

Technical Catalogue

DIGITAL METERS



Introduction

Brief History:

The Company was originally started as Wintek Electricals Pvt. Ltd. company as a Joint Venture with a German company in the year 2005. Thus the journey of Wintek Electricals Pvt Ltd began with a blend of technical expertise from Germany and India. With technical collaboration between the two, innovations were introduced which speak for themselves even today. With increasing demand for quality Transformers in the Indian Market, it was the need of the hour to cater to the needs of Indian market which had a large potential which was increasing twofold every month. Accordingly the bold step had to be taken and finally a completely independent company "Newtek Electricals" was formed in the year 2007 with the sole intention of introducing International Standard CTs in the Indian Market.

About Us:

We Newtek Electricals introduce ourselves as manufacturer of Instrument Transformers (CTs, PTs, COTR, MV etc.), Digital Meters (VAF, MFM, kWh, Ammeter & Voltmeter And Demand controller). Newtek Electricals is an ISO 9001:2015 certified. We are the first one to introduce Nylon Flame Retardant Casing Current Transformers(CTs).

Our product is been used in many prestigious projects in India as well as in other countries. The company has established its reputation within a short period as an innovative leader and quality manufacture by continuously upgrading technology, modernizing and manufacturing facilities and maintaining highest standards of quality and services.

Our Quality Concept:

We are dedicated towards upgrading the quality of Instrument transformers and digital meters. We share your high demands on quality, technical proficiency and services. These demands are an integral part of our company and serves as a constant reminder of tasks that we have taken as our responsibility. Every time we complete a job, we have improved our quality and that is what we are constantly striving to do.

All transformers are thoroughly tested during manufacturing process for any defects so that we can give guarantee to you to receive a quality product. Apart from all these our CTs and Meters are approved by CPRI (Central Power Research Institute, Bhopal) and ERDA (Electrical Research Development Association, Vadodara), respectively.

Domestic Customers



Overseas Customers



End Customers



Consultants

IPS Mehtalia, Ahmedabad, Mumbai	Jhaveri Associates, Ahmedabad	VMS Engineering Consultants, Ahmedabad
Electromech Consultants (EMC Thane), Mumbai	INI Infrastructure and Engineering, Ahmedabad	Mitcon Consultants, Pune
Sijcon Consultants, Ahmedabad	Apikore Consultants, Ahmedabad	Designtech Consultants, Ahmedabad
SMPS Consultants, Ahmedabad	Delta Associate Engineering, Ahmedabad	Ingsophy Consultants, Ahmedabad
Mot MacDonald, Ahmedabad	Synergy Infra Consultants, Hyderabad	ESPIC Consultants, Indore
ESKAYME Consultants, Mumbai	Doshi Consultants, Indore	Vikas Joshi Associates, Mumbai
Aevitas Agro phrama, Mumbai	Ajit kulkarni Consultants, Mumbai	UBTECH Consultants, Mumbai
Technolutions, Mumbai	Technogroup Consultants, Mumbai	Shroff Associates, Mumbai
Semac Consultants, Mumbai	Chettiar Consultants, Mumbai	Arnita Consultants, Mumbai
Unik Engg Services, Mumbai	MEP Consultants, Mumbai	HOSMAC Hospital Consultants, Mumbai
Elomatic, Mumbai	APT Sammraddhi Consultants, Pune	NEIL SOFT, Pune
Safal Consultant, Pune	ICL Consulting, Pune	ESBEE power solutions, Pune
JP Mukherjee and Associates, Pune	Abhiyanta Electricals, Pune	S N JOSHI CONSULTANTS, Pune
VasantDada Sugar Institute, Pune	Vidyut SALLAGAR, Pune	Natekar Associates, Pune
N M Devdhar Consultants, Pune	Zopate Consultants, Pune	Arsh Consultants, Mumbai
Unique Consultant Services, Pune /Sangali	Fourth Dimension group Consultants, Pune	ElectroMech Engineers Associates (EMEA), Pune
Bhamre Consultant, Nasik	VL Limaye Consultants, Sangali	B E Kushare & Associate, Nasik

Projects

Steel Project

1. BSPL, Bhilai
2. JSW Steel, (Bellary, Dolvi)
3. JSPL, Tamnar
4. BSRM ,Bangladesh
5. Sohar Steel, Oman
6. Electrosteel Steels Ltd, Bokaro
7. SLR Metalliks, Hospet
8. Kalyani Garuda, Raichur
9. Durgapur Steel Plant
10. Vedanta Steel

Industrial

1. Jaibhavani Mata Engitech, Pune
2. DMIC, Aurangabad
3. Schaeffler, Pune
4. Bridgestone Tyres, Pune
5. Sigma Electric, Pune
6. Jay tank and vessel Pvt Ltd, Pune
7. Perkins India Pvt. Ltd., Aurangabad
8. Endurance Technologies Ltd.
9. LG Electronics, Ho Chi Minh
10. Daikin, Ho Chi Minh

Sugar

1. Enpro Sugars, Rohtak
2. Daund Sugars, Rohtak
3. Renuka Sugars, Brazil
4. Mumias Sugar, Kenya
5. Shiraguppe Sugar, Rohtak
6. Mylar Sugars, Bangalore
7. White Nile Mill House, Sudan
8. Narmada Sugar, Gujrat
9. Siddheswar Sahakari Sakhar Karkhana, Solapur.

