



APM POWER METER



EN: Before installation, read the Safety Warnings overleaf.

DE: Vor der Installation, lesen Sie die Sicherheitswarnungen umseitig.

FR: Avant l'installation, lisez les Avertissements de Sécurité au verso.

ES: Antes de la instalación, lea las advertencias de seguridad al dorso.

IT: Prima dell'installazione, leggere le avvertenze di sicurezza sul retro.



CAUTION: Risk of Danger

Read complete instructions prior to installation and operation of the unit



CAUTION: Risk of electric shock

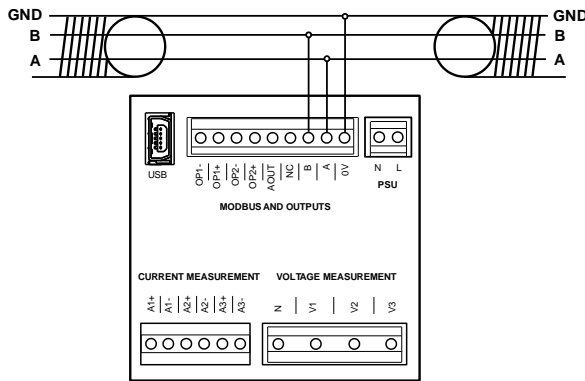
EN	DE	FR	ES	IT
Intended Use: The APM has been specifically designed for engineers requiring an effective way to monitor and display data. The APM accepts a range of electrical inputs (depending on the model) and displays the data on its integrated multi-format display. The APM has been designed for industrial use only, by installation into electrical cabinets or display panels.	Verwendungszweck: APM wurde speziell für Ingenieure entwickelt, die nach einer effizienten Art der Datenüberwachung und -anzeige suchen. Das APM akzeptiert eine Reihe elektrischer Eingänge (je nach Modell) und zeigt die Daten auf dem integrierten Multiformat-Display an. APM wurde ausschließlich für den industriellen Einsatz entwickelt. APM ist für den Einbau in Schaltschränke oder Anzeigetafeln konzipiert.	Utilisation Prévue : L'APM a été spécialement conçu pour les techniciens et ingénieurs devant disposer d'un moyen efficace permettant de contrôler et d'afficher des données. L'APM est compatible avec une large gamme de puissances électriques (selon le modèle) et affiche les données sur l'écran multifonctions intégré. L'APM a été conçu pour un usage industriel uniquement. L'APM a été conçu pour une installation dans une armoire électrique ou sur un tableau d'instruments.	Uso previsto: El APM ha sido diseñado específicamente para aquellos ingenieros que requieran un modo eficaz de controlar y mostrar datos. El APM acepta una amplia gama de entradas eléctricas (dependiendo del modelo) y muestra los datos en su pantalla integrada multiformato. El APM ha sido diseñado solo para uso industrial. El APM ha sido diseñado para instalarse en armarios eléctricos o paneles de visualización.	Destinazione d'uso: L'APM è stato progettato in modo specifico per gli ingegneri che necessitano di un modo efficace per controllare e visualizzare i dati. L'APM accetta una vasta gamma di ingressi elettrici (a seconda del modello) e visualizza i dati sul suo display multi-formato integrato. L'APM è stato progettato solo per uso industriale. L'APM è stato progettato per l'installazione in armadi elettrici o pannelli di visualizzazione.

