Quick operation manual of DTSU666-□series and DSSU666-□series
Digital Three-Phase Energy Meter

Thank you for using the products of Zhejiang CHINT Instrument & Meter Co., Ltd. In order to have a safe and correct use of the instrument, please read this manual carefully and make sure to pay attention to the following points in use:

➢ **This instrument must be installed and maintained by the qualified professionals;**

➢ **The input signals and auxiliary power supply must be cut off before wiring of the instrument;**

➢ **Make sure every part of the instrument without voltage by continuously using appropriate voltage detection device;**

The following conditions will lead to the damage or abnormal operation of the device:

➢ **Incorrect ratio setting of the instrument;**

➢ **Out of range of auxiliary power supply   voltage   current   frequency**

➢ **Incorrect input polarity of current or voltage;**

➢ **The terminals are not connected according to the requirements;**

1.   Technical parameters

Table 1

Technical parameters			Index		
Input signal	Measuring network		3 phase 3 wire(DSSU666□series) 3 phase 4 wire(DTSU666□series)		
	Voltage	Rated value	3 phase 3 wire	AC 3×380V；AC 3×400V	
			3 phase 4 wire	AC 3×220/380V；AC 3×230/400V	
		Operating voltage	0.7Un—1.2Un		
		Consumption	≤8VA/1W(per phase)		
		Resistance	500kΩ		
	Current	Rated value	3 phase 3 wire	AC 5(80)A	
			3 phase 4 wire	AC 1.5(6)A	
		Consumption	≤1VA(per phase)		
		Resistance	20mΩ(per phase)		
	Frequency	Input range	45Hz 65Hz		
Output	Display		LCD display		
	DSSU666□and DTSU666□series	Active energy	Class1	resolving power 0.01kWh	
		Reactive energy	Class 2	resolving power 0.01kvarh	
		Active energy	Class 0.5S	resolving power 0.01kWh	
		Reactive energy	Class 2	resolving power 0.01kvarh	
	Energy	Energy measurement	forward reverse active energy, four-quadrant reactive energy.		
		Pulse constant	AC 3×380V；AC 3×400V	AC 1.5(6)A	6400imp/kWh(imp/kvarh)
			AC 3×380V；AC 3×400V	AC 5(80)A	400imp/kWh(imp/kvarh)
			AC 3×220/380V；AC 3×230/400V	AC 1.5(6)A	6400imp/kWh(imp/kvarh)

|		AC 3×220/380V； AC 3×230/400V	AC 5(80)A	400imp/kWh(imp/kvarh)
	Pulse signal output	Supply active reactive energy optical signal and optocoupler collector open-circuit electrical signal impulse output, pulse length:80±16ms		
Auxiliary function	Protocol	Support MODBUS-RTU communication Consultation, Baud rate support 2400bps, 4800bps, 9600bp.		
Note 1 the other performance index, indoor table reference IEC 62053 - 21 requirements.				

2. Wiring instructions:
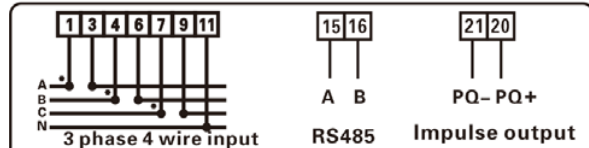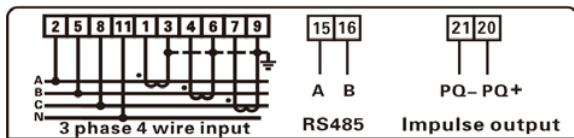

Figure 1 DTSU666-□series
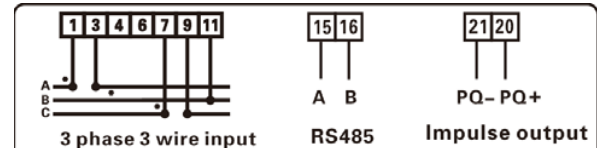
Figure 2 DSSU666-□series
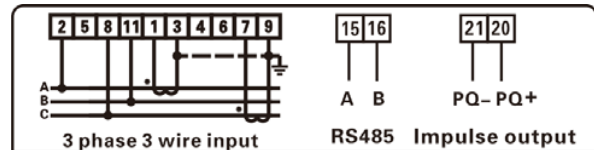