Power Segment

1. Adani, Baroda
2. JSPL, Tamnar
3. BARC, Tarapur
4. Banjrang power, Raipur
5. LVDCO_Micro Grid, Vadodara
6. Adani Power, Andhra Pradesh
7. TATA Power, Mumbai
8. Duragapur Steel Thermal Power Station, Durgapur

IT

1. Mahindra Satyam
2. Cyber City, Hyderabad
3. Cybermotion, Hyderabad
4. TCS Yantra Park, Mumbai
5. Wipro Data Center, Hyderabad
6. Trinity Software Solution, Hyderabad
7. KPMG, Pune
8. Shell IT Centre, Bangalore
9. Intel, Ho Chi Minh

Pharmaceuticals

1. Mylan Ltd, Hosur
2. Emami Limited, Mumbai
3. Almelo Chemicals, Hyderabad
4. MSN Laboratories, Hyderabad
5. GlaxoSmithKline, Chandigarh
6. Ranbaxy, Chandigarh
7. Sun Pharma, Vadodara
8. Macleods Pharma, Daman
9. Lupin, Indore

Petroleum

1. HPCL, Sugauli
2. Indian Oil Tank, Bhogat
3. IOCL, Ennore, Chennai
4. IOCL, Trisundi
5. BPCL, Mumbai
6. JBF Petrochemicals Ltd, Mangalore
7. TEXOL IOCL - Anaka Schalttafel, Faridabad

Textile

1. Welspun India Ltd
2. Bhilosa, Silvasa
3. Mathura Inds, Valsad
4. Creative Textile, Balitha
5. Santham Textile, Silvasa
6. Yashwant Sahakari Soot Girni, Ambad
7. Nirmal Textile, Nagpur
8. Dwarka Textile Park , Solapur

Automobile

1. Spicer india, Pune
2. Era Engineering, Pune
3. Taikishai Engineering Pvt Ltd, Pune
4. Mahindra Vehicle, Chakan
5. Woco Motherson, Gandhidham
6. Cooper Corporation Pvt Ltd, Satatra
7. Speciality Sintered products Pvt Ltd, Pune

Chemical

1. Akry Chemicals, Tarapur, Mumbai
2. IG petrochem, Taoja , Mumbai
3. Naq Global pvt ltd, Mahad
4. Hikal Ltd, Bangalore, Hyderabad
5. BSCPL Project, Solapur

Cement Project

1. ACC Cement, Vizag
2. Century Cement, Raipur
3. Birla Cement, Chittorgarh
4. Aditya Cement, Chittorgarh
5. Shrinivasa Cement Industries

Hotel

1. Grand View park
2. Hotel Grand Haytt, Goa
3. Le Meridien, Coimbatore
4. Hotel Lotus Midtown, Mumbai
5. AIIMS, Delhi

Metro

1. Chennai Metro Rail Ltd, Chennai
2. Bengaluru Metro Rail Ltd, Bengaluru
3. Hyderabad Metro Rail Ltd, Hyderabad
4. Kochi Metro Rail Ltd, Kochi
5. Nevi Mumbai Metro, Mumbai
6. Nagpur Metro, Nagpur

Malls

1. Patna Malls, Patna
2. Footpark Mall, Indore
3. Lotus Mall, Bangalore
4. Magarpatta Mall, Pune
5. Shoppers Stop, (Mumbai, Bhopal)
6. Best Price, Aurangabad

Shipyards

1. Cochin Shipyards, Cochin
2. Bharti Shipyards, Mumbai
3. Hindustan Shipyards, Vizag
4. ABG Shipyards, Cochin
5. Goa Shipyards, Vosco Da Gama

Government

1. MTRDC, Bhopal
2. PWD, Bhopal
3. BHEL Site Office, Ranchi

Electricity Board

1. TNEB Cogen, Chennai
2. CSPDCL
3. MPMKVVCL, Bhopal & Gwalior

Educational

1. Auto power gen Systems Pvt Ltd Pune
2. SterlingWilson, Pune

Beverages

1. Coca Cola, Varanasi
2. Carlsberg, Aurangabad

Automotive

1. LunarEnterprisesPvtLtd, Pune
2. SaiServicespvtLtd, Vasai

Agro

1. Sahaydri Farm House Cold storage
2. Kalya Exports(Grapes) Cold storage

Infrastructure

1. Cinepolis, Patna
2. Magarpatta City, Pune
3. Bagmane Garnet, Bangalore
4. Mantri Developers, Bangalore
5. Arshiya International Ltd,
6. Mumbai Int Airport, Mumbai
7. Sungard Solutions Pvt Ltd, Mumbai
8. K. Raheja Corp.
9. Lodha Group, Mumbai
10. Runwal Bliss, Mumbai
11. Synergy Infra consultants-new building, Hyderabad

Telecom

1. Reliance JIO, Mumbai
2. Reliance Communication, Mumbai
3. Reliance 4G, Mumbai
4. Tata Communication, Bangalore

Submarine Project

1. VALE Project, Brazil

Defence

1. HAL Bangalore

Banking

1. ICICI Bank, Chandivali
2. Bank of India, Mumbai
3. Deutsche Bank, Mumbai
4. SBI Data Center, Hyderabad

Energy

1. Alstom, Vadodara
2. Bharat Bijli, Airoli
3. Cummins, Pune
4. Kirloskar, Saswad
5. Haldia Energy ltd

Product Range

VAF Meter *Neo* series

Neo 322



◆ Standard Features

- 96 mm X 96 mm DIN Quadratic
- **3 Line - 3 Digit LED display**
- True RMS measurement up to 15th Harmonic
- **Onsite programmable:** 3 phase 4 wire/3wire /2 wire, CT /PT Primary, CT Secondary 1A or 5A, PT Secondary (100VLL to 500VLL)
- Compact depth (54mm)
- Screw type i/p current termination

◆ Parameters for VAF Meter

- **Basic** : V, I, Hz
- **System** : RPM, Run-hour
- **Unbalance in %** : V, I

◆ Technical Specifications

- **Input Voltage** : 10 –290V L-N (500VLL)
- **Frequency** : 45 to 65 Hz
- **Current** : 1A or 5A
- **AUX supply** : 230 VAC, ± 20%
- **Accuracy** : Class 1.0, Optional: Class 0.5
- **Operating Temperature range** : 0 to +50degC
- **Enclosure** : Front - IP54 (Dust & Water)
Back- IP20
Material-Polycarbonate (UL94 V0)
- **High voltage test** : 2.2 kVAC 50Hz for 1 minute between all electrical Circuits

Neo 322-60 A



◆ Unique Features

- Direct Measurement of current up to 60 A AC.
- Eliminating the need of an external CT.

