCAL PORT

Click Yes on the aforementioned dialog box.

Quitting ZIVercom®

Step 68

Click **Exit**. The default information screen will appear.

Substation	Model 7BCDG	Number 0
TRANSFORMER RATIO	METEBING	Bay
CT Ratio 0 CT Ground 0	IA 0.00 A	Line
VI Ratio 0 VI Ratio U 0	18 0.00 A	Date 12/10/99
INT AUT	IC 0.00 A	Time 13.32.03
MEASURING ELEMENTS	1G 0.00 A	
PICKUP ACTIV	VAB 0.00 V	Date 12/10/39
elns A elmp A elns A elmp A	Q 0.00 MVA	1 466 123202
elns Celmo C elns Celmo C	100 0 00 V	LAST TRIP
@Ins.G @Tmp. G @Ins. G@Tmp. G	N	@ INST. A @ TIME A
Ins0V@Tmp0V DissUV@Tmp0V DissUV@Tmp0V	HISTORY	🧶 INST. B 🔮 TIME B
eVUnb1eVUnb3 eVUnb1eVUnb3	@EVENT @FAULT @1 @V	🕘 INST. C 🎯 TIME C
INPUTS AND OUTPUTS	ALARMS	INST. G 🔮 TIME G
12345678		INST.OV O TIME OV
INP 0 0 0 0 0 0 0 0	FORM DATE OF	WINST.UV W V.Unb 2
001 0 0 0 0 0 0 0 0 0 0	CLUCK DALICHY	V.Unb. 1 V.Unb.

Step 69

Click **Exit**. The **LOCAL CONNECTION** dialog box will appear for specifying substation and equipment number.

Step 70

Click **Cancel**. The main menu will appear, as depicted below.

Step 71

Click **Quit**. The identification screen will appear, as depicted below.



Step 72

Click Quit. The program will terminate.

APPENDIX

Creating a Settings Record Offline

The following steps apply only in instances where the protection terminal is *not* connected to a PC.

Step A

Load the *ZIVercom*[®] program by double-clicking on the appropriate icon. The *ZIVercom*[®] application screen will appear as shown below.



Note: This screen indicates the software version and serial number.

Step B

Click **OK**. The identification screen will appear, as depicted below.

DENTIFICATION	e Y	
Comm	unications Program f	or
Protectio	on and Control Termi	nals
	ST V	Compatible ®
	ercor	n^{TM}
5 - 1	\mathcal{A}	-
User		a f
Passing	pt j 📄 😥	
	A	

Enter the appropriate "User" name and "Password." The default settings are "ZIVERCOM" and "ziv" respectively.

Step C

Click **OK**. The main menu screen will appear, as depicted below.

average of the second s

Step D

Highlight and select **Connection** on the menu bar. A pull-down menu will appear, as depicted below, listing connection options.



Step E

Highlight and select **Emulation**, **7BCD**, **G**, **Oscillo**, **60 Hz.** A menu screen will appear, as depicted below.

EZIVERCON-EMULATION-78COG

Step F

Follow the procedure for creating a settings record outlined in Steps 11 through 33. In Step 13, enter an appropriate code number and description for the record, such as "0003" and "Emulation Settings" respectively. Make certain that **List** field reads "Emulation Settings" on the appropriate dialog box in steps 15 and 22.

Settings records cannot be displayed or printed in the emulation mode.

Functional Testing

Routine testing of the protection terminal is not necessary since the microprocessor is continuously performing self-diagnostic tests. Functional testing may be desirable, however, to confirm that the device has been correctly connected to the circuit interruption control system, and that the desired protection and control settings have been programmed. Refer to the Chapter titled **Receiving Tests** in the instruction manual for detailed acceptance test procedures.

The following equipment is required to perform functional testing.

- An appropriate control voltage source
- A 0 20 A ac current source
- A 0 5 minute timer

If the protection terminal is **not** connected to an interruption device, the user should set up a test circuit that simulates operation of the interrupter to confirm protection and automatic control functions. It is possible to test pickup and time delay settings of the protection elements without simulating interrupter operation.

To avoid undesirable protection terminal operations, perform the following:

Step G

Highlight and select **Protection**, **Voltage** settings, as depicted below.

Substation		Model	78CDG	Number	0
Active Group	1 Group	List	ncal		
Un.	Overvoltage 59		Voltage Unbal	ance 64	
	Enable		Pickup 0	5010	
U> Curvi	e Normal 💌 Dial 🗌	0.05	Del. Time	05 🗟 📃	
Pieka	up 130 Del Time	10.00	Pickup 0	50	
	T Enable		Def. Time 6	05日 <u>A</u> d	d
Pieks	I Time Delay	10.00景	Pickup 0	50 P	ste
	Undervoltage 27		Del. Time 0	.05 🖶 No	-
	🗐 Enable		Blocking Un	Can	cet
U	Time Deter	10.00	Enab	le	-

If the analog voltage inputs are not connected to the terminal, ensure that the **Blocking Unit** function and the **Undervoltage 27** function are *not enabled*. Enabling these functions will block block the **Automatic Control** function. Please refer to Chapter 6 in the instruction manual for more details.

Step H

Measure and record the time between trip initiation and change of state of the 52/b contact.

Step I

Measure and record the time between close initiation and change of state of the 52/b contact.

Step J

Highlight and select **Supervision 52 (Breaker)** settings, as depicted below.

		Land		1
Substation Active Group 1 E	iroup 1 ¥	Model	7BCDG Detault Setteras	Number 0
Operati	ons		Loss of Potential Deter	
Closing Failure Time	r 0.00 🗣 S. Trip Masks			<u>Add</u>
Phase Inst. (PI) Phase Time O/C (PT) Inst. Overvoltage (IOV)	☐ Ground Inst. (GI ☐ Ground Time O/ ☐ Time Overvoltag) C (GT) # (TOV)	Innt Corrent Unit () Time Corrent Unit, () Undervoltage (UV) Voltage Unbalance	CUI <u>New</u> TCUI 2 2

Verify that the **Close Circuit Monitoring** and the **Trip Circuit Monitoring** settings are appropriate for the installation. Change settings as necessary.

Step K

Highlight and select **Logic** Settings, as depicted below.

Subestation		Model 7BCDG	Number 0
Active Group	Group T	List Delauk Settings	-
			Ā
	Circuit Breake	er Monitoring	
	Close Circuit Monitori	ng	
	Trip Circuit Monitoring	1	
			Add
	Excessive number of Tri	ps 20‡	Qelete
	Alarm ΣKA'	1.00	New
	Actual Value of KA*	23.68	(Const
			Cancel

Verify that the **Opening Failure Timer** setting is greater than the time between trip initiation and change of state of the 52/b contact, as measured in Step H. Also verify that the **Closing Failure Timer** setting is greater than the time between close initiation and change of state of the 52/b contact, as measured in Step I.

An alarm signal will be generated if the **Opening Failure Timer** setting is less than the time measured in Step H. The **Automatic Control** function will be disabled if the **Closing Failure Timer** setting is less than the time measured in Step I. Change the timer settings as necessary. Notes: