



KÖHLER

ELEKTRİK SAYAÇLARI SAN. ve TİC. A.Ş.

...Your Global Partner for Measuring Energy

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KÖHLER
ELEKTRİK SAYAÇLARI SAN. ve TİC. A.Ş.

...Your Global Partner for Measuring Energy

*"The Meter Technology
Has Been Re-written"*



Monophase Smart Meter

PLC G3, Prime, RF, GSM/GPRS

- Replaceable Battery
- Replaceable Communication Module
- Plug and Play Feature
- Remote Start / Cutdown Feature
- Minimal Design
- Compatible with Existing Boards



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ABOUT KÖHLER

A subsidiary of one of Turkey's most important companies ALTO HOLDING, which has been in the energy industry for many years, **KÖHLER ELEKTRİK SAYAÇLARI SAN. VE TİC. A.Ş.** is among Turkey's oldest and greatest manufacturers of electricity meters, which is its field of expertise.

Thanks to its own meter technology that it continuously develops with millions of electricity meters manufactured yearly, its annual meter production capacity exceeding 3.000.000 units, and its experience in this field for over 30 years, it sets the course of the electricity meters sector in a large geography covering Europe, the Middle East, Central Asia and Africa.

In addition to producing electronic electricity meters for residential subscribers (monophase and triphase active) and industrial subscribers (triphas active-reactive combi), prepaid electronic electricity meters (monophase-triphas active) and bi-directional (Import-Export) electronic electricity meters (monophase, triphase

active, triphase active-reactive combi) along with large current and voltage resistance, a large load profile, remote-reading, remote start-cutoff and load control options, it offers groundbreaking solutions to our country's smart electricity supply investments by presenting its customers with electronic electricity meters with RF, PLC, GSM / GPRS communication infrastructures together with the latest-technology Data Concentrator and MDM software it develops thanks to its strong Köhler R&D Team and innovative R&D Projects under the slogan **"Your Global Partner in Power Metering."**



KÖHLER Meters Are More Accurate!

- High-precision measurement
- High accuracy even in low currents
- Measurement in large voltage ranges

KÖHLER Meters Are More Efficient!

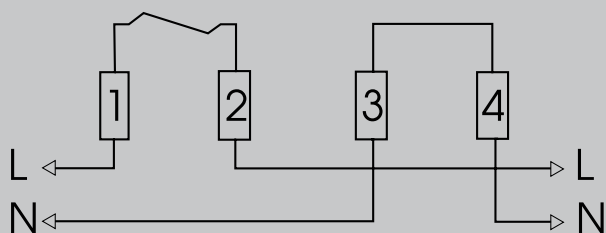
- Lower Internal Consumption
- Compatible with EDAŞ Requirements
- User-Friendly Designs

KÖHLER Meters Are Smarter!

- Large Load Profile
- Functional Event Logs
- Leakage Detection Feature
- Custom Designs



SINGLE-PHASE ELECTRONIC METERS

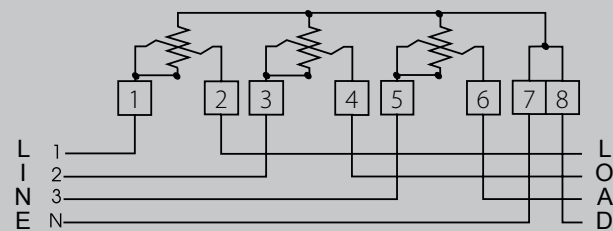


KHLSM
Electricity
Meters
Offers
Quality,
Confidence
and
Economy
to its
Customers!

MODEL NAME	AEL.MF.11
MODEL DEFINITION	Single Phase, 2 wires, 4 tariffs, demandmeter property, outdoor, active electronic electricity meter
ACCURACY (TS EN 504701-1)	B
REFERENCE VOLTAGE	230V
VOLTAGE TOLERANCE	0,8Un-1,5Un
REFERENCE FREQUENCY (Fn)	50Hz ±%5
STARTING CURRENT (Ist)	20mA (0,04 Ib)
MINIMUM CURRENT (Imin)	0,25 A
TRANSLIENT CURRENT (Itr)	0,5 A
REFERENCE CURRENT (Ib)	5 A
MAXIMUM CURRENT (Imax)	90 A
IP CLASS	IP54 Outdoor
PROTECTION CLASS	2
RELATIVE HUMIDITY	%95
TEMPERATURE CONDITION	-40 °C, +80 °C (3K7)
CONNECTION TYPE	Direct Connection
MECHANICAL ENVIRONMENT CLASS	M1 (2014/32/EU Directive)
ELECTROMAGNETIC ENVIRONMENT CLASS	E2 (201/32/EU Directive)
WORK CONDITION	Non-Condensing Humidity
POWER CONSUMPTION-VOLTAGE CIRCUIT	≤ 2W
POWER CONSUMPTION-CURRENT CIRCUIT	≤ 4 VA
SURGE WITHSTAND	6kV
ESD VOLTAGE SENSITIVITY	By direct contact: 8kV - By air: 15kV
METER IMPULSE CONSTANT	1600 imp/kWh
LCD SCREEN	6+3 Digit
COMMUNICATION RATES	300-4800 Boud (IEC 62056-21 Model C)
INTERFACE	Optical Port
BATTERY LIFE	≥ 10 year
BATTERY LIFE FOR RTC	≥ 10 year
SHELF LIFE FOR METER	≥ 4 year
RTC SENSITIVITY	0,5 s/date (room temperature) (TS EN 62054-21)
LOAD STORAGE CAPACITY	1 year
RELATED STANDARDS	TS EN 50470-1, TS EN 50470-3



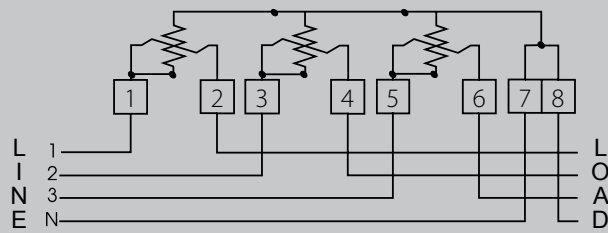
THREE-PHASE ELECTRONIC METERS



MODEL NAME	AEL.TF.16-2
MODEL DEFINITION	Single Phase, 2 wires, 4 tariffs, demandmeter, outdoor, Pre-paid active electronic electrical meter
ACCURACY (TS EN 504701-1)	B
REFERENCE VOLTAGE	3X230/400V
VOLTAGE TOLERANCE	0,8 Un-1,15Un
REFERENCE FREQUENCY (Fn)	50Hz ±%5
STARTING CURRENT (Ist)	20mA (0,04 Itr)
MINIMUM CURRENT (Imin)	0,25 A
TRANSIENT CURRENT (Itr)	0,5 A
REFERENCE CURRENT (In/Ib)	5A
MAXIMUM CURRENT (Imax)	100 A
IP CLASS	IP54
PROTECTION CLASS	2
RELATIVE HUMIDITY	%95
TEMPERATURE CONDITION	-40 °C, +70 °C
MECHANICAL ENVIRONMENT CLASS	M1 (2014/32/EU Directive)
ELECTROMAGNETIC ENVIRONMENT CLASS	E2 (201/32/EU Directive)
WORK CONDITION	Non-Condensing Humidity
POWER CONSUMPTION-VOLTAGE CIRCUIT	≤ 2W, ≤10 VA
POWER CONSUMPTION-CURRENT CIRCUIT	≤ 4 VA
SURGE WITHSTAND	12kV
ESD VOLTAGE SENSITIVITY	By direct contact: 8kV - By air: 15kV
METER IMPULSE CONSTANT	1000 imp/kWh
LCD SCREEN	6+3 Digit
COMMUNICATION RATES	300-4800 Boud (IEC 62056-21)
INTERFACE	Optical Port (IEC 62056-21)
BATTERY LIFE	≥ 10 year
BATTERY LIFE FOR RTC	≥ 10 year
SHELF LIFE FOR METER	≥ 4 year
RTC SENSITIVITY	0,5 sn/date (room temperature) (TS EN 62054-21)
LOAD STORAGE CAPACITY	1 year
RELATED STANDARDS	TS EN 50470-1, TS EN 50470-3

KHLSM
Always
measures
your energy
with the
highest
technology!

THREE-PHASE ELECTRONIC METERS



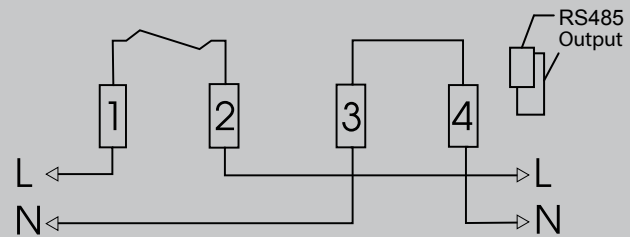
KHLSM
Products
are more
sensitive,
more efficient
and
mode smart!

MODEL NAME	AEL.TF.32
MODEL DEFINITION	Single Phase, 2 wires, 4 tariffs, demandmeter property, outdoor, active electronic electricity meter
ACCURACY (TS EN 504701-1)	B
REFERENCE VOLTAGE	3X230/400V
VOLTAGE TOLERANCE	0,8 Un-1,15Un
REFERENCE FREQUENCY (Fn)	50Hz $\pm$ 5%
STARTING CURRENT (Ist)	20mA (0,04 Itr)
MINIMUM CURRENT (Imin)	0,25 A
TRANSIENT CURRENT (Itr)	0,5 A
REFERENCE CURRENT (In/Ib)	5A
MAXIMUM CURRENT (Imax)	100 A
IP CLASS	IP54
PROTECTION CLASS	2
RELATIVE HUMIDITY	%95
TEMPERATURE CONDITION	-40 °C, +70 °C
MECHANICAL ENVIRONMENT CLASS	M1 (2014/32/EU Directive)
ELECTROMAGNETIC ENVIRONMENT CLASS	E2 (201/32/EU Directive)
WORK CONDITION	Non-Condensing Humidity
POWER CONSUMPTION-VOLTAGE CIRCUIT	$\leq$ 2W, $\leq$ 10 VA
POWER CONSUMPTION-CURRENT CIRCUIT	$\leq$ 4 VA
SURGE WITHSTAND	12kV
ESD VOLTAGE SENSITIVITY	By direct contact: 8kV - By air: 15kV
METER IMPULSE CONSTANT	1000 imp/kWh
LCD SCREEN	6+3 Digit
COMMUNICATION RATES	300-4800 Boud (IEC 62056-21)
INTERFACE	Optical Port (IEC 62056-21)
BATTERY LIFE	$\geq$ 10 year
BATTERY LIFE FOR RTC	$\geq$ 10 year
SHELF LIFE FOR METER	$\geq$ 4 year
RTC SENSITIVITY	0,5 sn/date (room temperature) (TS EN 62054-21)
LOAD STORAGE CAPACITY	1 year
RELATED STANDARDS	TS EN 50470-1, TS EN 50470-3



SINGLE-PHASE ELECTRONIC METERS

(RS485 Communication Output)

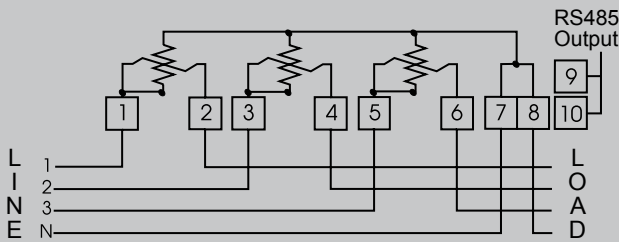


MODEL NAME	AEL.MF.14
MODEL DEFINITION	Single Phase, 2 wires, 4 tariffs, demandmeter, outdoor, RS485 Communication active electronic meter
ACCURACY (TS EN 504701-1)	B
REFERENCE VOLTAGE	230V
VOLTAGE TOLERANCE	0,8Un - 1,15Un
REFERENCE FREQUENCY (Fn)	50Hz ±%5
STARTING CURRENT (Ist)	20mA (0,04 Ib)
MINIMUM CURRENT (Imin)	0,25A
TRANSIENT CURRENT (Itr)	0,5A
REFERENCE CURRENT (Ib)	5A
MAXIMUM CURRENT (Imax)	90 A
IP CLASS	IP54 Outdoor
PROTECTION CLASS	2
RELATIVE HUMIDITY	%95
TEMPERATURE CONDITION	-40 °C, +70 °C (3K7)
CONNECTION TYPE	Direct Connection
MECHANICAL ENVIRONMENT CLASS	M1 (2014/32/EU Directive)
ELECTROMAGNETIC ENVIRONMENT CLASS	E2 (201/32/EU Directive)
WORK CONDITION	Non-Condensing Humidity
POWER CONSUMPTION-VOLTAGE CIRCUIT	≤ 2W, ≤10 VA
POWER CONSUMPTION-CURRENT CIRCUIT	≤ 4 VA
SURGE WITHSTAND	12kV
ESD VOLTAGE SENSITIVITY	By direct contact: 8kV - By air: 15kV
METER IMPULSE CONSTANT	1600 imp/kWh
LCD SCREEN	6+3 Digit
COMMUNICATION RATES	Optical Port 300-4800, RS485 300-9600 (IEC 62056-21 Mode C)
INTERFACE	Optical Port, RS485
BATTERY LIFE	≥ 10 year
BATTERY LIFE FOR RTC	≥ 10 year
SHELF LIFE FOR METER	≥ 4 year
RTC SENSITIVITY	0,5 s/date (room temperature) (TS EN 62054-21)
LOAD STORAGE CAPACITY	1 year
RELATED STANDARDS	TS EN 50470-1, TS EN 50470-3

Lets check
in to the
smart energy
world by using
KHLSM
Electricity
meters with
RS485
interface!

THREE-PHASE ELECTRONIC METERS

(RS485 Communication Output)

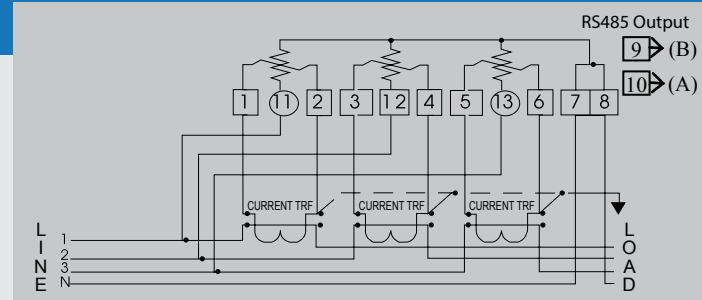


Meter
technology
of the
future!

MODEL NAME	AEL.TF.22
MODEL DEFINITION	3 Phase, 4 wires, 4 tariffs, demandmeter, direct connected, outdoor, RS485 Communication, active electronic electricity meter
ACCURACY (TS EN 504701-1)	B
REFERENCE VOLTAGE	3X230/400V
VOLTAGE TOLERANCE	0,8Un-1,15Un
REFERENCE FREQUENCY (Fn)	50Hz ±%5
STARTING CURRENT (Ist)	20mA (0,04 Itr)
MINIMUM CURRENT (Imin)	0,25 A
TRANSIENT CURRENT (Itr)	0,5 A
REFERENCE CURRENT (In/Ib)	5 A
MAXIMUM CURRENT (Imax)	100 A
IP CLASS	IP54
PROTECTION CLASS	2
RELATIVE HUMIDITY	% 95
TEMPERATURE CONDITION	-40 °C, +70 °C
MECHANICAL ENVIRONMENT CLASS	M1 (2014/32/EU Directive)
ELECTROMAGNETIC ENVIRONMENT CLASS	E2 (201/32/EU Directive)
WORK CONDITION	Non-Condensing Humidity
POWER CONSUMPTION-VOLTAGE CIRCUIT	≤ 2W, ≤10 VA
POWER CONSUMPTION-CURRENT CIRCUIT	≤ 4 VA
SURGE WITHSTAND	12kV
ESD VOLTAGE SENSITIVITY	By direct contact: 8kV - By air: 15kV
METER IMPULSE CONSTANT	1000 imp/kWh
LCD SCREEN	6+3 Digit
COMMUNICATION RATES	Optical Port 300-4800 Boud, RS485 300-9600 (IEC 62056-21)
INTERFACE	Optical Port (IEC 62056-21), RS485
BATTERY LIFE	≥ 10 year
BATTERY LIFE FOR RTC	≥ 10 year
SHELF LIFE FOR METER	≥ 4 year
RTC SENSITIVITY	0,5 sn/date (room temperature) (TS EN 62054-21)
LOAD STORAGE CAPACITY	1 year
RELATED STANDARDS	TS EN 50470-1, TS EN 50470-3



THREE-PHASE ELECTRONIC METERS WITH CURRENT TRANSFORMER

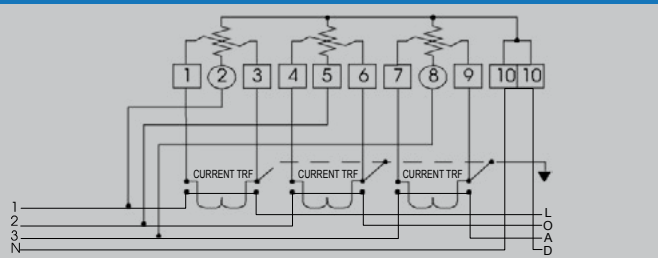


MODEL NAME	AEL.TF.25
MODEL DEFINITION	3 Phase, 4 wires, 4 tariffs, demandmeter, outdoor, current transformer connected active electronic electricity meter
ACCURACY	B
REFERENCE VOLTAGE	3x220V/380 V
VOLTAGE TOLERANCE	0,08Un-1,15Un
REFERENCE FREQUENCY (Fn)	50Hz ±%5
STARTING CURRENT (Ist)	0,002 A (0,04.Itr)
MINIMUM CURRENT (Imin)	0,01 A
TRANSIENT CURRENT (Itr)	0,05 A
REFERENCE CURRENT (In/Ib)	1 A
MAXIMUM CURRENT (Imax)	10 A
IP CLASS	IP54 Outdoor
PROTECTION CLASS	2
RELATIVE HUMIDITY	%95
TEMPERATURE CONDITION	-40 °C, +70 °C (3K7)
CONNECTION TYPE	With Current Transformer
MECHANICAL ENVIRONMENT CLASS	M1 (2014/32/EU Directive)
ELECTROMAGNETIC ENVIRONMENT CLASS	E2 (2013/32/EU Directive)
WORK CONDITION	Non-Condensing Humidity
POWER CONSUMPTION-VOLTAGE CIRCUIT	≤ 2W, ≤10 VA
POWER CONSUMPTION-CURRENT CIRCUIT	≤ 1 VA
SURGE WITHSTAND	6kV
ESD VOLTAGE SENSITIVITY	By direct contact: 8kV - By air: 15kV
METER IMPULSE CONSTANT	10.000 imp/kWh
LCD SCREEN	6+3 Digit
COMMUNICATION RATES	Optical Port 300-4800 Bound, RS485300-9600 (IEC 62056-21)
INTERFACE	Optical Port, RS485 (IEC 62056-21)
BATTERY LIFE	≥ 10 year
BATTERY LIFE FOR RTC	≥ 10 year
SHELF LIFE FOR METER	≥ 4 year
RTC SENSITIVITY	0,5 sn/date (room temperature) (TS EN 62054-21)
LOAD STORAGE CAPACITY	1 year
RELATED STANDARDS	TS EN 62052-11, TS EN 62053-21

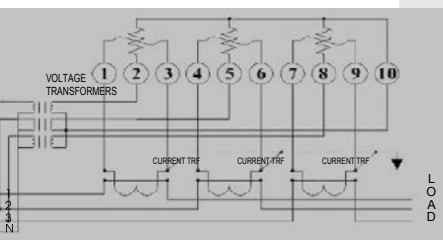
KHLSM
Electricity
Meters
Offers Quality,
Confidence
and
Economy
to its
Customers!

COMBI ELECTRONIC METERS

(Current circuit with transformer,
voltage circuit with transformer or direct)



Connection Diagram for 3x230/400V Electricity Meters



Connection Diagram for 3x57.7/100V Electricity Meters

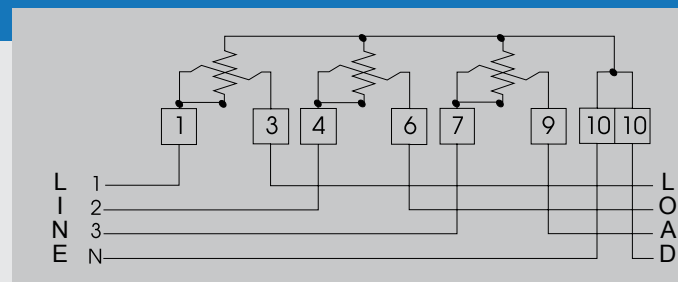
Lets make
power under
your
control!

MODEL NAME	AEL.TF.19 - AEL.TF.39
MODEL DEFINITION	3 Phase, 4 wires, 4 tariffs, demandmeter, outdoor, active-reactive-capacitive combi electronic electricity meter
ACCURACY (TS EN 504701-1)	Active: B, Reactive: 2
REFERENCE VOLTAGE	3x230V/400V-3x57,7/100V
VOLTAGE TOLERANCE	0,8Un-1,15Un
REFERENCE FREQUENCY (Fn)	50Hz ±%5
STARTING CURRENT (Ist)	2mA (0,04 Itr)
MINIMUM CURRENT (Imin)	0,01A
TRANSIENT CURRENT (Itr)	0,05A
REFERENCE CURRENT (In/Ib)	1A
MAXIMUM CURRENT (Imax)	10 A
IP CLASS	IP54 Outdoor
PROTECTION CLASS	2
RELATIVE HUMIDITY	%95
TEMPERATURE CONDITION	-40 °C, +70 °C (3K7)
CONNECTION TYPE	Current Transformer Connected, Voltage Transformer Connected or Direct Connection
MECHANICAL ENVIRONMENT CLASS	M1 (2014/32/EU Directive)
ELECTROMAGNETIC ENVIRONMENT CLASS	E2 (201/32/EU Directive)
WORK CONDITION	Non-Condensing Humidity
POWER CONSUMPTION-VOLTAGE CIRCUIT	≤ 2W, ≤10 VA
POWER CONSUMPTION-CURRENT CIRCUIT	≤ 1 VA
SURGE WITHSTAND	12kV
ESD VOLTAGE SENSITIVITY	By direct contact: 8kV - By air: 15kV
METER IMPULSE CONSTANT	10.000 imp/kWh - 10.000 imp/kVarh
LCD SCREEN	6+3 Digit
COMMUNICATION RATES	Optical Port 300-9600 Boud, RS485 300-9600 (IEC 62056-21)
INTERFACE	Optical Port, RS485 (IEC 62056-21)
BATTERY LIFE	≥ 10 year
BATTERY LIFE FOR RTC	≥ 10 year
SHELF LIFE FOR METER	≥ 4 year
RTC SENSITIVITY	0,5 sn/date (room temperature) (TS EN 62054-21)
LOAD STORAGE CAPACITY	1 year
RELATED STANDARDS	TS EN 62052-11, 62052-23, TS EN 50470-1, TS EN 50470-3



COMBI ELECTRONIC METERS

(Direct Connection)

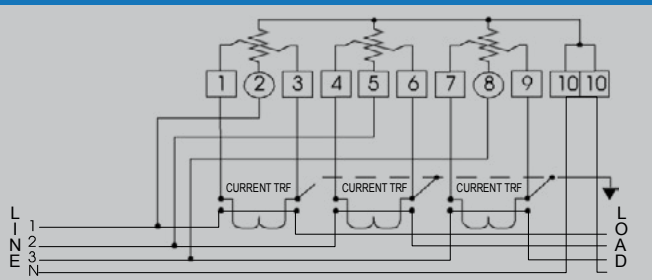


MODEL NAME	AEL.TF.20 - AEL.TF.40
MODEL DEFINITION	3 Phase, 4 wires, 4 tariffs, demandmeter, outdoor, active-reactive-capacitive combi electronic electricity meter
ACCURACY (TS EN 504701-1)	Active: B, Reactive: 2
REFERENCE VOLTAGE (Un)	3x230V/400V
VOLTAGE TOLERANCE	0,8Un-1,15Un
REFERENCE FREQUENCY (Fn)	50Hz ±%5
STARTING CURRENT (Ist)	20mA (0,04 Itr)
MINIMUM CURRENT (Imin)	0,1 A
TRANSIENT CURRENT (Itr)	0,5 A
REFERENCE CURRENT (In/Ib)	5 A
MAXIMUM CURRENT (Imax)	100 A
IP CLASS	IP54 Outdoor
PROTECTION CLASS	2
RELATIVE HUMIDITY	%95
TEMPERATURE CONDITION	-40 °C, +70 °C (3K7)
CONNECTION TYPE	Direct
MECHANICAL ENVIRONMENT CLASS	M1 (2014/32/EU Directive)
ELECTROMAGNETIC ENVIRONMENT CLASS	E2 (201/32/EU Directive)
WORK CONDITION	Non-Condensing Humidity
POWER CONSUMPTION-VOLTAGE CIRCUIT	≤ 2W, ≤10 VA
POWER CONSUMPTION-CURRENT CIRCUIT	≤ 4 VA
SURGE WITHSTAND	12kV
ESD VOLTAGE SENSITIVITY	By direct contact: 8kV - By air: 15kV
METER IMPULSE CONSTANT	1000 imp/kWh - 1000 imp/kVarh
LCD SCREEN	6+3 Digit
COMMUNICATION RATES	Optical Port 300-9600 Boud, RS485 300-9600 (IEC 62056-21)
INTERFACE	Optical Port, RS485 (IEC 62056-21)
BATTERY LIFE	≥ 10 year
BATTERY LIFE FOR RTC	≥ 10 year
SHELF LIFE FOR METER	≥ 4 year
RTC SENSITIVITY	0,5 sn/date (room temperature) (TS EN 62054-21)
LOAD STORAGE CAPACITY	1 year
RELATED STANDARDS	TS EN 62052-11, 62052-23, TS EN 50470-1, TS EN 50470-3

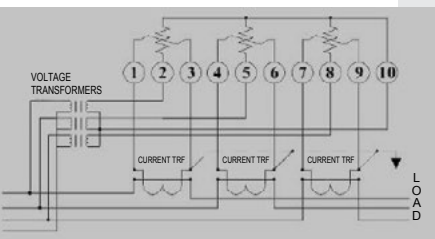
True
address
of accuracy
and
experience
for about
"30"
Years!

