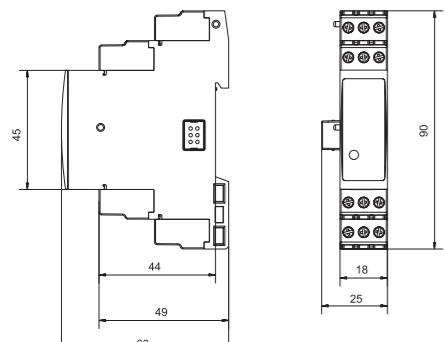


## VMU-P 2TCW

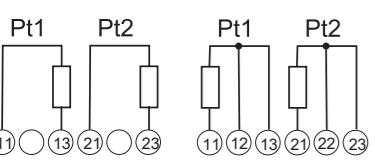
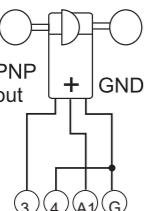
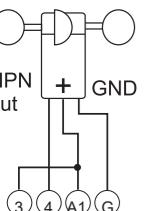


[1]

[2]

[5]

[6]



[3]

[4]

## ENGLISH VMU-P

**LED RGB FUNCTION.** ON steady light: the module is power supplied and there is no communication on the auxiliary bus. Green: the power supply is ON. White: the unit is enabled by VMU-M module for data reading and displaying. Yellow (blinking light): the communication on the auxiliary bus is working.

[1] Wind speed input, NPN output. [2] Wind speed input, PNP output. [3] Temperature input, Pt1-cell and Pt2-air, 3 wires connections. [4] Temperature input, Pt1-cell and Pt2-air, 2 wires connections. [5] Irradiation input, 2 wires connections. [6] Irradiation input, 3 wires connections.

## SAFETY PRECAUTIONS

Read carefully the instruction manual. If the instrument is used in a manner not specified by the producer, the protection provided by the instrument may be impaired. Maintenance: make sure that the connections are correctly carried out in order to avoid any malfunctioning or damage to the instrument. To keep the instrument clean, use a slightly damp cloth; do not use any abrasives or solvents. We recommend to disconnect the instrument before cleaning it.

## TECHNICAL SPECIFICATIONS

Accuracy (@25°C ±5°C, R.H. ≤60%). Temperature See "Temperature input characteristics". Irradiation from 0 to 120mV: ±(0.5%RDG). Wind speed from 0 to 1000Hz: ±(0.1%RDG). Temperature drift <200ppm/C. Variables format instantaneous variables 4 DGT (Temperature, solar irradiation and wind speed). Resolution 0.1°C/0.1°F; 1W/m², 1W/ft², 0.1m/s, 0.1ft/s. Temperature probe inputs. Number of inputs 2. Temperature probe Pt100, Pt1000. Number of wires up to 3-wire connection. Wire compensation up to 10Ω. Accuracy (Display + RS485) see table "Temperature input characteristics" in the relevant data sheet. Temperature drift ±150ppm. Engineering unit selectable °C or °F. Irradiation sensor inputs number of inputs 1. Range 0 to 20mA. Accuracy (@25°C ±5°C, R.H. ≤60%) ±(0.2%RDG+1DGT) 0% to 25% FS; (Display + RS485) ±(0.1%RDG+1DGT) 25% to 120% FS. Temperature drift ±150ppm. Scaling factor operating mode, dual scale: - Input: programmable range from 0 to 25.0 (mADC) - Display: programmable range from 0 to 999.9 (kW/m², kW/ft²). Decimal point position fixed. Impedance ≤23Ω. Overload continuous 50mADC (measurement available up to 25mA on both display and communication bus). For 1s 150mADC. Wind speed sensor inputs number of inputs 1. Range 0 to 1000Hz max, duty cycle 50%. Accuracy (@25°C ±5°C, R.H. ≤60%) (Display + RS485) ±(0.02%RDG+1DGT) 0% to 25% FS; ±(0.1%RDG+1DGT) 25% to 110% FS. Temperature drift ±150ppm. Scaling factor operating mode dual scale: - Input: programmable range from 0 to 999.9 (Hz) - Display: programmable range from 0.1 to 299.9 (m/s, ft/s). Decimal point position fixed. Operating input: 2.5V<sub>peak</sub> to 9V<sub>peak</sub>/5mA<sub>peak</sub> to 35mA<sub>peak</sub>, duty cycle 50%; Impedance: 220Ω. Contact measuring voltage 10 to 50VDC. Contact measuring current <10mA. Contact resistance ≤100Ω closed contact; ≥500Ω open contact. Overload continuous 10VDC (measurement available up to 1V on both display and communication bus) for 1s 20VDC. Insulation, see "Insulation between inputs and outputs" in the relevant data sheet. Operating temperature -25 to +55°C (-13°F to 131°F) (R.H. from 0 to <90% non-condensing @ 40°C). Storage temperature -30 to +70°C (-22°F to 140°F) (R.H. <90% non-condensing @ 40°C). Over voltage category Cat. III (IEC 60664, EN60664). For inputs from string: equivalent to Cat. I, reinforced insulation. Dielectric strength 4000 VAC RMS for 1 minute. Noise rejection CMRR 100 dB, 45 to 65 Hz. EMC (Immunity) according to EN61000-6-2. Electrostatic discharges EN61000-4-2: 8kV air discharge, 4kV contact, Immunity to Bursts EN61000-4-4: 4kV on power lines, 2kV on signal lines; Immunity to conducted disturbances EN61000-4-6: 10V from 150kHz to 80MHz; Surge EN61000-4-5: 500V on power supply; 4kV on string inputs. EMC (Emission) according to EN61000-6-3. Radio frequency suppression according to CISPR 22. Standard compliance safety IEC60664, IEC61010-1 EN60664, EN61010-1. Approvals CE, cULus Listed. Housing dimensions (WxHxD) 17.5 x 90 x 67 mm. Material Noryl, self-extinguishing: UL 94 V-0. Mounting DIN rail. Protection degree Front IP40. Screw terminals IP20. Connections Screw-type cable