Operating Specification

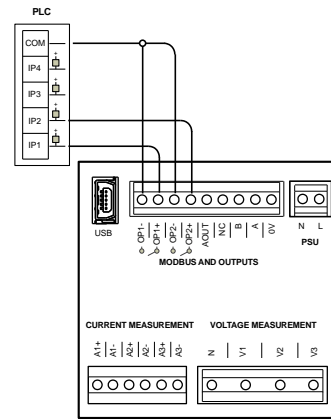
Measurement Range		Messung	Mesure	Medición	Misura
Voltage (V)	L-L: 10 - 600VAC L-N: 10 - 300VAC	Spannungen	Tension	Voltaje	Tensione
Current (I)	0-5A (CT only)	Stromeingang	Entrée actuelle	Entrada de corriente	Ingresso corrente
Power (W/VA/Var)	0-999,999MW Dependant on CT ratio	Leistungsmessung	Mesure de puissance	Medida de potencia	Misura di potenza
Frequency	45 - 65 Hz	Frequenz	Fréquence	Frecuencia	Frequenza
Measurement Accuracy of full scale		Genauigkeit	Précision	Precisión	Accuratezza
Voltage (V)	1%	Spannungen	Tension	Voltaje	Tensione
Current (I)	1%	Stromeingang	Entrée actuelle	Entrada de corriente	Ingresso corrente
Frequency	1%	Frequenz	Fréquence	Frecuencia	Frequenza
THD	5%				
Power (W/VA/Var)	1%	Leistungsmessung	Mesure de puissance	Medida de potencia	Misura di potenza

Wiring Diagrams

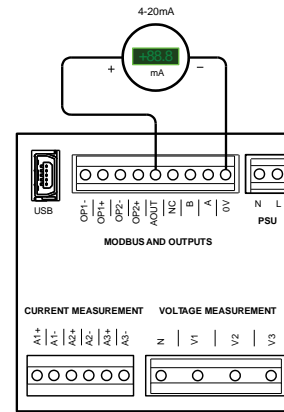
MODBUS CONNECTIONS



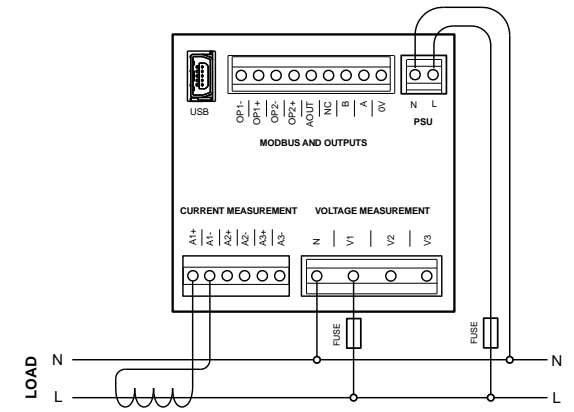
DIGITAL OUTPUT CONNECTIONS



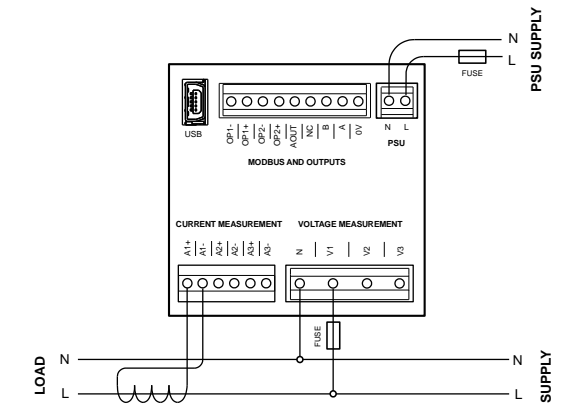
ANALOG OUTPUT CONNECTIONS



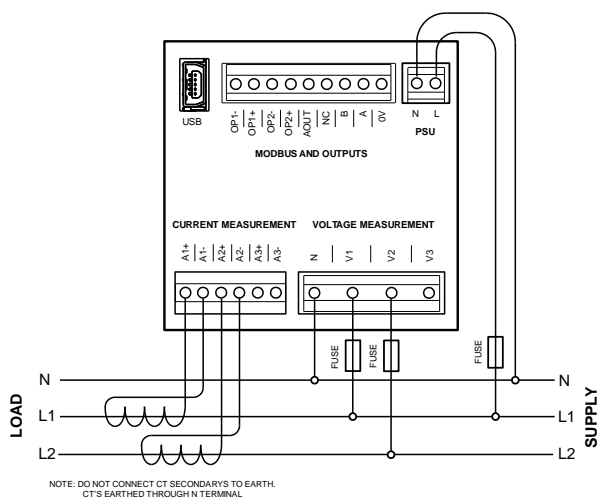
SINGLE PHASE POWER METER CONNECTIONS - LINE POWER