Figure 3 DTSU666-□series

Figure 4 DSSU666-□series

Current signal wire

  1-------L1*(phase L1 current input line)   3------L1(phase L1 current output line)

  4-------L2*(phase L2 current input line)   6------L2(phase L2 current output line)

  7-------L3*(phase L3 current input line)   9------L3(phase L3 current output line)

Voltage signal wire

  2-------L1(phase L1 voltage line)   5-------L2(phase L2 voltage line)

  8-------L3(phase L3 voltage line)   11-------UN(Neutral line)

RS485 communication line

  15-------A RS485-A   16-------B RS485-B

Energy pulse output line

  20-------active ,reactive energy pulse +   21------- Energy pulse –

3. Instructions of programming parameters

   Instruction of keys: "**Menu**" means "**confirm**"   "**Esc**" means "exit", "**→**" means "add". Input the password(assumed to be 701),enter the submenu item of "system settings"(when the system is set to third rows of digital display, the first row of hidden):

Figure 5 the settings of the common parameters

4. Installation size

Table2

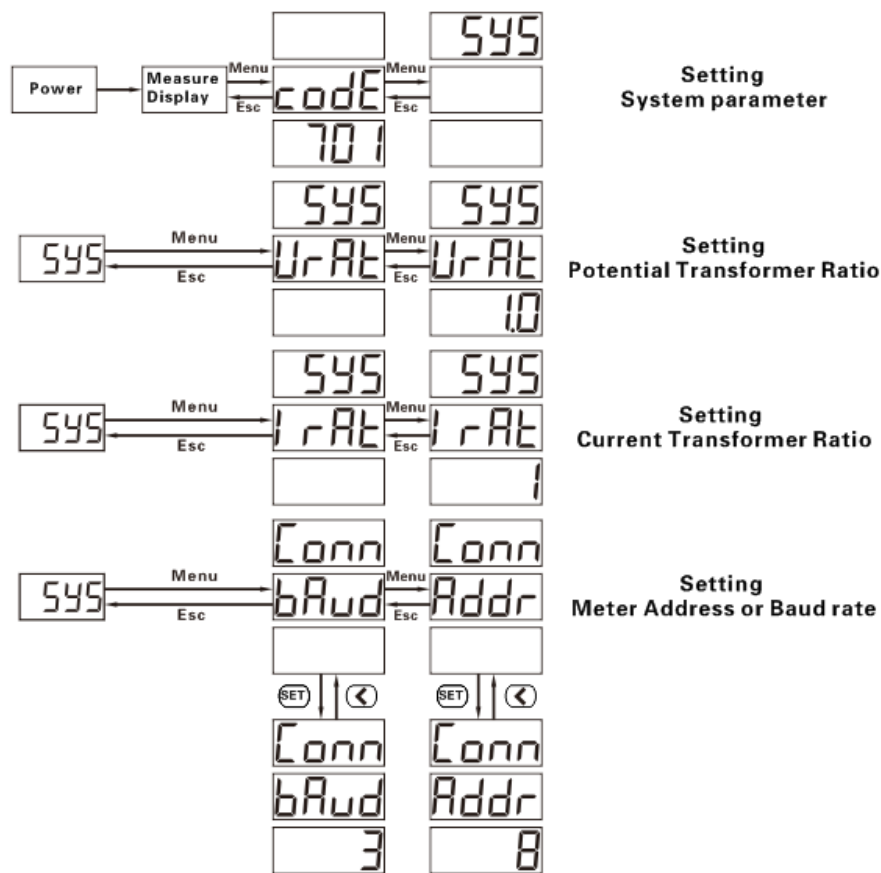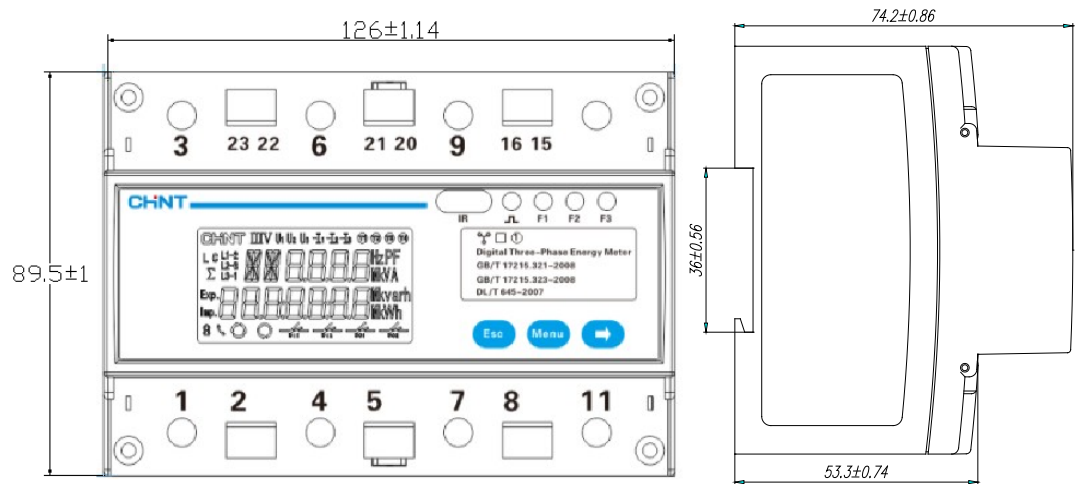| Model	Shell size　width×length×depth	DIN rail for mounting
DTSU666-□series DSSU666-□series	126mmx89mmx76mm	35mm