◆ Standard Features

- 96 mm X 96 mm DIN Quadratic
- **3 Line - 3 Digit LED display**
- True RMS measurement up to 15th Harmonic
- **Onsite programmable:** 3 phase 4 wire/3wire/2 wire, PT Primary, PT Secondary (100VLL to 500VLL)

◆ Parameters for VAF Meter

- **Basic** : V, I, Hz
- **System** : RPM, Run-hour
- **Unbalance in %** : V, I

◆ Technical Specifications

- **Input Voltage** : 10 –290V L-N (500VLL)
- **Frequency** : 45 to 65 Hz
- **Current** : 60A
- **AUX supply** : 230 VAC, ± 20%
- **Accuracy** : Class 1.0, Optional: Class 0.5
- **Operating Temperature range** : 0 to +50degC
- **Enclosure** : Front - IP54 (Dust & Water)
Back- IP20
Material-Polycarbonate (UL94 V0)
- **High voltage test** : 2.2 kVAC 50Hz for 1 minute between all electrical Circuits
- **length of secondary CT Wire** : 1.6 Meter

Neo 322E



◆ Features

- **Screw Type connectors:** *Neo 322E*
- **Input Current Connections of *Neo 322E* :**
Screw type connectors are available for input current termination

◆ Standard Features

All standard features of *Neo 322* are applicable for *Neo 322E*

◆ Technical Specifications

All Technical specifications of *Neo 322* are applicable for *Neo 322E*

◆ Parameters for VAF Meter

Basic : V, I, Hz
Energy : kWh

Neo 323



◆ Unique Features

- **Pass through CT:**
Protection Against accidental opening of secondary terminals of external C.T.
- Compact depth even with optional features (61 mm)

◆ Standard Features

- 96 mm X 96 mm DIN Quadratic
- **3 Line - 4 Digit LED display**
- True RMS measurement up to 15th Harmonic
- **Onsite programmable:** 3 phase 4 wire / 3 wire/2 wire, CT /PT Primary, CT Secondary 1A or 5A, PT Secondary (100VLL to 500VLL)

- **Optional Features:** Up to 2 Relay outputs (As Limit switch).

◆ Technical Specifications

- **Input Voltage** : 10 –290V L-N (500VLL)
- **Frequency** : 45 to 65 Hz
- **Current** : 1A or 5A
- **AUX supply** : 80– 300V AC/DC
- **Accuracy** : Class 1.0, Optional: Class 0.5
- **Operating Temperature range** : 0 to +50degC
- **Applicable Standards** : IEC 61010 , IEC60529, IEC 61326
- **Enclosure** : Front - IP54 (Dust & Water)
Back- IP20
Material-Polycarbonate (UL94 V0)
- **Installation category** : III
- **Pollution Degree** : 2
- **High voltage test** : 3.3 kVAC 50Hz for 1 minute between all electrical Circuits (2.2 kVAC for Relay)

◆ Parameters for VAF Meter

- **Basic** : V, I, Hz
- **System** : RPM, Run-hour, On-hour, Interruptions

MFM Meter *Ace* series

♦Unique Features of *Ace* series :

- **Pass through CT:**
Protection against accidental opening of secondary terminals of external C.T.: *Reliable Current Connections*
- Analog load bar graph for indicating average current in %: *Shows trend of average load current in analog fashion*
- Energy Pulse LED on front Panel : *Verification of energy accuracy*
- Communication LED for MODBUS (RS 485) on Front Panel: *For Monitoring Status of MODBUS communication*
- Compact depth even with optional features (61mm) : *Reduced Panel Size & hence cost saving*

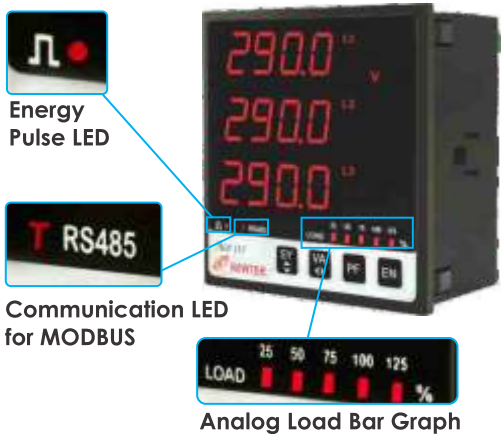
♦Standard Features of *Ace* series :

- 96 mm X 96 mm DIN Quadratic/ 3 Line –4 Digit LED Display
- True RMS measurement up to 15th Harmonic
- Onsite programmable: 3 phase 4 wire / 3 wire/2 wire ,CT /PT Primary, CT Secondary 1A or 5A , PT Secondary (100VLL to 500VLL)

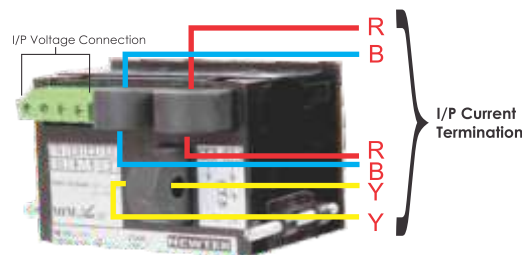
♦Technical Specifications of *Ace* series :

- **Input Voltage** : 10–290V L-N (500VLL)
- **Frequency** : 45 to 65 Hz
- **Current** : 1A or 5A
- **AUX supply** : 80–300V AC/DC
- **Accuracy** : Class 1.0 Optional: Class 0.5
- **Operating Temperature range:** 0 to +50degC
- **Applicable Standards** : IEC 61010 , IEC60529, IEC 61326
- **Enclosure** : Front-IP54 (Dust & Water)
Back-IP20
Material— Polycarbonate (UL94V0)
- **Installation category** : III
- **Pollution Degree** : 2
- **High voltage test** : 3.3 kVAC 50Hz for 1 minute between all electrical Circuits (2.2kVAC for Modbus & Relay)

Unique Features of *Ace* series :



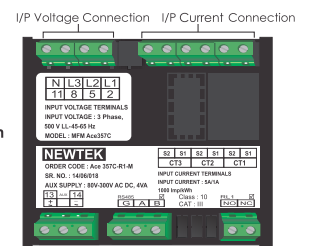
Pass through CT:



I/P Current termination for *Ace* 353, 354, 354M, 355, 355F, 357, 357D, 357T, 357TH, 357TDC, 357THDC, 360, 360TH, 3E1, 3E1D, 3E2, 3E2D, *Neo* 323.