COMBI ELECTRONIC METERS

(0,5 Class - Import & Export)



Connection Diagram for 3x230/400V Electricity Meters



Connection Diagram for 3x57.7/100V Electricity Meters

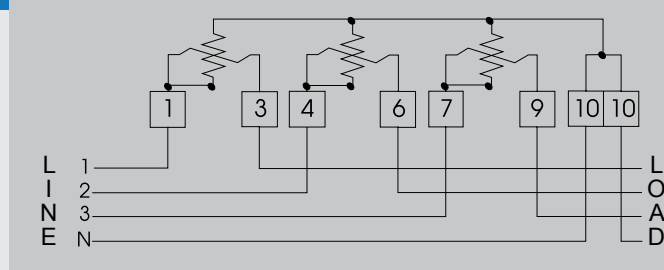
Use
KHLSM
Electricity
meters,
do not
risk your
electricity bill!

MODEL NAME	AEL.TF.21 - AEL.TF.41
MODEL DEFINITION	3 Phase, 4 wires, 4 tariffs, demandmeter, outdoor, active-reactive-capacitive combi electronic electricity meter
ACCURACY (TS EN 504701-1)	Active:0,5 (C), - Reactive: 2
REFERENCE VOLTAGE (Un)	3x230V/400V - 3x57,7/100V
VOLTAGE TOLERANCE	0,8 Un-1,15Un
REFERANS FREKANS (Fn)	50Hz ±%5
STARTING CURRENT (Ist)	10mA/2mA (0,004 Ib)
MINIMUM AKIM (Imin)	50 mA/10 mA
TRANSIENT CURRENT (Itr)	0,25 A/0,05 A
REFERENCE CURRENT (In/Ib)	5 A/1A
MAXIMUM CURRENT (Imax)	10 A
IP CLASS	IP54 Outdoor
PROTECTION CLASS	2
RELATIVE HUMIDITY	%95
TEMPERATURE CONDITION	-40 °C, +70 °C (3K7)
CONNECTION TYPE	Current Input: Transformer, Voltage Input: Direct or Transformer
MECHANICAL ENVIRONMENT CLASS	M1 (2014/32/EU Directive)
ELECTROMAGNETIC ENVIRONMENT CLASS	E2 (2013/25/EU Directive)
WORK CONDITION	Non-Condensing Humidity
POWER CONSUMPTION-VOLTAGE CIRCUIT	≤ 2W, ≤10 VA
POWER CONSUMPTION-CURRENT CIRCUIT	≤ 1 VA
SURGE WITHSTAND	12kV
ESD VOLTAGE SENSITIVITY	By direct contact: 8kV - By air: 15kV
METER IMPULSE CONSTANT	10.000 imp/kWh. - 10000 imp/kVarh
LCD SCREEN	6+3 Digit
COMMUNICATION RATES	Optical Port 300-9600, RS485 300-9600 (IEC 62056-21)
INTERFACE	Optical Port RS485 (IEC 62056-21)
BATTERY LIFE	≥ 10 year
BATTERY LIFE FOR RTC	≥ 10 year
SHELF LIFE FOR METER	≥ 4 year
RTC SENSITIVITY	0,5 sn/date (room temperature) (TS EN 62054-21)
LOAD STORAGE CAPACITY	1 year
RELATED STANDARDS	TS EN 62052-11, 62052-23, TS EN 50470-1, TS EB 50470-3



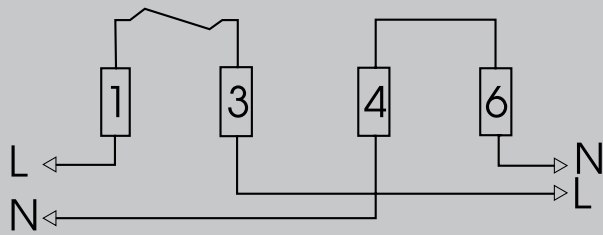
COMBI ELECTRONIC METERS

(0,5 Class - Import & Export)



MODEL NAME	AEL.TF.24 - AEL.TF.42
MODEL DEFINITION	3 Phase, 4 wires, 4 tariffs, demandmeter, outdoor, active-reactive-capacitive combi electronic electricity meter
ACCURACY (TS EN 504701-1)	Active: 0,5(C), Reactive: 2
REFERENCE VOLTAGE (Un)	3x230V/400V
VOLTAGE TOLERANCE	0,8Un-1,15Un
REFERENCE FREQUENCY (Fn)	50Hz ±%5
STARTING CURRENT (Ist)	20mA (0,04 Itr)
MINIMUM CURRENT (Imin)	0,1 A
TRANSIENT CURRENT (Itr)	0,5 A
REFERENCE CURRENT (In/Ib)	5 A
MAXIMUM CURRENT (Imax)	100 A
IP CLASS	IP54 Outdoor
PROTECTION CLASS	2
RELATIVE HUMIDITY	%95
TEMPERATURE CONDITION	-40 °C, +70 °C (3K7)
CONNECTION TYPE	Direct
MECHANICAL ENVIRONMENT CLASS	M1 (2014/32/EU Directive)
ELECTROMAGNETIC ENVIRONMENT CLASS	E2 (2013/25/EU Directive)
WORK CONDITION	Non-Condensing Humidity
POWER CONSUMPTION-VOLTAGE CIRCUIT	≤ 2W, ≤10 VA
POWER CONSUMPTION-CURRENT CIRCUIT	≤ 4 VA
SURGE WITHSTAND	12kV
ESD VOLTAGE SENSITIVITY	By direct contact: 8kV - By air: 15kV
METER IMPULSE CONSTANT	1000 imp/kWh - 1000 imp/kVarh
LCD SCREEN	6+3 Digit
COMMUNICATION RATES	Optical Port 300-9600 Boud, RS485 300-9600 (IEC 62056-21)
INTERFACE	Optical Port, RS485 (IEC 62056-21)
BATTERY LIFE	≥ 10 year
BATTERY LIFE FOR RTC	≥ 10 year
SHELF LIFE FOR METER	≥ 4 year
RTC SENSITIVITY	0,5 sn/date (room temperature) (TS EN 62054-21)
LOAD STORAGE CAPACITY	1 year
RELATED STANDARDS	TS EN 62052-11, 62052-23, TS EN 50470-1, TS EN 50470-3