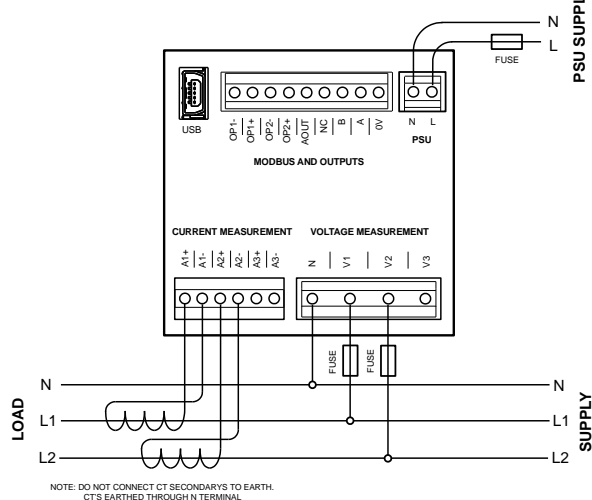
SINGLE PHASE POWER METER CONNECTIONS - LOCAL POWER



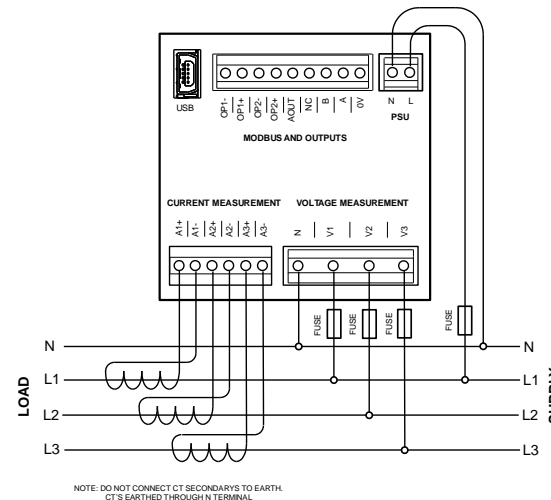
SPLIT PHASE POWER METER CONNECTIONS - LINE POWER



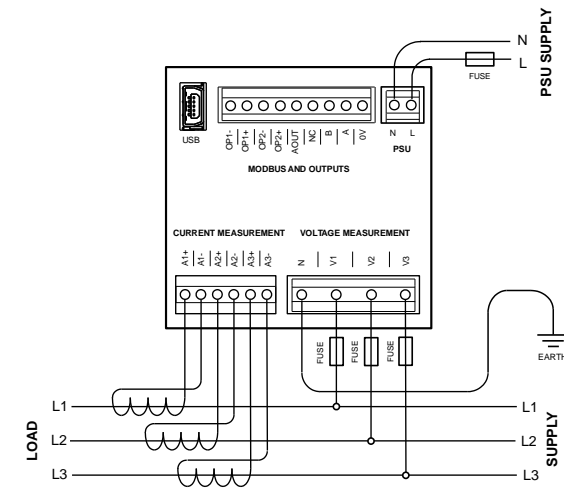
SPLIT PHASE POWER METER CONNECTIONS - LOCAL POWER