cross-section area 1.5 mm² max. Min./Max. screws tightening torque: 0.4 Nm / 0.8 Nm. Screw terminal purposes 1.5 mm² 3+3 screw terminals used for two temperature probes 2 screw terminals used for wind speed sensor 2 screw terminals used for solar irradiation sensor. Weight approx. 100 g (packing included). Power supply self-power supplied through the communication bus. Power consumption ≤0.7W.

**UL508 NOTES:** Max. Surrounding Air of 40°C/104°F. Use 60/140°F or 75°C/167°F copper (CU) conductor and wire size No. 30-12 AWG, stranded or solid for auxiliary and power supply connections. Use 60/140°F or 75°C/167°F copper (CU) conductor and wire size No. 14-8 AWG, stranded or solid for 600V-16A input connections. Terminal tightening torque of 0.4Nm for auxiliary connection. Terminal tightening torque of 1.1Nm for 600V input connections with AWG8 wire, 0.5Nm for smaller sizes. Open Type Device.

## ITALIANO VMU-P

**FUNZIONE LED RGB MULTICOLORE FRONTALE.** Luce accesa fissa: il modulo è alimentato e non c'è comunicazione sul bus ausiliario. Verde: alimentazione presente. Bianco: l'unità è abilitata dal modulo VMU-M per la lettura e visualizzazione dati. Giallo (luce lampeggiante): c'è comunicazione sul bus ausiliario.

## COLLEGAMENTI ELETTRICI

[1] Ingresso velocità del vento, uscita NPN. [2] Ingresso velocità del vento, uscita PNP. [3] Ingresso in temperatura, Pt1=cella e Pt2=aria, collegamento 3 fili. [4] Ingresso in temperatura, Pt1=cella e Pt2=aria, collegamento 2 fili. [5] Ingresso irraggiamento, collegamento 2 fili. [6] Ingresso irraggiamento, collegamento 3 fili.

## NORME DI SICUREZZA

Leggere attentamente il manuale istruzioni. Qualora l'apparecchio venisse adoperato in un modo non specificato dal costruttore, la protezione prevista dall'apparecchio potrebbe essere compromessa. Manutenzione: assicurarsi che i collegamenti siano effettuati correttamente al fine di evitare qualsiasi malfunzionamento o danneggiamento dello strumento. Per mantenere pulito lo strumento usare un panno leggermente umidito; non usare abrasivi o solventi. Si consiglia di scollegare lo strumento prima di pulirlo.