SINGLE-PHASE PREPAYMENT ELECTRONIC METERS

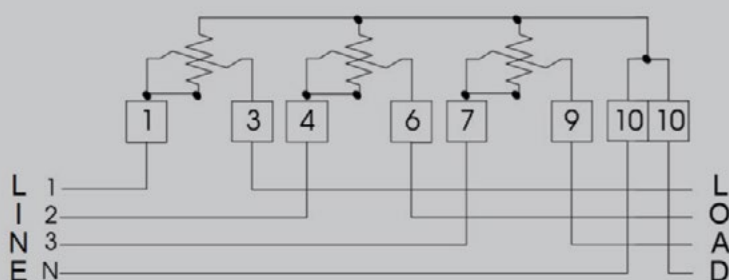


KHLSM
Prepayment
electricity
meters
solve
the payment
problem
of the
distribution
companies.

MODEL NAME	AEL.MF.15
MODEL DEFINITION	Single Phase, 2 wires, 4 tariffs, demandmeter, outdoor, Pre-paid active electronic electrical meter
ACCURACY	B
REFERENCE VOLTAGE (Un)	220V
VOLTAGE TOLERANCE	0,8Un-1,5Un
REFERENCE FREQUENCY (Fn)	50Hz ±%5
STARTING CURRENT (Ist)	40mA (0,004 Ib)
MINIMUM CURRENT (Imin)	0,5 A
REFERENCE CURRENT (Ib)	10 A
MAXIMUM CURRENT (Imax)	80 A
IP CLASS	IP54 Outdoor
PROTECTION CLASS	2
RELATIVE HUMIDITY	%95
TEMPERATURE CONDITION	-40 °C, +70 °C (3K7)
CONNECTION TYPE	Direct Connection
MECHANICAL ENVIRONMENT CLASS	M1 (2014/32/EU Directive)
ELECTROMAGNETIC ENVIRONMENT CLASS	E2 (201/32/EU Directive)
WORK CONDITION	Non-Condensing Humidity
POWER CONSUMPTION-VOLTAGE CIRCUIT	≤ 2W, ≤10 VA
POWER CONSUMPTION-CURRENT CIRCUIT	≤ 4 VA
SURGE WITHSTAND	6kV
ESD VOLTAGE SENSITIVITY	By direct contact: 8kV - By air: 15kV
METER IMPULSE CONSTANT	1600 imp/kWh
LCD SCREEN	5+3 Digit
COMMUNICATION RATES	300-4800 Boud (IEC 62056-21)
INTERFACE	Optical Port (IEC 62056-21)
BATTERY LIFE	≥ 10 year
BATTERY LIFE FOR RTC	≥ 10 year
SHELF LIFE FOR METER	≥ 4 year
RTC SENSITIVITY	0,5 s/date (room temperature) (TS EN 62054-21)
LOAD STORAGE CAPACITY	1 year
RELATED STANDARDS	TS EN 50470-1, TS EN 50470-3



THREE-PHASE PREPAYMENT ELECTRONIC METERS



MODEL NAME	AEL.TF.27
MODEL DEFINITION	3 Phase, 3 wires, 4 tariffs, demandmeter, direct connected, outdoor, Pre-paid active electronic meter
ACCURACY (TS EN 504701-1)	B
REFERENCE VOLTAGE	3x220/380V
VOLTAGE TOLERANCE	0,8Un-1,15Un
REFERENCE FREQUENCY (Fn)	50Hz ±%5
STARTING CURRENT (Ist)	40mA (0,04 Itr)
MINIMUM CURRENT (Imin)	0,25A
TRANSIENT CURRENT (Itr)	0,5A
REFERENCE CURRENT (In/Ib)	5A
MAXIMUM CURRENT (Imax)	80 A
IP CLASS	IP54
PROTECTION CLASS	2
RELATIVE HUMIDITY	%95
TEMPERATURE CONDITION	-40 °C, +70 °C
MECHANICAL ENVIRONMENT CLASS	M1 (2014/32/EU Directive)
ELECTROMAGNETIC ENVIRONMENT CLASS	E2 (2013/32/EU Directive)
WORK CONDITION	Non-Condensing Humidity
POWER CONSUMPTION-VOLTAGE CIRCUIT	≤ 2W, ≤10 VA
POWER CONSUMPTION-CURRENT CIRCUIT	≤ 4 VA
SURGE WITHSTAND	6kV
ESD VOLTAGE SENSITIVITY	By direct contact: 8kV - By air: 15kV
METER IMPULSE CONSTANT	1.000 imp/kWh
LCD SCREEN	6+3 Digit
COMMUNICATION RATES	300-4800 Boud (IEC 62056-21)
INTERFACE	Optical Port (IEC 62056-21)
BATTERY LIFE	≥ 10 year
BATTERY LIFE FOR RTC	≥ 10 year
SHELF LIFE FOR METER	≥ 4 year
RTC SENSITIVITY	0,5 sn/date (room temperature) (TS EN 62054-21)
LOAD STORAGE CAPACITY	1 year
RELATED STANDARDS	TS EN 62052-11, 62052-23, TS EN 50470-1, TS EN 50470-3

KHLSM
Products
are more
sensitive,
more efficient
and
mode smart!

KÖHLER SMART SUPPLY NETWORK SOLUTIONS



With KÖHLER,
Reach the
Future's
Supply
Network
Technologies
Today!

With the Köhler SMF-M01 and STF-M01 modular smart electricity meters, the KÖHLER data concentrators (DC) were designed targeting today's and the future's smart supply networks. Thus also containing traditional electricity meter features, KÖHLER has brought many innovative concepts to the sector. Remote start / cutoff, reading (all meter data), instant reading (power, current, voltage, meter security status information), loss - leakage analysis, unauthorised tampering notification (e-mail, SMS) and many features are offered as standard together with the Köhler MDM meter management system.

