

Smart Level 1 Combiner Box



Example of Combiner Box. Picture may differ from product)

PV DC 16IN SW FU SPD CG 16i + 1kV

Weidmüller

Applications

Smart PV Combiner Box Level 1 to bundle the output lines of individual strings and to connect them to the inverter or optionally to a Level 2 Combiner Box. Smart design customized for each customers application. Advanced surge-protection devices, fuse links and switch disconnecter keep the correct operation and protection of the system. Integrated power monitoring provided by Transclenic monitoring system (optionally self-supplied from string voltage) allows to do the right surveillance of the PV site to guarantee the best performance of the system. Additionally, PV Combiner Box fulfill the standard IEC/EN 61439-2 to offer a high reliability on the units supplied.

Application data

■ Operating ambient temperature range	–20 °C bis +45 °C
■ Intended installation location	protected outdoors (>1 km from sea)
■ Degree of protection (acc. to IEC 60529)	IP65
■ Conformity with norms	IEC 61439-2 ed 2.0 / EN 61439-2:2011

Electrical characteristics

■ Rated DC voltage (U_n)	1000 VDC
■ Rated DC current per input (I_{nc})	9 A at 45 °C ambient
■ Rated DC current per input (10h short-circuit at main output)	1.25 Inc
■ Switch disconnecter breaking and making capacity (acc. to IEC 60947-3)	400 A (DC21B 1000 V)
■ Switch-disconnector / Circuit breaker / Contactor handle location	direct handle (inside enclosure)
■ DC earthing system	floating positive and negative
■ Surge protection on DC ports	1000V DC, type II, $I_{max} = 40$ kA, $U_p \leq 4.0/4.0$ kV, aux. contact
■ Surge protection on monitoring supply ports	230V AC, type II, $I_{max} = 40$ kA, $U_p \leq 1.5$ kV, aux. contact
■ Surge protection on EIA RS – 485 ports	$I_{max} = 10$ kA, $U_p = 15$ V, no aux. contact

Enclosure

■ Enclosure dimensions (H × W × D)	1056 × 852 × 350 mm
■ Form factor	cabinet with hinged door(s)
■ Material	glass-fiber reinforced polyester (GFRP)
■ Fixing system	direct wall mount + stainless steel wall mount lugs

Advantages

- 16 string input
- fuse holders in string input (+/-) including fuse links
- single string monitoring
- powered by 24 V DC power supply
- surge protection devices for DC system voltage, communication bus, and auxiliary AC supply
- string input with WM4 C box connectors
- wall mounted with metal lugs

Inputs

■ Number of DC inputs (+ & – being one input)	16
■ Positive DC input wires to be connected to / cross-section (stranded)	WM4C / LEONI BETAsolar® LSC-R1 connector compatible with cable type LEONI BETAflam® Solar / EN 50618:2015
■ Negative DC input wires to be connected to / cross-section (stranded)	WM4C / LEONI BETAsolar® LSC-R1 connector compatible with cable type LEONI BETAflam® Solar / EN 50618:2015
■ Fuses	fuse-links and fuse-disconnectors
■ Fuse form factor	10 × 38 mm
■ Location of fuses	positive and negative inputs
■ Fuse-link rated current (I_n)	15 A
■ Fuse-link time-current characteristic	gPV (EN 60269-6)
■ Earth wire to be connected to / cross-section (stranded)	screw connection / 2.5 – 35 mm ²
■ Earth wire outer diameter	6 – 12 mm, LEONI BETAt herm® 90
■ Auxiliary monitoring supply cable(s) wires to be connected to / cross-section (stranded)	0.5 – 4 mm ² , LEONI BETAflam® Solar 125 flex 1500 V DC
■ Auxiliary monitoring supply cable(s) wires outer diameter	6 – 12 mm

Outputs

■ Number of DC outputs (+ & – being one output)	1
■ DC output wires to be connected to / cross-section (stranded)	M12 threaded stud connection / ≤ 240 mm ²
■ DC output wires outer diameter	22 – 32 mm, LEONI SOLARpower Alu-ATA and terminal kit
■ EIA RS-485 cables wires to be connected to / cross-section (stranded)	0.22 – 2.5 mm ² , LEONI BETAflam® Solar L-02YSC2Y 2X2X0.5
■ EIA RS-485 cables wires outer diameter	5 – 10 mm

Monitoring

■ Monitoring system included	1 × Transclinic 16i+
■ Monitoring system powered by	85-264 Vac input PSU
■ Input current monitoring	individual (1 % error full-scale)
■ System voltage monitoring	yes (1 % error full-scale)
■ Internal temperature monitoring	yes (–20 °C to 80 °C)
■ Switch-disconnector / Circuit breaker / Contactor monitoring	yes (closed / open) via Transclinic's digital inputs
■ DC and AC surge protection monitoring	yes (healthy / needs replacement)