Compact depth even with optional features = 61mm

Screw Type:



I/P Current termination for *Ace* 353C, 354C, 354MC, 355C, 355FC, 355C Plus, 357C, 357TC, 357CR4, 357THC, 3E1C, 3E2C, *Neo* 322, *Em8*

Compact depth even with optional features = 54 mm

Ace 353/353 C



♦ Parameters

- **Basic** : V, I, Hz
- **Power** : kW, PF
- **System** : RPM, Run-hour

♦ Optional Features

- A) MODBUS (RS-485)
- B) 1 Relay output (As Limit switch)
- C) Screw type connectors are available an *Ace* 353C for input current terminals. Compact depth = 54mm

Ace 354/354C/354M/354MC



♦ Parameters

- **Power** : kW, kVA, kVA, PF
- **Energy** : kWh(354/354C/354M/354MC)
kVAh, kVAh(354M/354MC)

♦ Optional Features

- A) MODBUS (RS-485)
- B) 1 Relay output (As Pulse or Limit switch)

Ace 355/355C/355F/355FC



♦ Parameters

- **Basic** : V, I, Hz (355/355C)
- **Power** : kW, PF
- **Energy** : kWh
- **System** : RPM, Run-hour
- **Unbalance in %** : V, I
- **Event Counter**

♦ Optional Features

- A) MODBUS (RS-485)
- B) 1 Relay output (As Pulse or Limit switch)

Ace 355C Plus



♦ Parameters

- Basic** : V, I, Hz
- Power** : kW/ kVA/ kVA (Optional), PF, ϕ , In
- Energy** : kWh/ kVAh/ kVAh (Optional)
- System** : RPM, Run-Hour, On-Hour, Interruption
- Unbalance in %** : V, I

♦ Optional Features

- A) MODBUS (RS-485)
- B) 1 Relay output (As Pulse or Limit switch)

Note: In *Ace* 355F & 355FC System Power will be displayed in the 3rd row when SY Key is Pressed first time & frequency is disable.

Ace 357



♦ Parameters

- **Basic** : V, I, Hz
- **Power** : kW, kVA, kVA, PF, ϕ , In
- **Demand** : I, kW, kVA
- **Energy** : kWh, kVAh, kVAh
- **System** : RPM, Run-hour, On-hour, Interruptions

- **Unbalance**
in % : V, I
- **Net energy (kWh)**

♦ Optional Features

- A) MODBUS (RS-485)
- B) Up to 2 Relay outputs (As Pulse or Limit switch)

Note: Net Energy and Voltage & current unbalance not available in meter with 2 relay outputs.

Ace 357C



♦ Features

- **Screw Type connectors:**
Input Current connections of Ace 357C : Screw type connectors are available on Ace 357C for input current terminations.

♦ Parameters

All parameters of Ace 357 are applicable for Ace 357C

♦ Optional Features

- A) MODBUS (RS-485)
- B) 1 Relay output (As Pulse or Limit switch)

Ace 357D



♦ Features

- Direct Measurement of Current up to 40A AC
- Max Value for direct current measurement programmable on site from 5A to 40A

♦ Parameters

All parameters of Ace 357 are applicable for Ace 357D

♦ Optional Features

- A) MODBUS (RS-485)
- B) Up to 2 Relay outputs (As pulse or Limit Switch)

Ace 357CR4



♦ Features

- kVAh lag and kVAh lead available as per required by MSEB.
- It shows average PF over period of time as per new MSEB formula.
- Instantaneous and avg PF are available with more accuracy i.e. three digit after decimal.
- User can set target PF as per their requirement capacitance in kVA to achieve target PF.

♦ Parameters

- Basic** : V, I, Hz
- Power** : kW, kVA, kVA, PF, ϕ , In
- Demand** : I, kW, kVA
- Energy** : Total kWh, Total kVAh, kVAh lag, kVAh Lead, kVAh.
- System** : RPM, Run-Hour, On-Hour, Interruption

♦ Optional Features

- A) MODBUS (RS-485)
- B) 1 relay output (as pulse or limit switch)

Ace 357T/TC



♦ Parameters

- **Basic** : V, I, Hz
- **Power** : kW, kVA, kVA, PF, ϕ , In
- **Demand** : I, kW, kVA
- **Energy** : kWh, kVAh, kVAh

• Power Quality Parameters :

- THD in % : V, I
- Harmonic Voltage** : Total, fundamental, Distorted
- Harmonic Current** : Total, fundamental, Distorted
- Total Demand Distortion in %**
- K-factor (Harmonic Factor)**

♦ Optional Features:

- A) MODBUS (RS-485)
- B) Up to 2 Relay outputs (As Pulse or Limit switch) for 357 T.
- C) 1 Relay for 357 TC

- **System** : RPM, Run-hour, On-hour, Interruptions
- **Unbalance in %** : V, I

Ace 357TH/THC



♦ Parameters

- **Basic** : V, I, Hz
- **Power** : kW, kVA, kVA, PF, ϕ , In
- **Demand** : I, kW, kVA
- **Energy** : kWh, kVAh, kVAh

• Power Quality Parameters :

- THD in % : V, I
- Harmonic Voltage** : Total, fundamental, Distorted
- Harmonic Current** : Total, fundamental, Distorted
- Total Demand Distortion in %**
- K-factor (Harmonic Factor)**
- Individual odd Harmonics** : V, I (3rd, 5th...15th) in %

