

ORDERING INFORMATION

MODEL : L53UF

PLEASE FILL IN THIS SECTION



Model

Company

Name

P/O No.

FACTORY USE ONLY



Job No.

Ser No.

Sales

Approved by
(Sales office)

Issued by
(Sales office)

Approved by
(Factory)

Set by
(Factory)

Specify the items you want to change. Default setting will be used if not specified.

SETTING

ITEM		AVAILABLE VALUE	DEFAULT VALUE	SET VALUE	Factory Internal check
Input setting	Wiring configuration	1P2W:Single-phase/2-wire 1P3W:Single-phase/3-wire 3P3W-B:3-phase/3-wire, balanced load 3P3W-UB:3-phase/3-wire, unbalanced load 3P4W-B:3-phase/4-wire, balanced load 3P4W-UB:3-phase/4-wire, unbalanced load (*)	(*)		☐ Checked
	CT primary rating	1 to 20 000 A	1 A or 5 A		☐ Checked
	VT primary rating	50 to 400 000 V	110 V	*1	☐ Checked
	VT secondary rating	50 to 500 V (≤277V for single phase/2-wire and single phase/3-wire)	110 V	*1	☐ Checked
	AC frequency	U1N:Voltage I1:Current	U1N		☐ Checked
	Low-end cut out, current	0.0 thr. 99.9% of the rating	1.0 %		☐ Checked
Style setting	Low-end cut out, voltage	0.0 thr. 99.9% of the rating	1.0 %		☐ Checked
	Power factor (PF1 through PF3, PF) sign	0: Standard (IEC) (Identical to the active energy) 1: Special type 1 (IEEE) (Positive in LAG, Negative in LEAD)	0		☐ Checked
	Reactive power (Q1 through Q3, Q) sign	0: Standard (IEC) (Positive from [PF = 1.0] to 180° in LAG direction; Negative for the other direction) 1: Special type 1 (Positive in LAG, Negative in LEAD)	0		☐ Checked

. *1. Leave blank, when single-phase / 3-wire, phase voltage 110 V (line to line 220 V) and VT is not used.

ITEM			AVAILABLE VALUE	DEFAULT VALUE	SET VALUE	Factory Internal check
Analog output setting (Analog output option)	CH 1	Assigned measurand	See Table 3	–		☐ Checked
		Linearization	Input 0%:-15.00 to +140.00% *2	0.00		☐ Checked
			Output 0%:1.6 to 22.4 mA (0.4 to 5.6 V)	4.0(1.0)		☐ Checked
			Input 100%:-15.00 to +140.00% *2	100.00		☐ Checked
			Output 100%:1.6 to 22.4 mA (0.4 to 5.6 V)	20.0(5.0)		☐ Checked
	CH 2	Assigned measurand	See Table 3.	–		☐ Checked
		Linearization	Input 0%:-15.00 to +140.00% *2	0.00		☐ Checked
			Output 0%:1.6 to 22.4 mA (0.4 to 5.6 V)	4.0(1.0)		☐ Checked
			Input 100%:-15.00 to +140.00% *2	100.00		☐ Checked
			Output 100%:1.6 to 22.4 mA (0.4 to 5.6 V)	20.0(5.0)		☐ Checked
	CH 3	Assigned measurand	See Table 3.	–		☐ Checked
		Linearization	Input 0%:-15.00 to +140.00% *2	0.00		☐ Checked
			Output 0%:1.6 to 22.4 mA (0.4 to 5.6 V)	4.0(1.0)		☐ Checked
			Input 100%:-15.00 to +140.00% *2	100.00		☐ Checked
			Output 100%:1.6 to 22.4 mA (0.4 to 5.6 V)	20.0(5.0)		☐ Checked
	CH 4	Assigned measurand	See Table 3.	–		☐ Checked
		Linearization	Input 0%:-15.00 to +140.00% *2	0.00		☐ Checked
			Output 0%:1.6 to 22.4 mA (0.4 to 5.6 V)	4.0(1.0)		☐ Checked
			Input 100%:-15.00 to +140.00% *2	100.00		☐ Checked
			Output 100%:1.6 to 22.4 mA (0.4 to 5.6 V)	20.0(5.0)		☐ Checked

*1. Specify the channel which requires setting.

*2. Use following parameter to convert input actual value to input value [%].