## CARATTERISTICHE TECNICHE

Precisione (@25°C ±5°C, U.R. ≤60%). Temperatura Vedere "Caratteristiche degli ingressi in temperatura". Irradiamento da 0 a 120mV: ±(0.5%RDG). Wind speed da 0 a 1000Hz: ±(0.1%RDG). Deriva termica <200ppm/C. Formato delle variabili variabili istantanee 4 DGT (Temperatura, irraggiamento solare e velocità del vento). Risoluzione 0.1°C/0.1°F; 1W/m², 1W/ft²; 0.1m/s, 0.1ft/s. Ingressi sonde di temperatura. Numero ingressi 2. Sonde Pt100, Pt1000. Numero di fili: connessione fino a 3 fili. Compensazione filo fino a 10Ω. Precisione (Display + RS485) Vedere "caratteristiche degli ingressi in temperatura" nel relativo data sheet. Deriva termica ±150ppm. Unità ingegneristica selezionabile °C o °F. Isolamento vedere la tabella "isolamento tra ingressi ed uscite". Ingresso sensore d'irraggiamento numero ingressi 1. Portata da 0 a 20mA. Precisione @25°C ±5°C, U.R. ≤60% ±(0.2%RDG+1DGT) 0% to 25% FS; (Display + RS485) ±(0.1%RDG+1DGT) 25% to 120% FS. Deriva termica ±150ppm. Fattore di scala modo operativo duplice scala: - Ingresso: portata programmabile da 0 a 25.0 (mACC) - Display: portata programmabile da 0 a 9999 (kW/m², kW/ft²) Posizione punto decimale fisso. Impedenza: ≤23Ω. Sovraccarico continuo 50mACC (misura disponibile fino a 25mA su entrambi display e bus di comunicazione). Per 1s 150mACC. Sensore per la velocità del vento. Numero ingressi, 1. Portata da 0 a 1000Hz max, duty cycle 50%. Precisione @25°C ±5°C, U.R. ≤60% ±(0.2%RDG+1DGT) da 0% a 25% a 110% FS. Deriva termica ±150ppm. Fattore di scala modo operativo. Duplice doppia: - Ingresso: portata programmabile da 0 a 99.9 (Hz) - Visualizzata: portata programmabile da 0,1 a 299.9 (m/s, ft/s). Posizione punto decimale fisso. Ingresso operativo: 2.5V<sub>peak</sub> to 9V<sub>peak</sub>/5mA<sub>peak</sub> to 35mA<sub>peak</sub>, duty cycle 50%. Impedenza 220Ω. Tensione di lettura contatto da 10 a 50VDC. Corrente di lettura contatto <10mA. Resistenza del contatto ≤100Ω contatto chiuso; ≥500Ω contatto aperto. Sovraccarico Continuo 10VCC (misura disponibile fino a 1V sul display e sul bus di comunicazione). Per 1s 20VDC. Isolamento, vedere "isolamento tra ingressi ed uscite". Temperatura di funzionamento: -25 to +55°C (da -13°F a 131°F) (U.R. da 0 a <90% senza condensa @ 40°C). Temperatura di immagazzinaggio: -30 to +70°C (da -22°F a 140°F) (R.H. <90% senza condensa @ 40°C). CATEGORIA D'INSTALLAZIONE CAT. III (IEC 60664, EN60664) Per gli ingressi di stringa: equivalente all Cat. I, isolamento rinforzato. Isolamento (per 1 minuto) Vedere tabella "isolamento tra ingressi ed uscite". Rigidezza dielettrica 4000 VAC RMS per 1 minuto. Reiezione CMRR 100 dB, da 45 a 65 Hz. EMC (Immunità) Secondo EN61000-6-2. Scariche elettrostatiche EN61000-4-2: 8kV scarica in aria, 4kV contatto; Immunità ai campi elettromagnetici irradianti EN61000-4-3: 10V/m da 80 a 3000MHz; Immunità ai transitori veloci EN61000-4-4: 4kV sulle linee di potenza, 2kV su singole linee; Immunità ai radio disturbi condotti EN61000-4-6: 10V da 150kHz a 20MHz; Immunità ad impulso EN61000-4-5: 500V sull'alimentazione; 4kV sugli ingressi di stringa. EMC (Emissioni) secondo EN61000-6-3. Emissioni in radiofrequenza secondo CISPR 22. Conformità alle norme Sicurezza IEC60664, IEC61010-1 EN60664, EN61010-1. Approvazioni CE, cULus Listed. Custodia: dimensioni 17.5 x 90 x 67 mm. Materiale Noryl, autoestinguibile: UL 94 V-0. Mountaggio a guida DIN. Grado di protezione Frontale IP40. Connessioni IP20. Connessioni a vite. Sezione del cavo 1,5 mm² max. Coppia serraggio viti Min./Max.: 0,4 Nm / 0,8 Nm. Utilizzo delle connessioni 1,5 mm² 3+3 morsetti usati per due ingressi di temperatura 2 morsetti usati per il sensore della velocità del vento 2 morsetti usati per il sensore di irraggiamento. Peso circa. 100 g (imballo compreso). Alimentazione autoalimentata attraverso il bus locale. Autoconsumo ≤0,7W. Alimentazione da 12 a 28 VCC. Autoconsumo 1W.

