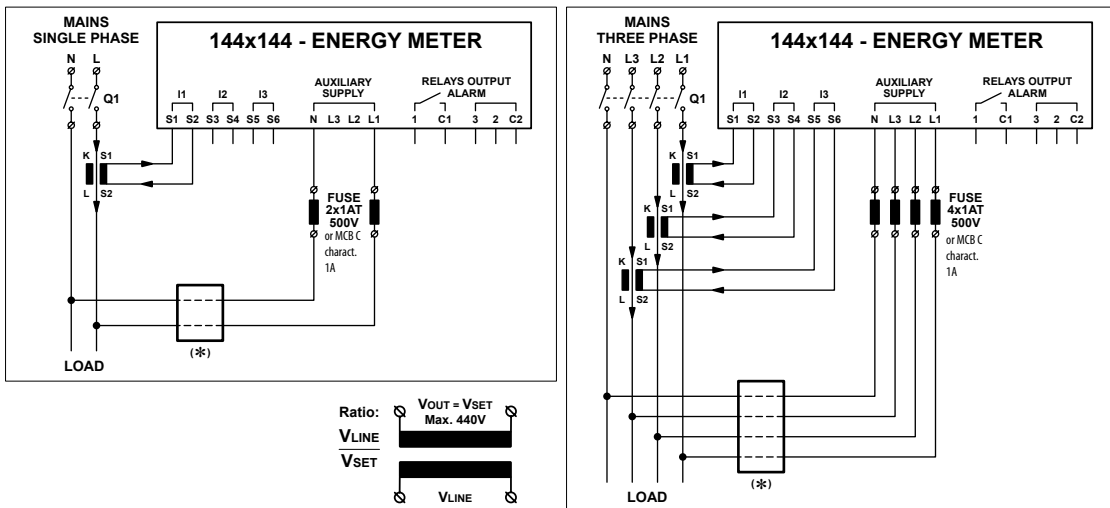
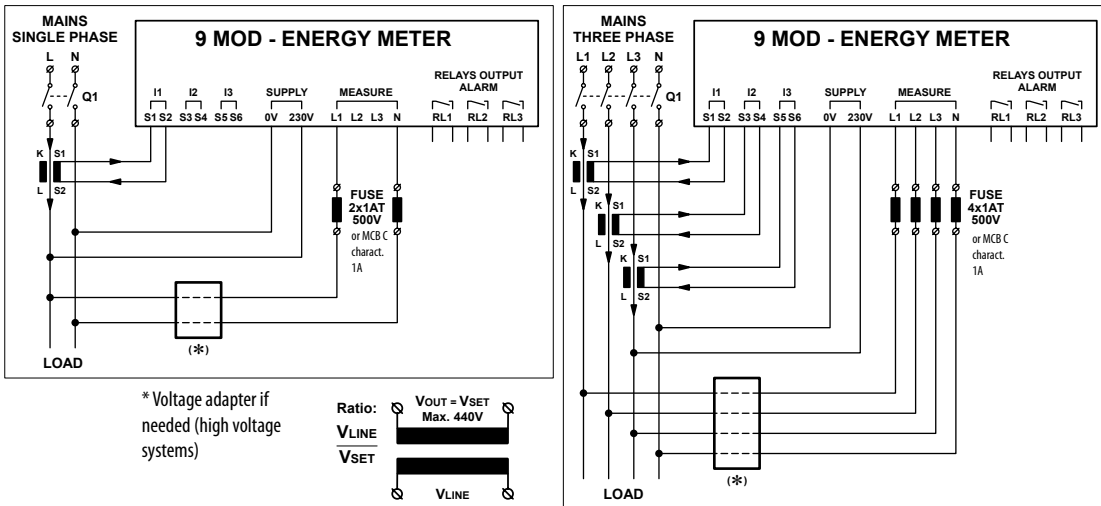


Three Phase Network Analyzer (ENA3, ENA3D)

