



Instructions for Installation, Operation and Maintenance of Westinghouse Digitrip MV Trip Units

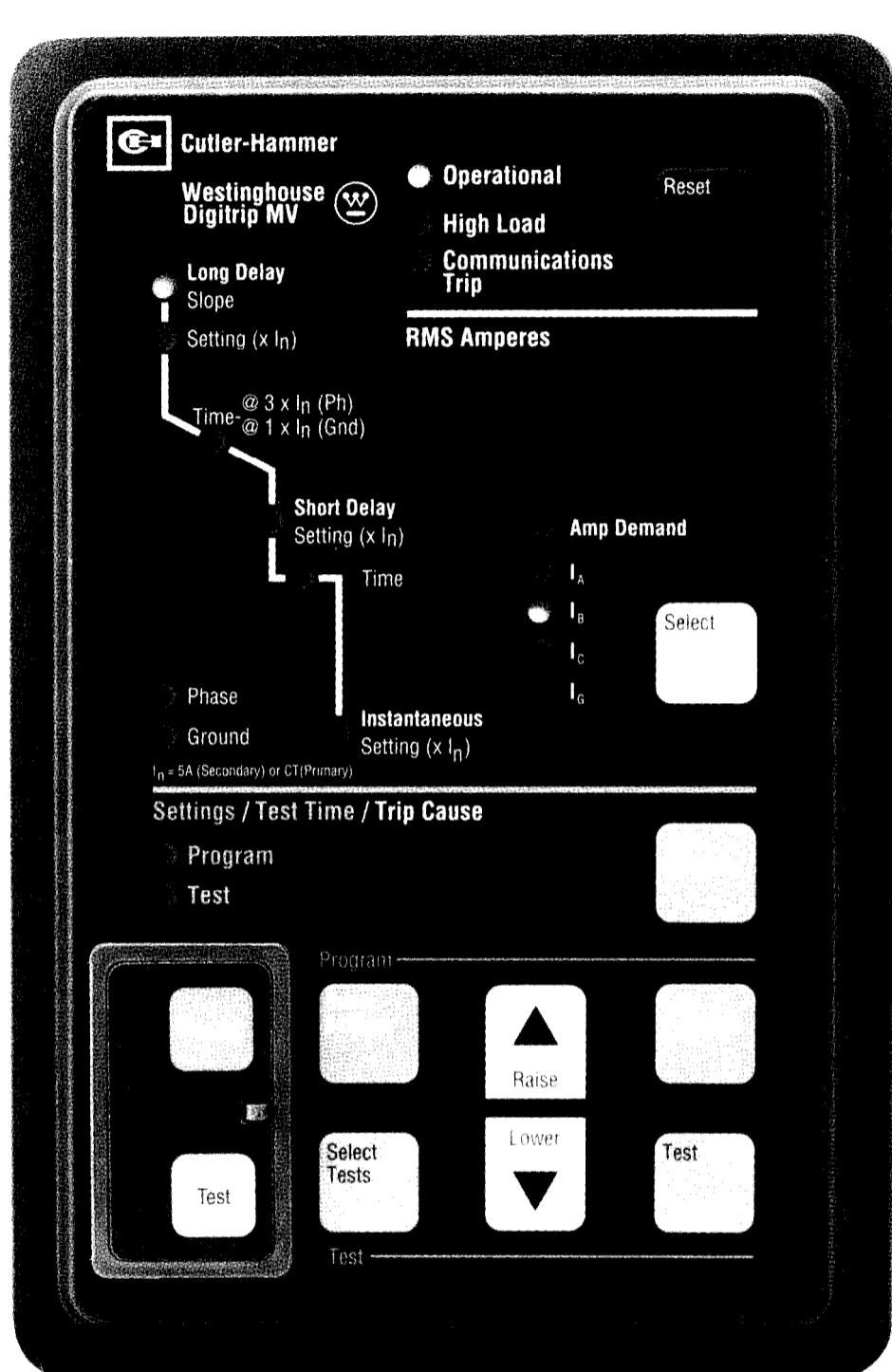


TABLE OF CONTENTS

	PAGE
SECTION 1 INTRODUCTION	1
1-1 Preliminary Comments and Safety Precautions.....	1
1-1.1 Warranty and Liability Information	1
1-1.2 Safety Precautions	1
1-2 General Information.....	1
1-3 Functions/Features/Options	1
1-4 Standards	3
	5
SECTION 2 FUNCTIONAL DESCRIPTION	6
2-1 Protection, Testing and Communication Capabilities.....	6
2-1.1 RMS Sensing	6
2-1.2 Pickup Setting	6
2-1.3 Time Setting	6
2-1.4 Protection Curve Settings.....	6
2-1.5 Integral Testing.....	6
2-1.6 Communications.....	9
2-2 Trip Unit Hardware	9
2-2.1 Front Operations Panel	9
2-2.2 Rear Access Panel	13
2-2.3 External Hardware.....	15
2-3 UL Testing and Specification Summary	15
	15
SECTION 3 OPERATION	17
3-1 Introduction.....	17
3-2 Power-Up and Self Testing	17
3-3 Panel Operations.....	17
3-3.1 Characteristic Curve	17
3-3.2 Program Mode	23
3-3.3 Programming Overview	25
3-3.4 Test Mode	25
3-4 Communications Function.....	28
	28
SECTION 4 APPLICATION CONSIDERATIONS	29
4-1 General	29
4-2 Zone Interlocking Capabilities	29
4-3 Conclusion.....	30
	30
SECTION 5 INSTALLATION, STARTUP AND TESTING	33
5-1 Introduction.....	33
5-2 Panel Preparation.....	33
5-2.1 Cutout.....	33
5-2.2 Mounting.....	33
	33

	PAGE
5-3 Wiring	33
5-4 Initial Startup	34
5-4.1 Before Power Application	34
5-4.2 Initial Power Application	34
5-5 Miscellaneous Testing	35
SECTION 6 MAINTENANCE AND STORAGE	36
6-1 General	36
6-1.1 Storage	36
6-2 Troubleshooting Guide (Table 6-1)	36
6-3 Replacement	36
SECTION 7 TIME CURRENT CURVES	39

FIGURES

Figure	Title	Page
1-1	Digitrip MV Trip Unit (Front View)	2
1-2	Digitrip MV Trip Unit with Installed INCOM PONI Module (Rear View)	2
1-3	A Digitrip MV Trip Unit Installed in an Assembly Panel	3
1-4	Digitrip MV Trip Unit with DIP Switches Shown in Upper Left (Rear View)	3
1-5	Representative Curve Showing Four Selectable Slopes Available with Digitrip MV	4
1-6	Installed Jumpers in Place on Terminal Block TB-1 Disabling the Zone Interlocking Feature.....	4