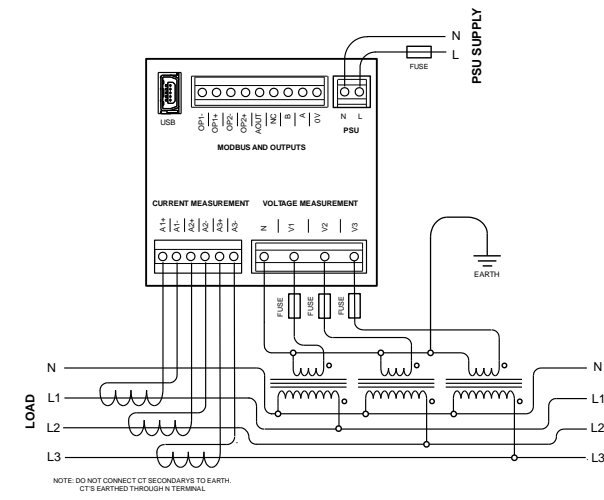
THREE PHASE AND NEUTRAL POWER METER CONNECTIONS - LINE POWER



THREE PHASE (NO NEUTRAL) POWER METER CONNECTIONS - LOCAL POWER



THREE PHASE POWER METER CONNECTIONS with PT and CT - LOCAL POWER



NOTE: DO NOT CONNECT CT SECONDARIES TO EARTH. CT'S EARTHED THROUGH N TERMINAL

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EN: Safety Warnings

DE: Sicherheitswarnungen

FR: Consignes de Sécurité

ES: Advertencias de Seguridad

IT: Avvisi di sicurezza

WARNING: INSTALLATION AND MAINTENANCE MUST BE CARRIED OUT BY SUITABLY QUALIFIED AND COMPETENT PERSONEL ONLY. HAZARDOUS VOLTAGES MAY BE PRESENT ON THE CONNECTION TERMINALS.

INSTALLATION

- Install this product in accordance with local regulations, codes and instructions.
- An external fuse must be fitted in-line with the PSU. Recommended fuse: 0.5A/300V with a breaking capacity of 35A or greater.
- All conductors carrying hazardous voltage must have external switching or disconnect mechanisms fitted that provide at least 3 mm of contact separation in all poles.
- Signal cables connected to this device must not exceed 30 metres long.
- If signal cables are routed outside the building, install extra surge-protection devices.
- Observe maximum allowable voltages. USB, Modbus and output must be limited energy and insulated from voltage and current inputs by double/reinforced insulation according to IEC 61010-1:2010.
- All current transformers must be certified to IEC 61010-1:2010
- To reduce risk of electric shock always disconnect the power circuit being monitored before installing or servicing current transformers.
- If this device is used outside it must be installed in an IP65 rated enclosure.

Failure to install or operate the unit in accordance with the above requirements may impair the electrical safety of the unit. Voltage measurements: An external UL recognized or listed overcurrent protection device (fuse or circuit breaker) must be fitted in-line with the voltage lead. Recommended fuse: 0.5A Type F with a breaking capacity of 35A or greater. Fuse voltage rating must be greater than the maximum voltage that will be applied to the meter.

MAINTENANCE

- Before cleaning, inspection or maintenance, isolate all power sources to the unit.
- There are no user-serviceable parts inside this unit. Never open the case.
- Inspect all external wiring connections at regular intervals. Replace any damaged wiring and tighten any loose connections.
- To clean the unit, use a dry cloth to wipe the casing.
- Take great care connecting the supply. If you connect power to the wrong terminals, it may destroy the unit.