Köhler SMF-M01 and STF-M01 use the world-recognised "LORA RF", "G3-PLC" and "PRIME PLC" solutions. The replaceable battery extends the meter's useful life. It also supports the index monitoring screen connection in order that the subscribers may see the index values and other information. The meter supports the IEC 62056-21 protocol, and is reversely compatible. This may it is capable of quickly adapting to existing systems.

Thanks to its load limiting feature, it is capable of automatic cutoff in the case that the subscriber exceeds the predetermined limits for the demand, current and index parameters, and this information can be forwarded to the centre.



MODULAR SMART MONOPHASE ELECTRICITY METER



Model Name	SMF-M01
General Features	1 phase 2 wire modular smart monophase meter
	PLC, RF, GSM/GPRS, RS485 communication support
	Remote reading, invoicing, start / cutoff
	Active and Reactive Measurement
	Design not affected by magnetic fields
	High accuracy
	Permanent memory
	15+ years useful life
	IEC 62056-21-compatible optic port
	9 digit LCD and additional information field
	Large measurement range
	Plug and play system, no installation needed
	Advanced Load profile
	MID certificate
Operating Temperature	-40 °C / 70°C
Operating Voltage	40 – 230 VAC
Starting Current	20 mA
Maximum Current	100A
Frequency	50 - 60 Hz support ($\pm 10\%$)
Meter Constant	1600 imp/KWh
Humidity	5% - 95% relative humidity
Power Consumption	≤ 0.5 W
Measurement Accuracy	Class 1
Optic Port	IEC 62056-21
External Module Support	Yes
External Communication Support	PLC (G3, PRIME) RF GSM/GPRS RS485
Event log	Load Profile, 32 channels
	Event logs
Internal Start / Cutoff Relay	10.000 times at IOOA
RTC	High-accuracy real-time clock
Durability	IP54-certified
Battery Life	≥ 10 -year battery life ≥ 5 hours Super capacitor Replaceable Battery (Dismantling meter not required)

Meter
Technology
Has Been
Rewritten!

MODULAR SMART THREE-PHASE ELECTRICITY METER



The Smartest
Meter of
Smart
Networks!

Model Name	STF-M01
General Features	3 phase 4 wire modular smart triphase meter
	PLC, RF, GSM/GPRS, RS485 communication support
	Remote reading, invoicing, start / cutoff
	Active and Reactive Measurement
	High accuracy
	Permanent memory
	15+ years useful life
	IEC 62056-21-compatible optic port
	9 digit LCD and additional information field
	Large measurement range
	Plug and play system, no installation needed
	Advanced Load profile
	MID certificate
	-40 °C / 70°C
Operating Temperature	40 – 230 VAC
Operating Voltage	20 mA
Starting Current	100A
Maximum Current	50 - 60 Hz support (±%10)
Frequency	1600 imp/KWh
Meter Constant	5% - 95% relative humidity
Humidity	≤ 0.5 W
Power Consumption	Class 1
Measurement Accuracy	IEC 62056-21
Optic Port	Yes
External Module Support	PLC (G3, PRIME)
	RF
	GSM/GPRS
	RS485
Event Log	Load Profile, 32 channels
	Event logs
Internal Start / Cutoff Relay	10.000 times at 100A
RTC	High-accuracy real-time clock
Durability	IP54-certified
Battery Life	≥ 10 year battery life
	≥ 5 hours Super capacitor
	Replaceable Battery (Dismantling meter not required)

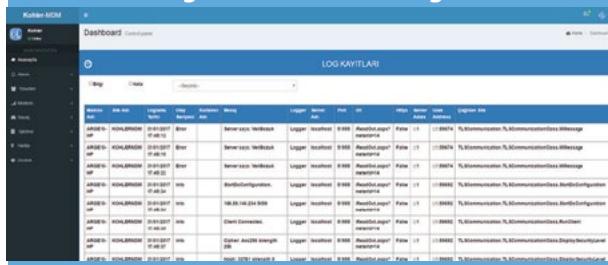


DATA CONCENTRATOR

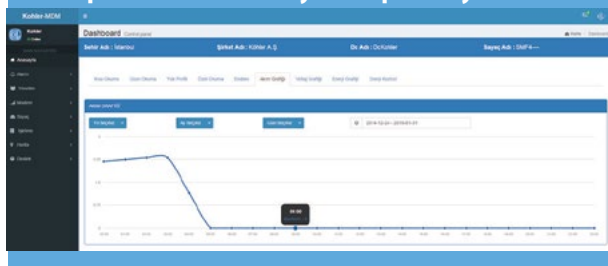
Model Name	DC
General Features	3 phase supply connection
	PLC, RF, GSM/GPRS, RS485 communication support
	Creating event logs and transmitting them to the centre
	USB, ETHERNET connection interface
	High-level security and encoding feature
	Embedded OS (Linux)
	Real-time clock synchronisation
	15+ years useful life
	Remote update feature
	Automatic notification of newly installed meters to the centre
	Recording connections made at the centre
	Ability to send messages to the customer when necessary
	Advanced Load profile
Operating Temperature	-40 °C / 90°C
Operating Voltage	40 – 230 VAC
Dimension	280x279x105 mm
Frequency	50 - 60 Hz support ($\pm 10\%$)
IP Protection Level	IP54
Humidity	5% - 95% relative humidity
Power Consumption	≤ 9 W
Weight	≤ 1 kg
Optic Port	IEC 62056-21
External Module Support	Yes
External Communication Module Support	PLC (G3, PRIME)
	RF
	GSM/GPRS
	RS485
Event Log	Automatic event log creation
	Automatic notification of identified event logs to the centre
RTC	High-accuracy real-time clock

When You
Have It,
You Need
Not Worry
About
Your Network!