Technical data		ENA3	ENA3D
Supply voltage AC ±10%	V ~	3x400 + N	230 L/N
Nominal Frequency	Hz	50 - 60 (45 - 65)	
Power consumption (max. AC)	VA	4	
Rated Current ( CT )	A	5/1...50000	
Immunity Time For Microbreakings	ms	< 50ms	
Display Type	-	3 Display - 4 Digit - 7 Segment	
Measuring Type	-	True RMS	
Cosφ ( L/L )	-	0.00 ... 1.00 ±1%	
Voltage ( N/Lx )	VA ~	100 ... 280 ±1%	
Voltage ( L/L )	VA ~	180 ... 490 ±1%	
Current ( CT )	A	0.05 ... 5.5 ± 0.5%	
Active Power ( Lx )	W	Class 1	
Reactive Power ( Lx )	VAR	Class 1	
Apparent Power ( Lx )	VA	Class 1	
THD of Volt or Current	%	0 ... 255	
Work Hours	h	0 to 9999 ( with multiplier )	
Ambient Temperature	°C	0°C...+60°C ( / °F )	
Working temperature	°C	-20 ... +60	
Storage temperature	°C	-30 ... +70	
Electrical Insulation	kV	4	
Overvoltage Category	-	II	
Protection degree	IP	41 Front Cover - 20 Terminal Block	
Pollution degree	-	2	
Relative Humidity w/o cond.	%	95	
Altitude up to	m	2000	
Weight	g	680	550
Dimensions	mm	149 x 149 x 60	157 x 89 x 60
Standards	-	2006/95/EC - Low Voltage, 2004/108/EC - EMC	

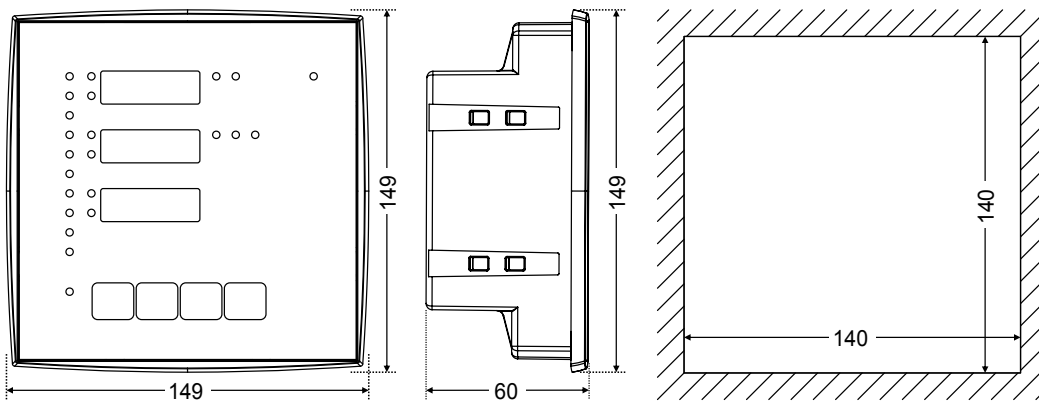
Wiring Diagrams



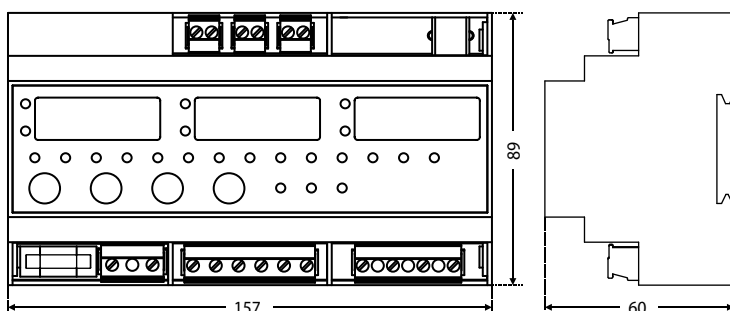


Dimensions

144x144 (mm)



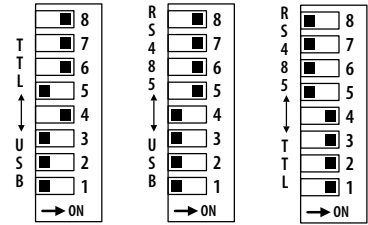
9 MOD (mm)