Specification	Spezifikation	Spécifications	Especificación	Specifiche	
EN: ENGLISH	VALUE	DE: DEUTSCHE	FR: FRANÇAIS	ES: ESPAÑOL	IT: ITALIANO
Environment		Umgebung	Conditions environnementales	Medio ambiente	Ambiente
Temperature - operating	-10 to +50°C	Betriebstemperatur	Température de fonctionnement	Temperatura - funcionamiento	Temperatura - funzionamento
Temperature - storage	-40 to +70°C	Lagertemperatur	Température de stockage	Temperatura - almacenamiento	Temperatura - conservazione
Altitude	2000 metres	Betriebshöhe	Altitude	Altitud	Altitudine
Relative Humidity (non-condensing) - Continuous	0 - 85 %	Relative Luftfeuchtigkeit (nicht kondensierend) - Permanent	Hygrométrie permanente (sans condensation)	Humedad relativa (sin condensación) - Continua	Umidità relativa (senza condensa) - Continua
Relative Humidity (non-condensing) - Intermittent	0 - 95 %	Relative Luftfeuchtigkeit (nicht kondensierend) - Temporär	Hygrométrie intermittente (sans condensation)	Humedad relativa (sin condensación) - Intermittente	Umidità relativa (senza condensa) - Intermittente
Overvoltage category (IEC664)	II	Überspannungskategorie (IEC664)	Catégorie de surtension (CEI664)	Categoría de sobretensión (IEC664)	Categoria di sovratensione (IEC664)
Pollution Degree (IEC664)	2	Entstörgrad (IEC664)	Niveau de pollution (CEI664)	Grado de contaminación (IEC664)	Grado di inquinamento (IEC664)
IP rating (from the front)	IP65	Schutzklasse (an der Vorderseite)	Indice IP (face avant)	Clasificación IP (al frente)	Valore IP (dalla parte anteriore)
NEMA Rating (from the front)	Type 4 & Type 12	Schutzklasse NEMA (an der Vorderseite)	Indice NEMA (face avant)	Clasificación NEMA (al frente)	Valore NEMA (dalla parte anteriore)
Vibration			Vibrations	Vibración	Vibrazione
Shock			Chocs	Choque	Scossa
Power supply		Versorgung	Alimentation	Fuente de alimentación	Alimentatore
Input	100-277VAC	Eingang	Entrée	Entrada	Ingresso
Max Power	2W	Maximale Leistung	Consommation maxi	Máxima potencia	Potenza max.
Supply Frequency	50-60Hz	Netzfrequenz	Fréquence d'alimentation	Frecuencia de alimentación	Frequenza di alimentazione
Isolation	Reinforced	Isolierung	Isolation	Aislamiento	Isolamento
Display		Display	Affichage	Visualización	Display
Number of digits	4 x 3	Anzahl der Stellen	Nombre de chiffres	Número de dígitos	Numero di cifre
Digit height	7.5 mm	Zifferhöhe	Hauteur des chiffres	Altura de las cifras	Altezza della cifra
Number of bar-graph segments	20 per phase	Anzahl der Segmente der Balkenanzeige	Nombre de segments dans le graphique à barres	Número de segmentos de la gráfica de barras	Numero di segmenti del grafico a barre
Number of starburst message characters	6	Anzahl der Starburst-Meldungszeichen	Nombre de caractères de message contextuel	Número de caracteres del mensaje starburst	Numero di caratteri del messaggio esplosione
Backlight colours	Red, Green, White	Hintergrundfarbe	Couleurs de rétroéclairage	Colores de luz de fondo	Colori retroilluminazione
LCD	Positive or Negative	LCD	LCD	LCD	LCD
Digit update frequency	500ms	Ziffern-Updatefrequenz	Fréquence de mise à jour des chiffres	Frecuencia de actualización de los dígitos	Frequenza aggiornamento cifre
Bar-graph update frequency	500ms	Updatefrequenz der Balkenanzeige	Fréquence de mise à jour du graphique à barres	Frecuencia de actualización del gráfico de barras	Frequenza di aggiornamento grafico a barre
Viewing angle	+/-70° Horizontal +/-70° Vertical	Sichtwinkel	Angle de vision	Ángulo de visión	Angolo di visione
Open Collector Sinking Outputs			Sorties à Collecteur Ouvert	Salidas de colector abierto	Uscite a collettore aperto
Max voltage (open collector outputs)	24 VDC	Max. Spannung (Open-Collector-Ausgänge)	Tension maxi (sorties à collecteur ouvert)	Tensión Máx	Tensione max.
Max current (open collector outputs)	15 mA	Max. Stromstärke (Open-Collector-Ausgänge)	Courant maxi (sorties à collecteur ouvert)	Corriente Máx	Corrente max.
Analogue Output		Analoger Ausgang	Sortie analogique	Salida analógica	Uscita analogica
Output	4-20 mA	Ausgang	Sortie	Salida	Uscita
Accuracy	0.50 %	Genauigkeit	Précision	Precisión	Accuratezza
Resolution	0.02 mA	Auflösung	Résolution	Resolución	Risoluzione
Connections		Anschlüsse	Connexions	Conexiones	Connessioni
Type	Screw Terminals	Typ	Type	Tipo	Tipo
Wire type	Copper (Solid or Stranded)	Draht-Typ	Type de câble	Tipo de cable	Tipo di filo
Min. cable temperature rating	65°C (149°F)	Min. Temperaturfestigkeit	Température de fonctionnement mini	Clasificación de temperatura min.	Valore temperatura min.
Wire strip length	6.5mm to 7mm (0.26" to 0.28")	Abisolierlänge	Longueur de dénudage des câbles	Largo de pelado del cable	Lunghezza striscia filo
Wire gauge	0.8mm ² - 3.3mm ² (18AWG to 12AWG)	Drahtstärke	Section des câbles	Calibre del cable	Diametro dei cavi
Torque	0.5-0.6Nm (4.42-5.31 lbf-in)	Drehmoment	Couple de serrage	Esfuerzo de torsión	Coppia
In the Box		Im Gehäuse	Liste de colisage	En la caja	Nella confezione
APM		APM	APM	APM	APM
Getting started & safety guide		Erste Schritte & Sicherheitsleitfaden	Guide de démarrage et de sécurité	Introducción y guía de seguridad	Guida di avvio e di sicurezza
Gasket		IP65 Dichtung	Joint IP65	Junta IP65	Guarnizione IP65
Retaining clip		Halteclip	Étrier de fixation	Clip de retención	Clip di fissaggio
Dimensions & Weight:					
Panel Cut-out: 68 x 68 mm (2.68 in) +0.7 -0 mm (0.02 in). Max. panel thickness: 10 mm.		Frontplattenausschnitt: 68 x 68 mm (2.68 Zoll) +0.7 -0 mm (0.02 Zoll). Max. Plattenstärke: 10 mm.	Décoque d'encastrement : 68 x 68 mm (2.68") +0.7 - 0 mm (0.02"). Épaisseur maxi du panneau: 11.0 mm.	Interruptor de panel: 68 x 68 mm +0.7 -0 mm. Máx. grosor del panel: 11.0 mm.	Cut-out pannello: 68 x 68 mm (2.68 in) +0.7 -0 mm (0.02 in). Spessore pannello max.: 11.0 mm.
Dimensions: Depth behind panel inside front: 55mm (2.17in) incl. external connections. Weight: 220 grams		Abmessungen: Einbautiefe hinter Frontplatteninnenseite: 55mm (2,17 Zoll) inkl. externe Verbindungen. Gewicht: 220 Gramm.	Dimensions : Profondeur derrière la face avant : 55 mm (2,7") Poids : 220 grammes.	Dimensiones: Profundidad detrás del frontal interior del panel: 55mm Peso: 220 gramos.	Dimensioni: Profondità dietro pannello anteriore interno: 55 mm (2.17in). Peso: 220g.