- **System** : RPM, Run-hour, On-hour, Interruptions
- **Unbalance in %** : V, I

♦ Optional Features:

- A) MODBUS (RS-485)
- B) Up to 2 Relay outputs (As Pulse or Limit switch) for 357 TH.
- C) 1 Relay for 357 THC

Demand Controller

Ace 357TDC



Demand Controller (two relay) with THD measurements and modbus

♦ Parameters

All parameters as per Ace 357T/357TC

- **Current Demand:** Instantaneous, Maximum and Predictive
- **kVA Demand:** Instantaneous, Maximum and Predictive
- **kW Demand:** Instantaneous, Maximum and Predictive

♦ Inbuilt Features

- Inbuilt modbus communication port and 2 relay for demand control

Ace 357THDC



Demand Controller (2 relay) with THD measurements & individual odd Harmonics upto 15th & Modbus

♦ Parameters

All parameters as per Ace 357TH/357THC

- **Current Demand:** Instantaneous, Maximum and Predictive
- **kVA Demand:** Instantaneous, Maximum and Predictive
- **kW Demand:** Instantaneous, Maximum and Predictive

♦ Inbuilt Features

- Inbuilt modbus communication port and 2 relay for demand control

Ace 360/ 360TH



♦ Standard Features

- 4-Line 4-Digit LCD Display and with one eight digit line
- contrast back light (Digit Height 14mm)
- 8-digit single line separate Energy display: User can monitor kWh/kVAh/kVAh
- Onsite programmable: 3 phase 4 wire / 3 wire, 1phase 2 wire, CT/PT Primary, CT Secondary 1A or 5A, PT Secondary (100VLL to 600VLL)
- Password Protected

♦ Unique Features

- Pass through CT
- Digital load bar graph on LCD display for individual load current.
- Communication Indication for MODBUS (RS 485) on LCD Display.

♦ Parameters

- **Basic** : V, I, Hz
- **Power** : kW, kVA, PF, ϕ , In
- **Demand** : I, kW, kVA
- **Energy** : kWh, kVAh, kVAh
- **System** : RPM, Run-hour, On-hour, Interruptions
- **Unbalance** : in %V, I
- **Display Type** : LCD Display with back light
- **Display** : 4 row 4 digits and 1 Row with Eight Digits Line Display

♦ Optional Features

- MODBUS (RS-485)

♦ Technical Specifications

- **Operating Temperature Range** : -10 to 55°C

♦ Power Quality Parameter(Ace 360TH)

- **THD in %** :V, I
- **Individual odd harmonics** : V, I (3rd, 5th,...31st) in %

Energy Meter

Neo EM3

Neo EM3 is a dedicated panel mounted energy meter with single line **6 digit** LED display which accumulates Active energy in 3 phase 4 wire, 3 phase 3 wire & 1 phase 2 wire



♦ Parameters for through Display

- Active Energy (kWh)
- Old Active Energy (kWh)
- Energy Billing in Specified Currency

♦ Unique Features

- Analog load bar graph for indicating average current in %
- Compact depth (54mm)

♦ Standard Features

- 96 mmX96 mm DIN Quadratic
- **Single line 6 Digit LED Display**
- True RMS measurement up to 15th Harmonic
- Energy Pulse LED on front Panel : 1000 imp/kWh (Meter constant)
- Onsite programmable : 3 phase 4 wire / 3 wire / 2 wire, CT /PT Primary , CT Secondary 1A or 5A , PT Secondary (100VLL to 500VLL).
- Indication for healthy phases
- Indication for reverse (**Irev**)
- Screw type i/p current termination

♦ Technical Specifications

- **Input Voltage** : 10 –290V L-N (500VLL)
- **Frequency** : 45 to 65 Hz
- **Current** : 1A or 5A
- **AUX supply** : 230 VAC, \pm 20%
- **Accuracy** : Class 1.0, Optional: Class 0.5
- **Operating Temperature range** : 0 to +50degC
- **Enclosure** : Front - IP54 (Dust & Water) Back- IP20 Material-Polycarbonate (UL94 V0)
- **High voltage test** : 2.2 kVAC 50Hz for 1 minute between all electrical Circuits

Neo EM3-60



♦ Parameters for through Display

- Active Energy (kWh)
- Old Active Energy (kWh)
- Energy Billing in Specified Currency

Neo EM3 With direct measurement up to 60A is a dedicated panel mounted energy meter with single line **6 digit** LED display which accumulates Active energy in 3 phase 4 wire.

♦ Unique Features

- Direct measurement of current upto 60A AC. Eliminating the need of an external CT for measurement
- Analog load bar graph indicating avg. current in %

♦ Standard Features

- 96 mmX96 mm DIN Quadratic
- **Single line 6 digit LED Display**
- True RMS measurement up to 15th harmonic.
- **Energy Pulse LED on front Panel** : 300 Imp/kwh (Meter Constant)
- **Onsite Programmable** : PT Primary, PT Secondary (100VLL to 500VLL)
- indicating for healthy phase
- Indication for reverse (**Irev**)

♦ Technical Specifications

- **Input Voltage** : 10-290V L-N (500VLL)
- **Frequency** : 45 to 65 Hz
- **Current** : 60 A AC
- **AUX Supply Accuracy** : 230 VAC, +/- 20% : Class 1.0
- **Operating Temperature Range** : 0 to +50 C : Front-IP54 (dust & Water) back-IP20 Material-Polycarbonate (UL94 V0)
- **Enclosure**
- **High Voltage Test** : 2.2kVAC 50 Hz for 1 min between all electrical Circuits.
- **length of secondary CT Wire** : 1.6 Meter

Energy Meter

Ace 3E1 / 3E1C



Ace 3E1 is a dedicated panel mounted energy meter with single line 8 digit LED display which accumulates Active energy in 3 phase 4 wire, 3 phase 3 wire & 1 phase 2 wire