For active power and reactive power

$$\text{INPUT} [\%] = \left(\frac{\text{INPUT}}{\text{ENERGY}^{(1)} \times 2} + 0.5 \right) \times 100 \quad (1) \quad \begin{array}{l} \text{P: Active power} = \text{VT primary rating} \times \text{CT primary rating} \times n \\ \text{Q: Reactive power} = \text{VT primary rating} \times \text{CT primary rating} \times n \end{array}$$

Single-phase/2-wire: $n = 1$, Single-phase/3-wire: $n = 2$, Three-phase/3-wire: $n = \frac{3}{\sqrt{3}}$, Three-phase/4-wire: $n = 3$

For apparent power

$$\text{INPUT} [\%] = \left(\frac{\text{INPUT}}{\text{ENERGY}^{(1)}} \right) \times 100 \quad (1) \quad \text{S: Apparent power} = \text{VT primary rating} \times \text{CT primary rating} \times n$$

Single-phase/2-wire: $n = 1$, Single-phase/3-wire: $n = 2$, Three-phase/3-wire: $n = \frac{3}{\sqrt{3}}$, Three-phase/4-wire: $n = 3$

(example)

Three-phase/3-wire VT 3300 V/110 V, CT 250 A/5 A

INPUT RANGE for -1000 to +1000 kW

$$\text{ENERGY "P"} = 3300 \times 250 \times \frac{3}{\sqrt{3}} = 1,428,941 = 1429 \text{ kW}$$

$$\text{INPUT } 0 [\%] = \left(\frac{-1000 \text{ kW}}{1429 \text{ kW} \times 2} + 0.5 \right) \times 100 = 15.01 [\%]$$

$$\text{INPUT } 100 [\%] = \left(\frac{1000 \text{ kW}}{1429 \text{ kW} \times 2} + 0.5 \right) \times 100 = 84.99 [\%]$$

Table 3 PARAMETERS TO BE ASSIGNED TO ANALOG OUTPUTS

SYMBOL	DEFINITION
CT1	CT primary rating
VT1	VT primary rating
P	CT1 × VT1 × n n=1P2W: 1, 1P3W: 2, 3P3W: $\sqrt{3}$, 3P4W: 3

ID	DEFINITION	RANGE (0 to 100%)	1P2W	1P3W	3P3W-B	3P3W-UB	3P4W-B	3P4W-UB
NULL	Not assigned	----	✓	✓	✓	✓	✓	✓
I	Current	0 to CT1	✓	✓	✓	✓	✓	✓
U	Voltage	0 to VT1	✓	✓	✓	✓	✓	✓
P	Active power	± P	✓	✓	✓	✓	✓	✓
Q	Reactive power	± P	✓	✓	✓	✓	✓	✓
S	Apparent power	0 to P	✓	✓	✓	✓	✓	✓
PF	Power factor	-1.0000 to +1.0000	✓	✓	✓	✓	✓	✓
F	Frequency	45.00 to 65.00	✓	✓	✓	✓	✓	✓
I1	Current, Line 1	0 to CT1	✓	✓	✓	✓	✓	✓
I2	Current, Line 2	0 to CT1		✓	*	*	*	✓
I3	Current, Line 3	0 to CT1			*	✓	*	✓
IN	Neutral current	0 to CT1		✓				✓
U12	Delta voltage, Line 1 – 2	0 to VT1		✓	✓	✓	✓	✓
U23	Delta voltage, Line 2 – 3	0 to VT1			✓	✓	✓	✓
U31	Delta voltage, Line 3 – 1	0 to VT1			✓	✓	✓	✓
U1N	Phase voltage, Phase 1	0 to VT1	✓	✓			✓	✓
U2N	Phase voltage, Phase 2	0 to VT1		✓			*	✓
U3N	Phase voltage, Phase 3	0 to VT1					*	✓
P1	Active power, Phase 1	±(VT1 × CT1)	✓	✓			✓	✓
P2	Active power, Phase 2	±(VT1 × CT1)		✓			*	✓
P3	Active power, Phase 3	±(VT1 × CT1)					*	✓
Q1	Reactive power, Phase 1	±(VT1 × CT1)	✓	✓			✓	✓
Q2	Reactive power, Phase 2	±(VT1 × CT1)		✓			*	✓
Q3	Reactive power, Phase 3	±(VT1 × CT1)					*	✓
S1	Apparent power, Phase 1	0 to (VT1 × CT1)	✓	✓			✓	✓
S2	Apparent power, Phase 2	0 to (VT1 × CT1)		✓			*	✓
S3	Apparent power, Phase 3	0 to (VT1 × CT1)					*	✓
PF1	Power factor, Phase 1	-1.0000 to +1.0000	✓	✓			✓	✓
PF2	Power factor, Phase 2	-1.0000 to +1.0000		✓			*	✓
PF3	Power factor, Phase 3	-1.0000 to +1.0000					*	✓
T-Q	Reactive power for bidirectional current		✓	✓	✓	✓	✓	✓
T-PF	Power factor for bidirectional current		✓	✓	✓	✓	✓	✓

✓: Measurable

*: Measured values calculated from the other inputs are calculated.