Control Outputs

Isolation

Isolation barriers:
Galvanic Isolation Barrier

Size / Größe / Taille / El Tamaño / La dimensione

68 x 68mm (2.68in) +0.7 -0mm

EN: Size of the cutout in the panel:
DE: Größe der Ausnehmung in der Platte:
FR: Taille de la découpe dans le panneau:
ES: Tamaño de la abertura en el panel:
IT: Dimensioni del ritaglio nel pannello:

Front Panel Buttons

Change Parameter:
Press to move between parameters

Auto Scroll Parameters:
Press to automatically switch parameters every 3 seconds

Software

EN: You need the software to configure the setpoints and outputs. For more details, output configurations and the software, visit www.trumeter.com/apm.

DE: Sie benötigen die Software, um die Sollwerte und Ausgänge zu konfigurieren. Weitere Einzelheiten zu Ausgangskonfigurationen und Software finden Sie unter www.trumeter.com/apm.

FR: Vous avez besoin du logiciel pour configurer les points de consigne et des sorties. Pour plus de détails, configurations de sortie et le logiciel, visitez www.trumeter.com/apm.

ES: Necesita el software para configurar los valores de consigna y salidas. Para más detalles, configuraciones de salida y la de software, visite www.trumeter.com/apm.

IT: È necessario il software per configurare i valori di riferimento e le uscite. Per maggiori dettagli, configurazioni di uscita e il software, visitare il sito www.trumeter.com/apm.

Contact / Kontakt / Contactor / Contatto / Contatto

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