2-1	Typical Communications Wiring Diagram.....	10
2-2	Digitrip MV Trip Unit (Rear Views).....	14
3-1	Digitrip MV Typical Wiring Diagram.....	18
3-2	Sample Electronic Trip Curve	19
3-3	Typical Trip Curve Horizontal Movement.....	20
3-4	Typical Phase Long Delay Setting Adjustment.....	20
3-5	Typical Phase Long Delay Time Adjustment (Flat Response)	21
3-6	Typical Phase Long Delay Time Adjustment (IT Response)	21
3-7	Typical Phase Long Delay Time Adjustment (I^2T Response).....	21
3-8	Typical Phase Long Delay Time Adjustment (I^4T Response).....	21
3-9	Phase Short Delay Setting Adjustment.....	22
3-10	Phase Short Delay Time Adjustment.....	22
3-11	Typical LS Curve With I^2T Slope	22
3-12	Phase Instantaneous Setting Adjustment.....	22
3-13	Programming Sequence Preview	25
3-14	Local Programming Sequence Flow Chart.....	26
4-1	Connection Diagram For Typical Phase Zone Selective Interlocking.....	31
4-2	Connection Diagram For Typical Ground Zone Selective Interlocking.....	32
5-1	Cutout Dimensions (Inches)	33
5-2	Digitrip MV Trip Unit Dimensions (Inches).....	34
7-1	Long Delay Phase I^4T Curves (SC-5390-92-A).....	40
7-2	Long Delay Phase I^2T Curves (SC-5391-92-A).....	41
7-3	Long Delay Phase IT Curves (SC-5392-92-A).....	42
7-4	Long Delay Phase Flat Curves (SC-5393-92).....	43
7-5	Short Delay Phase Curves (SC-5394-92).....	44
7-6	Long Delay Short Delay Composite (SC-5395-92).....	45
7-7	Instantaneous Curves (SC-5396-92).....	46
7-8	Long Delay Ground I^4T Curves (SC-5399-92-A).....	47
7-9	Long Delay Ground I^2T Curves (SC-5400-92-A).....	48
7-10	Long Delay Ground IT Curves (SC-5401-92-A).....	49
7-11	Long Delay Ground Flat Curves (SC-5402-92)	50
7-12	Short Delay Ground Curves (SC-5403-92).....	51

TABLES

Table	Title	Page
2.1	Slope Selection.....	6
2.2	Characteristic For Phase Element.....	7
2.3	Characteristic For Ground Element	8
2.4	Miscellaneous Settings	8
3.1	Digitrip MV Display Messages	28
5.1	Dip Switch Settings For Phase Current Transformer.....	35
5.2	Dip Switch Settings For Ground Current Transformer.....	35
5.3	Miscellaneous Dip Switch Setting.....	35
6.1	Troubleshooting Guide	37