♦ Unique Features

- Protection against accidental opening of secondary terminals of external C.T (Ace 3E1).
- Analog load bar graph for indicating average current in %
- Communication LED for MODBUS (RS-485) on Front Panel
- Compact depth even with optional features (61 mm)

♦ Standard Features

- 96 mm X 96 mm DIN Quadratic
- **Single line 8 Digit LED Display**
- True RMS measurement up to 15th Harmonic
- Energy Pulse LED on front Panel : 3600 imp/kWh (Meter constant)
- Onsite programmable : 3 phase 4 wire / 3 wire / 2 wire, CT / PT Primary, CT Secondary 1A or 5A, PT Secondary (100VLL to 500VLL).
- Indication for healthy phases (VoN)
- Indication for reverse (Irev)

♦ Optional Features:

- A) MODBUS (RS-485)
- B) 1 Relay output (As Pulse output)

♦ Technical Specifications

- **Input Voltage** : 10 – 290V L-N (500VLL)
- **Frequency** : 45 to 65 Hz
- **Current** : 1A or 5A
- **AUX supply** : 80– 300V AC/DC
- **Accuracy** : Class 1.0
Optional : Class 0.5
- **Operating Temperature range** : 0 to +50degC
- **Applicable Standards** : IEC 61010 , IEC60529, IEC 61326
- **Enclosure** : Front - IP54 (Dust & Water)
Back - IP20
Material - Polycarbonate (UL94V0)
- **Installation category** : III
- **Pollution Degree** : 2
- **High voltage test** : 3.3 kVAC 50Hz for 1 minute between all electrical Circuits (2.2 kVAC for Modbus & Relay)

♦ Parameters for through Display

- Active Energy (kWh)
- Old Active Energy (kWh)
- Energy Billing in Specified Currency

♦ Parameters for through MODBUS (RS-485) :

- **Basic** : V, I, Hz
- **Power** : kW, kVAr, kVA, PF, Ø
- **Energy** : kWh, kVAh, Old kWh
- Energy Billing in Specified Currency

Note: 3E1C is a Screw type Meter.

Ace 3E1D



♦ Parameters

All parameters of Ace 3E1 are applicable for Ace 3E1D.

♦ Optional Features:

- A) MODBUS (RS-485)
- B) 1 Relay output (As Pulse output)

♦ Features

Direct measurement of current up to 40A AC
Meter Constant for Pulse LED on front panel : 500 imp/kWh.

♦ Technical Specification, Unique, Standard, Optional Features :

- All Technical Specification, Unique, Standard, Optional Features of Ace 3E1 are Applicable for Ace 3E1P
- **Onsite Programmable** : 3 phase 4 wire

♦ Parameters

- **Basic** : V, I, Hz
- **Power** : kW, PF
- **Energy** : kWh

Ace 3E1P



Ace 3E2



Dual Source Energy Meter

♦ Unique Features

- Protection against accidental opening of Secondary terminals of external CT :
Reliable Current Connections
- Analog load bar graph for indicating avg. current in %
- Energy Pulse LED on front panel :
Verification of Energy Accuracy.
- Communication LED for Modbus on front Panel.
- **Reduced panel size & hence cost saving.**
- G-sense LED on front panel to indicate that Generator is ON

♦ Standard Features

- 96x96mm DIN Quadratic
- Dual line 8 Digit LED Display
- True RMS measurement up to 15th Harmonic
- Energy Pulse LED on front panel : 3600 imp/kWh (Meter Constant)
- Onsite Programmable:
3 phase 4 wire/ 3 wire/2 wire, CT/PT Primary,
CT Secondary 1A or 5A
- Indication for healthy phases (VoN)
- Indication for reverse phase (Vrev)
- Two functional keys

♦ Technical Specifications

- **Input Voltage** : 10 - 290V L-N (500VLL)
- **Frequency** : 45 to 65 Hz
- **Current** : 1A or 5A
- **AUX Supply** : 80 - 300V AC/DC
- **G. Sense input** : 20-300V AC, 10-60V DC
- **Accuracy Class** : 1.0, Optional: Class 0.5
- **Operating Temperature Range** : 0 to 50°C
- **Applicable Standards** : IEC 61010, IEC60529, IEC61236
- **Enclosure** :
Front - IP54 (Dust & Water)
Back - IP20
Material - Polycarbonate (UL 94V0)
- **Installation Category** : III
- **Pollution Degree** : 2
- **High Voltage Test** : 3.3kVAC, 50Hz for 1 minute between all Electrical Circuits (2.2kVAC for MODBUS & Relay)

♦ Parameters

- **Basic** : V, I, Hz
- **Power** : kW, kVAr, kVA, PF, φ, In
- **Energy** : kWh, kVAh, Old kWh Energy Billing in user defined Currency
- **Timing Parameters** : Run-hour, On-hour, Interruptions

Ace 3E2 has two energy counters U & G, U counter is for Utility & G counter for Generator

♦ Optional Features:

- A) MODBUS (RS-485)
- B) 1 Relay output (As Pulse output)

Ace 3E2C



♦ Parameters

All parameters of Ace 3E2 are applicable for Ace 3E2C

♦ Optional Features:

MODBUS (RS-485)

♦ Features

Input Current Connections:

- Screw type connectors are available on Ace 3E2C for Input Current terminations.