Figure 6 outside view

5. communication

Factory setting: DL/T 645-2007 protocol, Parity(E.1), Baud Rate(9600bps),Meter Address see lable.

The RS485 communication supports DLT 645-2007 protocol or ModBus_RTU protocol, DLT 645-2007 supports read Meter Address, (current) total import active energy, (current) export active energy, (current)quadrants Ⅰ reactive energy, (current)quadrants Ⅱ reactive energy, (current)quadrants Ⅲ reactive energy, (current)quadrants Ⅳ reactive energy, voltage, current, active power, reactive power, power factor,frequency.

ModBus_RTU protocol, Parity(n.2), Baud Rate(9600bps),Meter Address see lable.

Table 3 ModBus Register Address

Parameter address	Parameter code	Instruction of the parameters	Type of data	Length of data Word	Read&write attributes
Keyboard parameters（detailed function see the instruction of the programming parameters，the actual value of the parameter with(*)＝ communication parameter value $\times 0.1$）					
0000H	REV.	version	signed int	1	R/W
0001H	UCode	Programming password codE	signed int	1	R/W
0002H	ClrE	Electric energy zero clearing CLr.E(1:zero clearing)	signed int	1	R/W
0003H	net	Selecting of the connection mode net(0:3P4W,13P3W)	signed int	1	R/W
0004H	RESERVED	reserved	signed int	1	R/W
0005H	RESERVED	reserved	signed int	1	R/W
0006H	IrAt	Current Transformer Ratio	signed int	1	R/W
0007H	UrAt	Potential Transformer Ratio(*)	signed int	1	R/W
000BH	Meter type	Meter type	signed int	1	R
002CH	Protocol	Protocol changing-over	signed int	1	R/W
002DH	Addr	Communication address Addr	signed int	1	R/W
002EH	bAud	Communication baud rate bAud	signed int	1	R/W
002FH	Second	Second	signed int	1	R/W
0030H	Minute	Minute	signed int	1	R/W
0031H	Hour	Hour	signed int	1	R/W
0032H	Day	Day	signed int	1	R/W
0033H	Month	Month	signed int	1	R/W
0034H	Year	Year	signed int	1	R/W
Electric quantity of the secondary side					
2000H	Uab	Line -line voltage, the unit is V(It is invalid for 3	Floating Inverse(AB CD)	2	R
2002H	Ubc		Floating Inverse(AB CD)	2	R