# Adapter TTL<>USB<>RS485

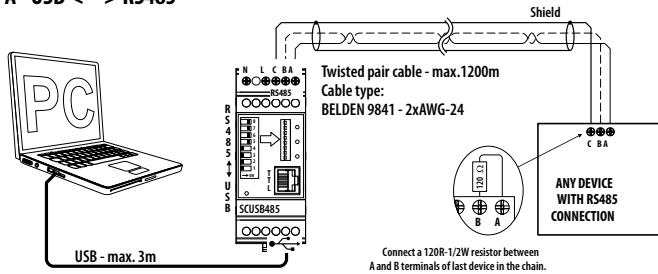
Technical data		
Supply voltage AC -15/+10 %	V ~	230
Nominal Frequency	Hz	50 - 60 (range 47 - 63)
Power consumption (max. AC)	VA	0,5
Serial Interface	-	1 USB + 1 RS-485
Protocol Type	-	Owner - Modbus RTU - ASCII
Baud Rate	kbit/s	≤ 115,2
Max device connection (TTL/RS-485)	V ~	1...99
Working temperature	°C	-10 /+50
Storage temperature	°C	-30 /+70
Electrical Insulation (USB_TTL/RS485)	kV	1
Electrical Insulation (N_L/RS485)	kV	3
Oversvoltage Category	-	II
Protection degree	IP	20
Pollution degree	-	2
Relative Humidity w/o cond.	RH %	95
Altitude up to	m	200
Weight	g	95
Dimensions	mm	90 x 36 x 63,4
Standards	-	2006/95/EC, 2004/108/EC