**SPÉCIFICATIONS** Précision (@25°C ±5°C, H.R. ≤60%). Température Voir "Caractéristiques d'entrée de température". Irradiation de 0 à 120mV: ±(0.5%RDG). Vitesse de vent de 0 à 1000Hz: ±(0.1%RDG). Déviation thermique <200ppm/C. Format des variables variables instantanées 4 DGT (Température, irraggiement solaire et vitesse du vent). Résolution 0.1°C/0.1°F; 1W/m², 1W/ft²; 0.1m/s, 0.1ft/s. Entrées sondes de température. Nombre d'entrées 2. Sonde Pt100, Pt1000. Nombre de fils: connexion jusqu'à 3 fils. Compensation fil jusqu'à 10Ω. Précision (Affichage + RS485) voir "Caractéristiques d'entrée de température" dans la fiche technique. Déviation thermique ±150ppm. Unité technique à choisir °C ou °F. Entrée capteur d'irradiation, nombre d'entrées 1. Portée d'émission 0 à 20mACC. Précision (@25°C ±5°C, H.R. ≤60%), ±(0.1%RDG+1DGT) 0% à 25% FS; (Affichage + RS485) ±(0.1%RDG+1DGT) 25% à 120% FS. Déviation de température ±150ppm. Facteur d'échelle mode de fonctionnement, échelle double: - Entrée : portée programmable de 0 à 25.0 (mACC) - Affichage : portée programmable de 0 à 999.9 (kW/m², kW/ft²). Position de point décimal fixe. Impédance ≤23Ω. Surcharge Continue 50mACC (mesure disponible jusqu'à 25mA sur l'afficheur et le bus de communication). Pour 1s, 150mACC. Entrées du capteur de vitesse du vent. Nombre d'entrées 1. Portée d'émission 0 à 1000Hz max, cycle de service 50%. Précision (@25°C ±5°C, H.R. ≤60%), ±(0.2%RDG+1DGT) 0% à 25% FS; (Affichage + RS485), ±(0.1%RDG+1DGT) 25% à 110% FS. Déviation de température ±150ppm. Facteur d'échelle mode de fonctionnement Echelle double: - Entrée : portée programmable de 0 à 999.9 (Hz) - Afficheur : portée programmable de 0,1 à 299.9 (m/s, pied/s). Position de point décimal fixe. Entrée de fonctionnement: 2.5V<sub>peak</sub> à 9V<sub>peak</sub>/5mA<sub>peak</sub> à 35mA<sub>peak</sub>, cycle de service 50%. Impédance 220Ω. Contact mesurant la tension 10 à 50VCC. Contact mesurant le courant <10mA. Résistance de contact ≤100Ω Contact fermé; ≥500Ω contact ouvert. Surcharge Continue 10VCC (mesure disponible jusqu'à 1V sur l'afficheur et le bus de communication). Pour 20VCC. Isolation, voir le tableau "isolation entre les entrées et les sorties" dans la fiche technique. Température de fonctionnement -25 à +55°C (-13°F à 131°F) (H.R. de 0 à <90% sans condensation @ 40°C). Température de stockage -30 à +70°C (-22°F à 140°F) (H.R. <90% sans condensation @ 40°C). CATEGORIE D'INSTALLATION CAT. III (IEC 60664, EN60664) Pour les entrées de chaîne: équivalent à Cat. I, isolation renforcée. Rigidezza dielettrica 4000 VAC RMS pour 1 minute. Emission de bruit CMRR 100 dB, 45 a 65 Hz. Compatibilità elettromagnetica (immunità) selon EN61000-6-2. Décharges elettrostatiche EN61000-4-2: 8kV decharge d'air, 4kV contact; Immunità ai campi elettromagnetici irradiati EN61000-4-3: 10V/m da 80 a 3000MHz; Immunità ai transitori veloci EN61000-4-4: 4kV sulle linee di potenza, 2kV sulle linee di segnale; Immunità alle perturbazioni par conduction EN61000-4-6: 10V da 150kHz a 20MHz; tensione EN61000-4-5: 500V sull'alimentazione; 4kV sulle entrées de chaîne. Compatibilità elettromagnetica (Emissioni) Selon EN61000-6-3. Suppression de fréquence radio selon CISPR 22. Conformité aux normes sécurité IEC60664, IEC61010-1, EN60664, EN61010-1. Approbations CE, cULus Listed. Boîtier dimensions (LxHxD) 17.5 x 90 x 67 mm. Material Noryl, auto-extinguishing: UL 94 V-0. Montage Rail DIN. Degré de protection avant IP40. Bornes à vis IP20. Connexions A vis. Aire de section de câble 1,5 mm² max. Coupe de serrage de vis min/max.: 0,4 Nm / 0,8 Nm. Buts de borne à vis 1,5 mm² 3+3 Bornes à vis utilisées pour les deux sondes de température 2 bornes à vis utilisées pour le capteur de vitesse du vent 2 bornes à vis utilisées pour le capteur d'irradiation slaire. Poids Env. 100 g (emballage inclus). Alimentation, auto alimentation fournie par le bus de communication. Consommation d'alimentation ≤0,7W.