Ace 3E2D



♦ Parameters

All parameters of Ace 3E2 are applicable for Ace 3E2D

♦ Optional Features:

- A) MODBUS (RS-485)
- B) 1 Relay output (As Pulse output)

♦ Features

Input Current Connections:

- Direct measurement of current up to 40A AC
- Meter Constant for Pulse LED on front panel: 500 imp/kWh

Ammeter & Voltmeter

♦ Optional Features

- 96x96mm DIN Quadratic
- True RMS measurement up to 15th Harmonic
- Kilo indication LED
- Measurement possible when any one 1 phase is present for 3EAP and 3EVP

♦ Technical Specifications

- **Frequency** : 45 to 65 Hz
- **AUX Supply** : 80 - 300V AC/DC
- **Accuracy** : Class 1.0, Optional Class 0.5
- **Operating Temperature** : Range -10°C to +60°C
- **Enclosure** : **Front** - IP54 (Dust & Water)
Back - IP20
- **Material** - Polycarbonate (UL 94V0)
- **Installation Category** : III
- **Pollution Degree** : 2
- **High Voltage Test** : 2.2kV AC, 50Hz for 1 minute between all Electrical Circuits

Leo 1EAP



Leo 1EAP is basically a programmable Digital Ammeter which is useful for AC current measurement in 1 Phase 2 Wire system.

♦ Technical Specifications

- **Current** : 1A or 5A
- **CT ratio** : 1 to 9999 programmable on site

♦ Optional Features

- 1 Line 4 Digit LED Display
- Onsite Programmable: CT ratio
- Screw type connectors for current termination

Leo 1EVP



Leo 1EVP is basically a programmable Digital Voltmeter which is useful for AC Voltage measurement in 1 Phase 2 Wire system.

♦ Technical Specifications

- **Voltage** : 10 - 290V L-N (500VLL)
- **PT ratio** : 1 to 999 programmable on site

♦ Optional Features

- 1 Line 3 Digit LED Display
- Onsite Programmable: PT ratio
- Screw type connectors for voltage termination.

Leo 3EAP



Leo 3EAP is basically a programmable Digital Ammeter which is useful for AC current measurement in 3 Phase system.

♦ Optional Features

- 1 Line 4 Digit LED Display
- Phase Indication LED
- Onsite Programmable: 3 phase 4 wire/3 wire, CT Primary (1 to 9999A), CT Secondary (5A or 1A), Frequency (Enable/Disable), Auto Screen (Enable/Disable)
- Screw type connectors for current termination

♦ Technical Specifications

- **Current** : 1A or 5A

Leo 3EVP



Leo 3EVP is basically a programmable Digital Voltmeter which is useful for AC Voltage measurement in 3 Phase 3 Wire / 4 Wire system.

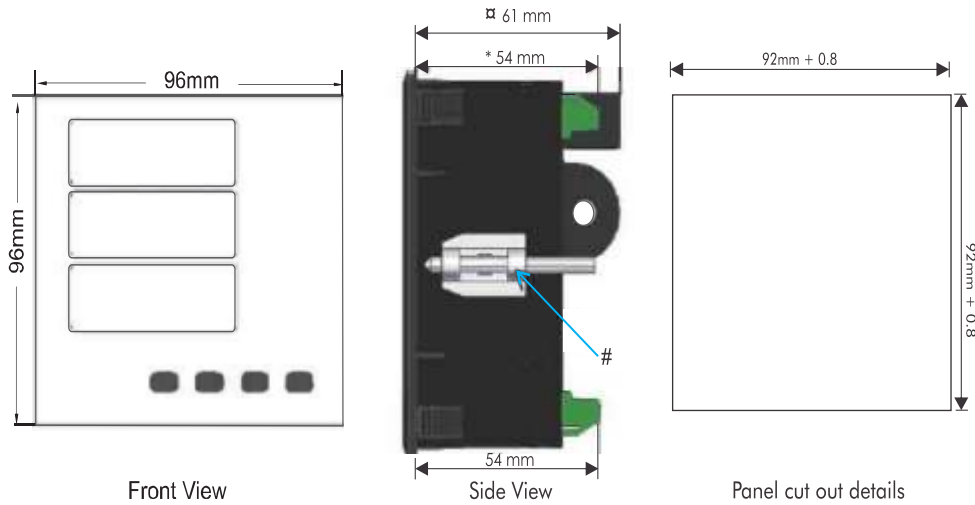
♦ Optional Features

- 1 Line 4 Digit LED Display
- Phase Indication LED
- Onsite Programmable: 3 phase 4 wire/3 wire, PT primary (100VLL to 999.9kVLL), PT Secondary (100VLL to 500VLL), Frequency (Enable/Disable), Auto Screen (Enable/Disable)
- Screw type connectors for voltage termination.

♦ Technical Specifications

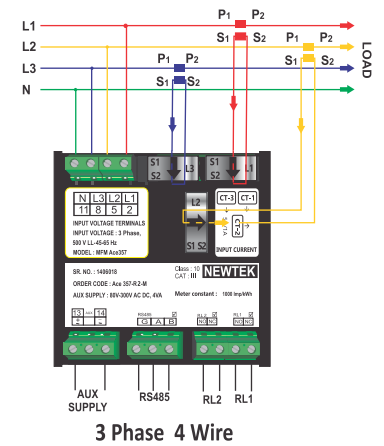
- **Voltage** : 10 - 290V L-N (500VLL)

Mounting of Meter



- # Clamping bracket assembly (2x) for secure fixing of the meter on panel.
- * Depth of screw type connector meter with optional features
- ▣ Depth of pass through CTs type meter with optional features.

Wiring Diagram



- 3 Phase 4 Wire**
- 3 Phase 3 Wire** : Connection of Neutral (N) not required
Connection of CT2 not required
- 1 Phase 2 Wire** : Connection of L2, L3 not required
Connection of CT2, CT3 not required