## DIP-switch configuration

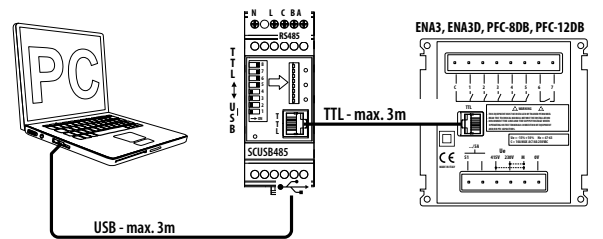


## Wiring Diagrams

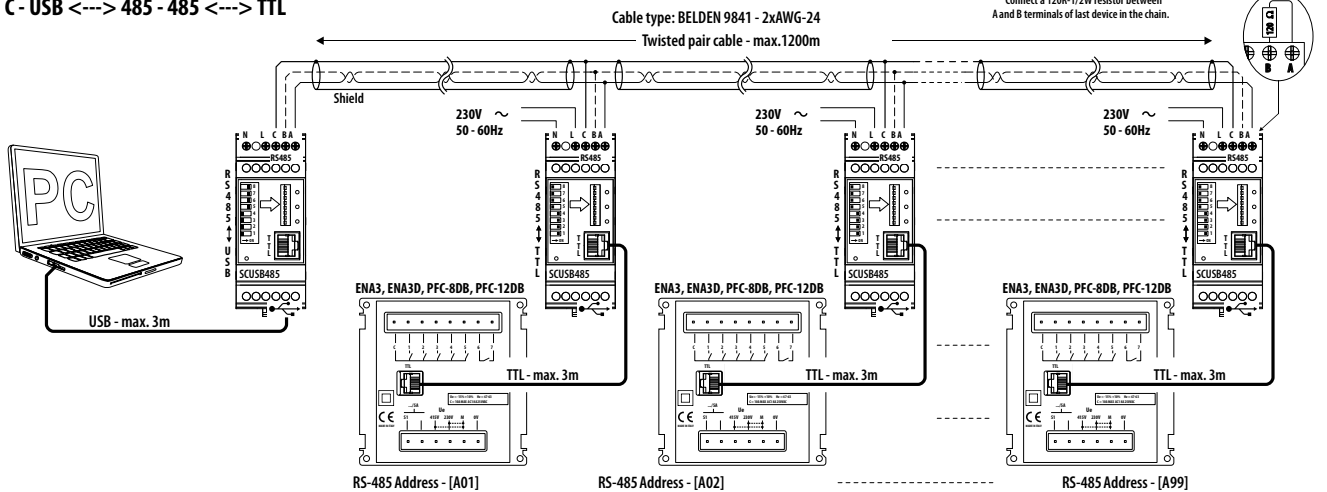
### A - USB <---> RS485



### B - USB <---> TTL

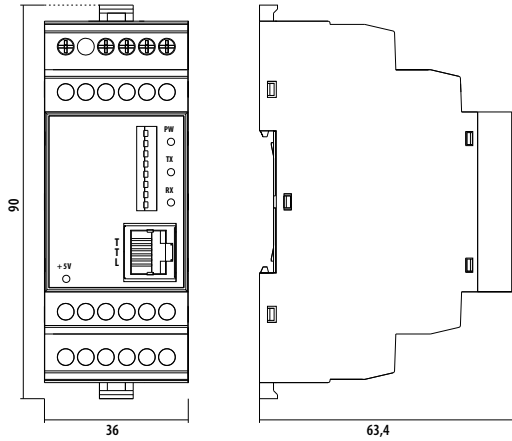


### C - USB <---> 485 - 485 <---> TTL



Download Software and Driver on Website: [www.etigroup.eu/support](http://www.etigroup.eu/support)

Dimensions

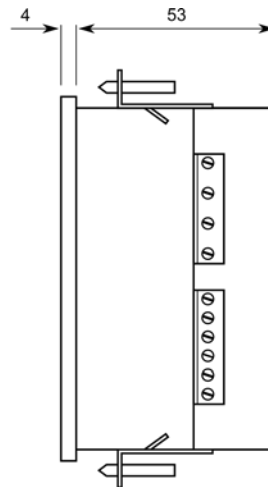
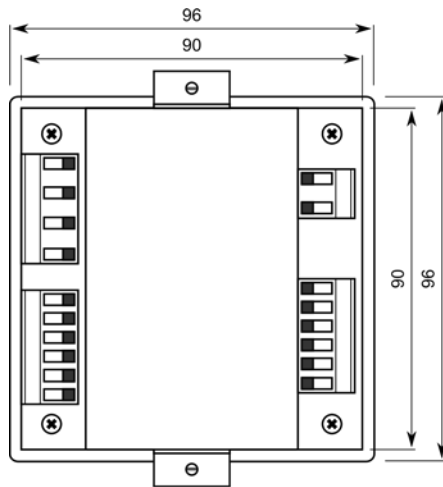


Universal Analyser (ENALCD33)