## DEUTSCH VMU-P

**LED-LEUCHTE.** Festlicht ON: Das Modul wird mit Strom versorgt und es besteht keine Kommunikation an den Hilfsbus. Grün: Die Stromversorgung steht auf ON. Weiß: Die Einheit wird vom VMU-M Modul zum Lesen und Anzeigen der Daten eingeschaltet. Gelb (Blinklicht): Die Kommunikation an den Hilfsbus läuft.

**ANSCHLÜSSE.** [1] Windgeschwindigkeitseingang, PNP Ausgang. [2] Windgeschwindigkeits-eingang, NPN Ausgang. [3] Temperatureingang 1 und Eingang 2, Pt1-Zelle und Pt2-Luft, 3-adriger Anschluss. [4] Temperatureingang 1 und Eingang 2, Pt1-Zelle und Pt2-Luft, 2-adriger Anschluss. [5] Bestrahlungseingang, 2-adriger Anschluss. [6] Bestrahlungseingang, 3-adriger Anschluss.

## SICHERHEITSBESTIMMUNGEN.

Die Betriebsanleitung aufmerksam lesen. Sollte das Gerät nicht gemäß der Herstellerangaben verwendet werden, könnte der vom Gerät vorgesehene Schutz beeinträchtigt werden. Wartung: Beachten Sie den korrekten Anschluss aller Anschlussterminals um eine Beschädigung des Instrumentes zu vermeiden. Das Gerät mit einem feuchten Tuch reinigen; keine Scheuer- oder Lösemittel verwenden. Das Gerät vor der Reinigung ausschalten.

## TECHNISCHE DATEN

Genaugigkeit (@25°C ±5°C, R.F. ≤60%). Temperatur siehe „Temperatureingangseigenschaften“ estrahlung von 0 bis 120mV: ±(0.5%RDG). Windgeschwindigkeit von 0 bis 1000Hz: ±(0.1%RDG). Temperaturdrift <200ppm/C. Messgrößenformat momentanmessgröße Ben 4 stellig (Temperatur, Sonnenbestrahlung und Windgeschwindigkeit). Resolution 0.1°C/0.1°F; 1W/m², 1W/ft²; 0.1m/s, 0.1ft/s. Temperatursonde Pt100, Pt1000. Anzahl der Adern Bis zu 3-adrigem Anschluss aderausgleich Bis zu 10Ω. Genaugkeit (Display + RS485). Siehe Tabelle „Temperatureingangseigenschaften“ in dem entsprechenden Datenblatt. Temperaturdrift ±150ppm. Technische Einheit °C oder °F wählbar. Bestrahlung der Sensoreingänge. Anzahl der Eingänge 1. Bereich 0 bis 20mA. Genaugkeit (@25°C ±5°C, R.F. ≤60%) ±(0.2%RDG+1DGT) 0% bis 25% FS; (Display + RS485) ±(0.1%RDG+1DGT) 25% bis 120% FS. Temperaturdrift ±150ppm. Skalierungsfaktor Betriebsmodus Dualskala: Eingang: Programmierbarer Bereich von 0 bis 25.0 (mADC) - Display: Programmierbarer Bereich von 0 bis 999.9 (kW/m², kW/ft²) Dezimalstelleneinstellung: Fest. Impedanz: ≤23Ω. Überlast Dauer 50mADC (Messung bis zu 25mA auf Display- und Kommunik