Meter selection guide

Specification	VAF Meter		Ammeter		Voltmeter		
Sr. No.	Characterstics	Neo 322/£ 322-60A	Neo 323	1EAP	3EAP	1EVP	3EVP
Basic Parameters							
1	VL-N(RYB)	√	√			√ (R)	√
2	VL-L(RYB)	√	√				√
3	AMP(RYB)	√	√	√ (R)	√		
4	Hz	√	√				√
5	V & I Unbal (%)	√ (322)					
Power Parameters							
1	Kw(RYB)						
2	kVAr(RYB)						
3	kVA(RYB)						
4	PF(RYB)						
5	Φ(RYB)						
6	Avg. PF (Over the period of time)						
Energy Parameters							
1	kWh	√ (322E)					
2	Old kWh						
3	E.Bill in INR /USD						
4	kVArh lag						
5	kVArh lead						
6	kVArh						
7	kVAh						
8	Net Energy(kWh)						
Demand Parameters							
1	Amp Demand						
2	kW Demand						
3	kVA Demand						
4	Neutral Current				√		
Power Quality Parameters							
1	THD-V, THD-I in %						
2	Harmonics V(T,F,D)						
3	Harmonics A(T,F,D)						
4	TDD in %						
5	K-factor						
6	Ind odd Harmonics (3rd,5th...15th) in %						
System Parameters							
1	Run Hour	√ (322)	√				
2	ON Hour		√				
3	RPM	√ (322)	√				
4	Event Counter						
5	Interruptions		√				
Aux Power Supply(External)							
1	Aux Power Supply (External)	230 VAC ± 20%				80-300 VAC/DC	
Options							
1	Modbus(RS-485)						
2	One Relay		√ (L)				
3	Two Relay		√ (L)				

Meter selection guide

Specification		MFM Meter							Energy Meter			Demand Controller
Sr. No.	Characteristics	Ace 353/C/355/C/F/FC	Ace 354/C/M/MC	Ace 355C Plus	Ace357/C/CR4	Ace 357T/TH/C/THC	Ace 357D	Ace360/360TH	NeoEM3/EM3-60A	Ace 3E1/3E1D/3E1P	Ace 3E2/3E2D/3E2C	357TDC/THDC
Basic Parameters												
1	VL-N(RYB)	√		√	√	√	√	√		√	√	√
2	VL-L(RYB)	√		√	√	√	√	√		√	√	√
3	AMP(RYB)	√		√	√	√	√	√		√	√	√
4	Hz	√		√	√	√	√	√		√	√	√
5	V & I Unbal (%)	√ (355C)		√	√ (357/357C)	√	√	√				√
Power Parameters												
1	Kw(RYB)	√	√	√(Optional)	√	√	√	√		√	√	√
2	kVAr(RYB)		√	√(Optional)	√	√	√	√		√	√	√
3	kVA(RYB)		√	√(Optional)	√	√	√	√		√	√	√
4	PF(RYB)	√	√	√	√	√	√	√		√	√	√
5	Φ(RYB)			√	√	√	√	√		√	√	√
6	Avg. PF <small>(Over the period of time)</small>				√ (357CR4)							
Energy Parameters												
1	kWh	√ (355C)	√	√(Optional)	√	√	√	√	√	√	√	√
2	Old kWh								√	√	√	√
3	E.Bill in INR /USD								√	√	√	√
4	kVArh lag				√ (357CR4)							
5	kVArh lead				√ (357CR4)							
6	kVArh			√(Optional)	√	√	√	√				√
7	kVAh			√(Optional)	√	√	√	√		√	√	√
8	Net Energy(kWh)				√ (357/357C)							√
Demand Parameters												
1	Amp Demand				√	√	√	√				√
2	kW Demand				√	√	√	√				√
3	kVA Demand				√	√	√	√				√
4	Neutral Current				√	√	√	√		√	√	√
Power Quality Parameters												
1	THD-V, THD-I in %					√		√ (360TH)				√
2	Harmonics V(T,F,D)					√						√
3	Harmonics A(T,F,D)					√						√
4	TDD in %					√						√
5	K-factor					√						√
6	Ind odd Harmonics (3rd,5th...15th) in %					√ (357TH/357THC)		√ (360TH) (Upto 31st)				√ (357THDC)
System Parameters												
1	Run Hour	√		√	√	√	√	√		√	√	√
2	ON Hour			√	√	√	√	√		√	√	√
3	RPM	√		√	√	√	√	√				√
4	Event Counter	√ (355C)										
5	Interruptions			√	√	√	√	√		√	√	√
Aux Power Supply (External)												
1	Aux Power Supply (External)	80-300 VAC/DC							± 230 VAC 20%	80-300 VAC/DC		
Options												Inbuilt
1	Modbus(RS-485)	√ (L)(353)	√	√	√	√	√	√		√	√	RS-485
2	One Relay	√ (P/L)(355)	√(P/L)	√(P/L)	√(P/L)	√(P/L)	√(P/L)	√	√(P)	√(P)	√(3E2)	With
3	Two Relay				√(357)	√(P/L)(357T/TH)	√(P/L)				√(3E2D)	2Relay

- Note :** 1) Meter selection guide for VAF, Ammeter & Voltmeter are given in previous page.
 2) Meter Code which are ending with the 'C' Alphabet, and Leo 3EAP, 1EAP, Neo 322, 322E, Em3, Ace 357CPlus, 357CR4 Meters are having Screw Type connector for input current. Ace 357TDC, 357THDC & rest all other meters have pass through Ct's for input current connection.
 3) In Ace 3E2/Ace 3E2C / Ace 3E2D some parameter has been display in meter and some parameter are through MODBUS therefore refer the datasheet for details. In Ace3E2/3E2D/3E2C meter the parameters are applicable for both 'U' & 'G' counter.
 4) Meter Code which are ending with the 'D' Alphabet is 40 Amp (i.e. Direct pass through CT Meters).
 5) In Ace 3E1 only Active energy (kWh) is shown on display, rest all other parameters are through MODBUS (RS-485) only.
 6) Ace 355CPlus is having optional power(kw/ kVA/ kVAh) and optional energy (kwh/ KVAh/ KVArh) and it is programable through setup menu.
 7) P-Relay as a pulse output only. 8) L- Relay as a limit switch only. 9) P/L Relay as a pulse output or limit switch.
 10) Net Energy and Voltage & Current Unbalance not available in meter with 2 relay outputs.
 11) Front side of Ace 357C, 357D & 357CR4 is same as Ace 357, The model number Ace 357C, 357D & 357CR4 is mentioned on back side of meter



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