2. Detailed Log Records Monitoring



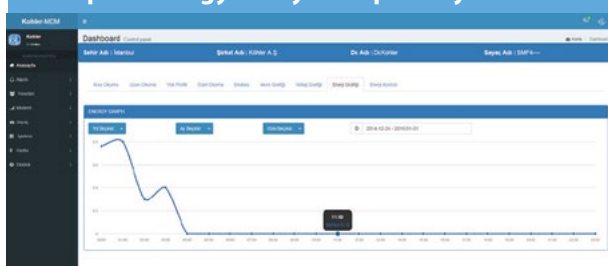
3. Graphic Current Analysis Capability



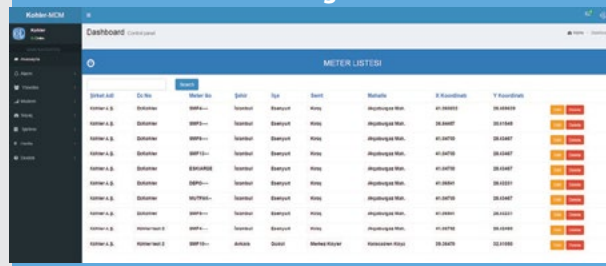
4. Graphic Voltage Analysis Capability



5. Graphic Energy Analysis Capability



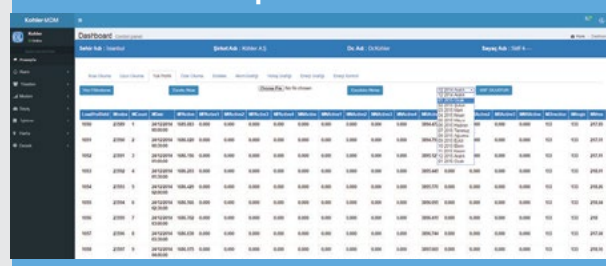
6. Advanced Meter Management



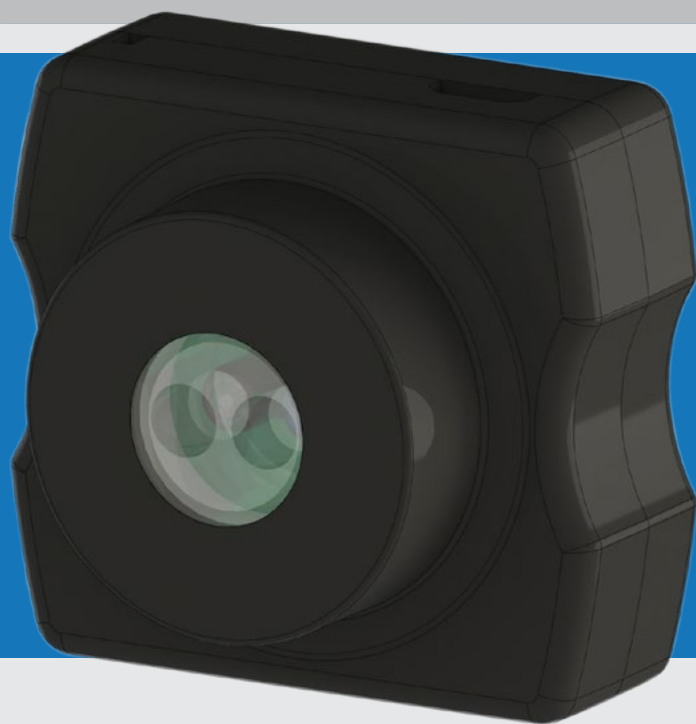
7. Dynamic Role-based Authorisation



8. Advanced OSF Report



KHL-BL1 BLUETOOTH OPTIC PORT



Set yourself free with Köhler Wireless Optic Port (KHL-BL1) Reading data from electricity meters is now much easier thanks to KHL-BL1. Enjoy the ease of wireless meter reading thanks to its wireless internal battery, and support for simultaneously reading up to 8 different meters from a single device. KHL-BL1 is compatible with Windows operating systems, the Android operating system, and all devices and software supporting SPP (Serial Port Profile) such as hand terminals. You can start using the product in a few seconds thanks to its fast setup support. This way, you can use it easily in whichever device you wish. Fully compatible with the KHL-BL1 IEC 62056-21 / IEC1107 protocols. You can monitor the data traffic with the on-board TX/RX communication LEDs. Thanks to its Micro-USB recharge port, it can be easily recharged using a computer or mobile phone charging device.

Application area extendable with a sensing distance of up to 10 meters (optionally 100 metres). Can be used easily for meter reading e.g. outside stores in shopping malls, and not only for field components and in test laboratories. Windows-compatible reading programme also offered along with KHL-BL1. This, in turn, eliminates any incompatibility that may arise.

KHL-BL1 Köhler Wireless Optic Port	
Optic Port Protocol	IEC 62056-21 / IEC 1107
Recharging Time	4 hours
Reading Capacity	3000 reading (fully recharged)
Communication Type	Buletooth v2.1 + EDR Class 2
Communication Distance	Up to 10 metre
Recharging Unit	Micro-USB
Battery	Replaceable 3.7 V LIPO
Standby Time	240 hours
Communication Speed	Maximum 19200 bps
Communication Profile	Serial Port Profile, SPP
Notification LEDs	TX, RX
Supported Operating Systems	Windows operating systems, Android, Linux
Optic Port Wavelength	900 nm
Magnet	25N
Weight	100 gr

Wireless
Technology
in Meter
Readings!

KHLSM METER TYPES	Monophase	Triphase	Class 1	Class 0,5	Active	Reactive	Draw (Import)	Supply (Export)	Multivoltage	RS485 Output	Load Profile	PLC (PLC G3-Prime)	RF	Pre-payment	Directly Connected	Transformer Connected
AEL.MF.11	√		√		√		√				√				√	
AEL.MF.14	√		√		√		√			√	√				√	
AEL.MF.08	√		√		√		√	√		√	√				√	
AEL.MF.15	√		√		√		√			√				√	√	
AEL.TF.16-2		√	√		√		√				O				√	
AEL.TF.22		√	√		√		√			√	√				√	
AEL.TF.25		√	√		√		√			√	√					√
AEL.TF.23		√	√		√		√	√		√	√				√	
AEL.TF.27		√	√		√		√			√				√	√	
AEL.TF.32		√	√		√		√				O				√	
AEL.TF.19 AEL.TF.39		√	√		√	√	√		√	√	√					√
AEL.TF.20 AEL.TF.40		√	√		√	√	√		√	√	√				√	
AEL.TF.21 AEL.TF.41		√		√	√	√	√	√	√	√	√					√
AEL.TF.24 AEL.TF.42		√		√	√	√	√	√	√	√	√				√	
SMF-M01,PLC	√		√		√	√	√	O			√	√			√	
SMF-M01,RF	√		√		√	√	√	O			√		√		√	
STF-M01,PLC		√	√		√	√	√	O			√	√			√	
STF-M01,RF		√	√		√	√	√	O			√		√		√	

√ : EXISTS

O : OPTIONAL

"The Smartest Meter of Smart Supply Networks"



Threephase Smart Meter

PLC G3, Prime, RF, GSM/GPRS

- Replaceable Battery
- Replaceable Communication Module
- Plug and Play Feature
- Remote Start / Cutdown Feature
- Minimal Design
- Compatible with Existing Boards



KÖHLER
ELEKTRİK SAYAÇLARI

www.kohlersayac.com.tr



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ELEKTRİK SAYAÇLARI SAN. ve TİC. A.Ş.

...Your Global Partner for Measuring Energy



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