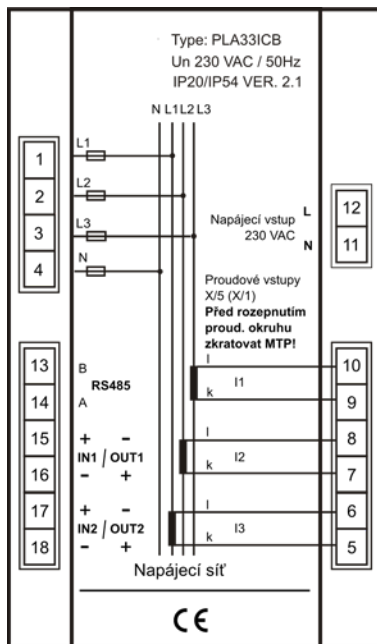
Measured parameters

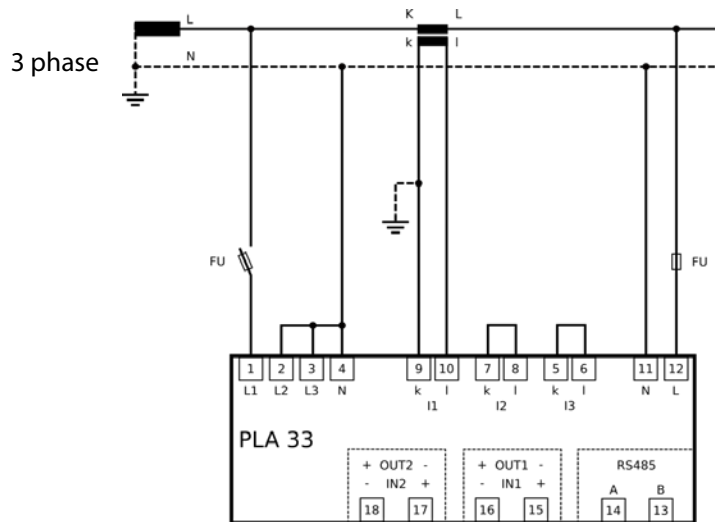
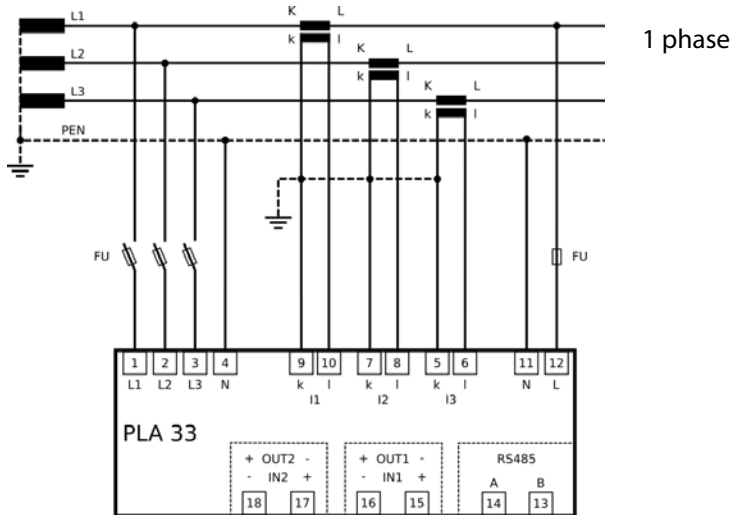
Parameter	L1	L2	L3	N	L1-2	L2-3	L3-1	∑L1-3	AVG	AVG <sub>max</sub>	AVG <sub>min</sub>	Measuring range	Displayed range	Accuracy
Phase voltage (L-N)	•	•	•						•	•	•	10 ... 300 V	0 V ... 180 kV	±0.5 %
Line voltage (L-L)					•	•	•		•	•	•	10 ... 520 V	0 V ... 312 kV	±0.5 %
Frequency	•								•	•	•	40 ... 70 Hz	40 ... 70 Hz	±50 mHz
Current	•	•	•						•	•	•	0.01 ... 6 A	0 ... 7.5 kA	±0.5 %
Current in neutral calculated				•					•	•	•	-	0 ... 7.5 kA	±0.5 %
Cosφ	•	•	•						•	•	•	0.01 <sub>L</sub> ... 0.01 <sub>C</sub>	0.01 <sub>L</sub> ... 0.01 <sub>C</sub>	±1 %
Power factor								•	•	•	•	0.01 <sub>L</sub> ... 0.01 <sub>C</sub>	0.01 <sub>L</sub> ... 0.01 <sub>C</sub>	±1 %
Voltage THD (THDU L-N)	•	•	•						•	•	•	0 ... 99.9 %	0 ... 99.9 %	±5 %
Current THD (THDI)	•	•	•						•	•	•	0 ... 99.9 %	0 ... 99.9 %	±5 %
Harmonics U, odd up to 19 <sup>th</sup>	•	•	•						•	•	•	0 ... 99.9 %	0 ... 99.9 %	±5 %
Harmonics I, odd up to 19 <sup>th</sup>	•	•	•						•	•	•	0 ... 99.9 %	0 ... 99.9 %	±5 %
Apparent power (S)	•	•	•					•	•	•	•	0 ... 5.4 kVA	0 ... 999 MVA	±0.8 %
Active power (P <sub>±L</sub> )	•	•	•					•	•	•	•	0 ... 5.4 kW	0 ... 999 MW	±0.8 %
Reactive power (Q <sub>±L</sub> )	•	•	•					•	•	•	•	0 ... 5.4 kVAr	0 ... 999 kVAr	±1 %
Active energy +/-								•				0 ... 9 999 999 kWh	0 ... 9 999 999 kWh	class 1
Inductive energy +/-								•				0 ... 9 999 999 kVArh	0 ... 9 999 999 kVArh	class 1*
Capacitive energy +/-								•				0 ... 9 999 999 kVArh	0 ... 9 999 999 kVArh	class 1*
Supply voltage interruptions												< 1 s	< 1 s	
Operating hour counter														