2004H	Uca	phase 4 wire)	Floating Inverse(AB CD)	2	R
2006H	Ua	Phase-phase voltage, the	Floating Inverse(AB CD)	2	R
2008H	Ub	unit is V(It is invalid for 3	Floating Inverse(AB CD)	2	R
200AH	Uc	phase 3 wire)	Floating Inverse(AB CD)	2	R
200CH	Ia	The data of three phase	Floating Inverse(AB CD)	2	R
200EH	Ib	current,the unit is A	Floating Inverse(AB CD)	2	R
2010H	Ic	(Ib is invalid when three phase three wire)	Floating Inverse(AB CD)	2	R
2012H	Pt	Conjunction active power the unit is W	Floating Inverse(AB CD)	2	R
2014H	Pa	A phase active power the unit is W	Floating Inverse(AB CD)	2	R
2016H	Pb	B phase active power the unit is W (invalid when three phase three wire)	Floating Inverse(AB CD)	2	R
2018H	Pc	C phase active power the unit is W	Floating Inverse(AB CD)	2	R
201AH	Qt	Conjunction reactive power the unit is var	Floating Inverse(AB CD)	2	R
201CH	Qa	A phase reactive power the unit is var	Floating Inverse(AB CD)	2	R
201EH	Qb	B phase reactive power the unit is var (invalid when three phase three wire)	Floating Inverse(AB CD)	2	R
2020H	Qc	C phase reactive power the unit is var	Floating Inverse(AB CD)	2	R
202AH	PFt	Conjunction power factor	Floating Inverse(AB CD)	2	R
202CH	PFa	A phase power factor (invalid when three phase three wire)	Floating Inverse(AB CD)	2	R
202EH	PFb	B phase power factor (invalid when three phase three wire)	Floating Inverse(AB CD)	2	R
2030H	PFc	C phase power factor (invalid when three phase three wire)	Floating Inverse(AB CD)	2	R
2044H	Freq	Frequency	Floating Inverse(AB CD)	2	R
2050H	DmPt	Total active power demand	Floating Inverse(AB CD)	2	R
Electrical data of the secondary side					
401EH	ImpEp	(current)positive active total energy	Floating Inverse(AB CD)	2	R
4020H	RESERVED	reserved	Floating Inverse(AB CD)	2	R
4022H	RESERVED	reserved	Floating Inverse(AB CD)	2	R

4024H	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
4026H	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
4028H	ExpEp	(current)negative active total energy	Floating	Inverse(AB CD)	2	R
402AH	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
402CH	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
402EH	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
4030H	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
4032H	Q1Eq	(current) quadrant Ⅰ reactive total energy	Floating	Inverse(AB CD)	2	R
4034H	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
4036H	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
4038H	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
403AH	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
403CH	Q2Eq	(current) quadrant Ⅱ reactive total energy	Floating	Inverse(AB CD)	2	R
403EH	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
4040H	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
4042H	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
4044H	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
4046H	Q3Eq	(current) quadrant Ⅲ reactive total energy	Floating	Inverse(AB CD)	2	R
4048H	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
404AH	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
404CH	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
404EH	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
4050H	Q4Eq	(current) quadrant reactive total energy	Floating	Inverse(AB CD)	2	R
4052H	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
4054H	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
4056H	RESERVED	reserved	Floating	Inverse(AB CD)	2	R
4058H	RESERVED	reserved	Floating	Inverse(AB CD)	2	R

All the electric quantity data read by the communication is quadratic numerical, the rate is excluded, complement numbers are the representation of negative numbers. Following is the detailed conversion method.

Table 1

Parameter name	Conversion formula	Unit	Parameter item
Voltage	$U = URMSx(x=a \quad b \quad c) \times (UrAt \times 0.1) \times 0.1$	V	Ua,Ub,Uc,Uab,Ubc,Uca
current	$I = IRMSx(x=a \quad b \quad c) \times IrAt \times 0.001$	A	Ia,Ib,Ic
Active power	$P = Px(x=a \quad b \quad c) \times (UrAt \times 0.1) \times IrAt \times 0.1$	W	Pt,Pa,Pb,Pc
Reactive power	$Q = Qx(x=a \quad b \quad c) \times (UrAt \times 0.1) \times IrAt \times 0.1$	var	Pt,Qa,Qb,Qc
Power factor	$PF = PFx(x=a \quad b \quad c \quad t) \times 0.001$		PFa,PFb,PFc,PFt
Frequency	$F = Freq \times 0.01$	Hz	F

Energy	$Ep = E \times UrAt \times IrAt$	kWh	ImpEp	ExpEp	Q1Eq
		kvarh	Q2Eq	Q3Eq	Q4Eq

Note: When Potential Transformer(Pt) is 1, The value of UrAt is 10.