Dimensions



Wiring Diagrams

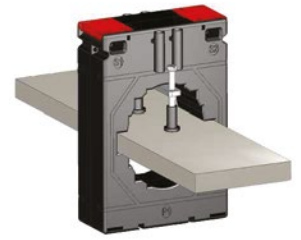
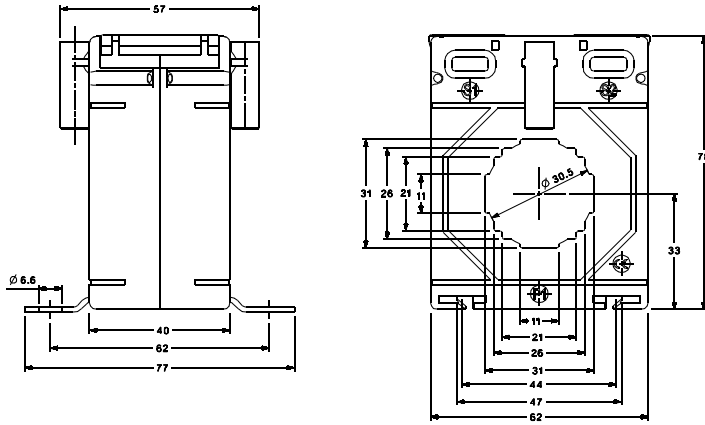




## Metering Current transformers

Technical data	
Applicable Standard	IEC 61869, IEC/EN 60044-1, BS 3938
Case	10% glass filled polycarbonate, flame retardant grades classified UL 94V-0
Insulation Class	E (120°C max.)
System voltage	720V max.
Test Voltage	
For Ring (Window) type CT	4kV 50 Hz / 1 min.
For Wound type er	3kV 50Hz / 1 min.
Operating frequency	50Hz or 60Hz Rated Primary rating:- 1A to 7500A
Rated secondary output	5A standard (1A on request)
Ambient temperature	-20°C ... +45°C
Storage temperature	-50°C ... +80°C
Thermal short circuit current (I <sub>th</sub> )	60 x I <sub>n</sub> for Busbar type
Dynamic short circuit current (I <sub>dyn</sub> )	2.5 x I <sub>n</sub>

Dimensions



Busbar mounting



Wall mounting

Current Transformers (LV Indoor Application)

Accuracy Class	+ / - percentage current (ration) error at percentage of rated current shown below				+ / - phase displacements at percentage of rated current shown below							
					Minutes				Centiradians			
	5	20	100	120	5	20	100	120	5	20	100	120
0.10	0.40	0.20	0.10	0.10	15	8	5	5	0.45	0.24	0.15	0.15
0.20	0.75	0.35	0.20	0.20	30	30	10	10	0.90	0.45	0.30	0.30
0.50	1.50	0.75	0.50	0.50	90	90	30	30	2.70	1.35	0.90	0.90
1	3	1.5	1	1	180	180	60	60	5.40	2.70	1.80	1.80

Limits of Current error and phase displacements for measuring current transformers (for special application)

Accuracy Class	+ / - percentage current (ration) error at percentage of rated current shown below					+ / - phase displacements at percentage of rated current shown below									
						Minutes					Centiradians				
	1	5	20	100	120	1	5	20	100	120	1	5	20	100	120
0.2S	0.75	0.35	0.20	0.20	0.20	30	15	10	10	10	0.90	0.45	0.30	0.30	0.30
0.5S	1.50	0.75	0.50	0.50	0.50	90	45	30	30	30	2.70	1.35	0.90	0.90	0.90

Limits of Current error and phase displacements for measuring current transformers (Class 3 and 5)

Accuracy Class	+ / - percentage current (ration) error at percentage of rated current shown below	
	Current Error	Phase Displacement
3	3	3
5	5	5

Limits of phase displacement are not specified for class 3 and 5.

Limits of current error and phase displacements for Protection Class CT (5P and 10P)

