

קטלוג
חדש
במולכו

מולכו



ציווד חשמל ותעשייה בע"מ

:hager



Fandis
colors of engineering

LANZINI

1960

ELBA |  Lighting technology

לקוחות ושותפים עסקיים יקרים,

חברת מולכו שוקדת כל העת להעשיר את מגוון המוצרים והפתרונות שהיא מציעה ללקוחותיה ושותפיה העסקיים. בקטלוג זה תוכלו להתרשם מסל פתרונות חדיש, נוסף על סל הפתרונות המגוון שאנו מציעים בקטלוג המוצרים הקיים, לשימושכם והנאתכם.

אני וצוות העובדים המסור של מולכו מודים לכל אחד ואחת מכם על השותפות העסקית ומזמינים אתכם ליצור קשר לכל שאלה ו/או הבהרה שתצטרכו בקשר עם הפתרונות שלנו או בכלל.

בברכה,

עופר שמיר

מנכ"ל

מולכו 
ציוד חשמל ותעשייה בע"מ

:hager



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מפסקי אויר h



נתונים טכניים

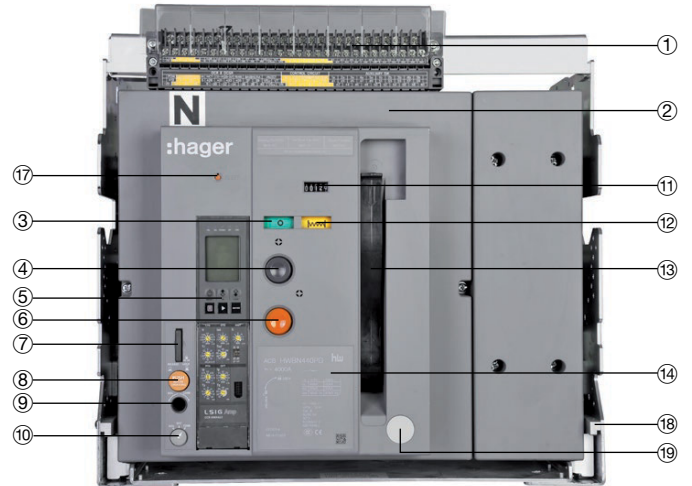
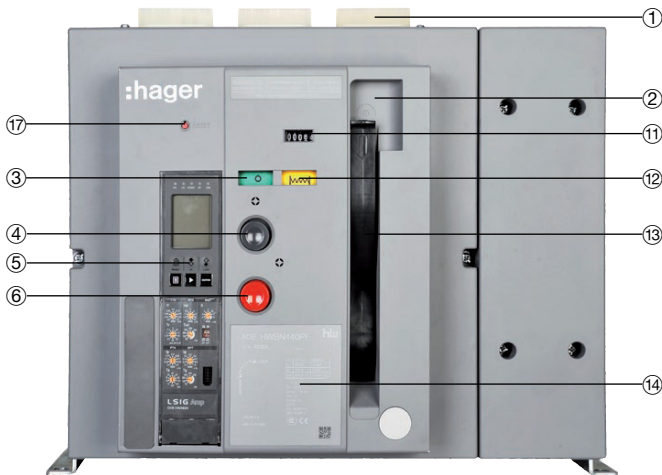
- עמידה בתקן IEC 60947-2 ו-GB14048.2
- זרם נקוב: 5000A-630 ב-3 גדלים שונים
- כושר ניתוק: 50, 65, 85, 100kA
- מתח נקוב: 690 וולט
- מתח בידוד נקוב: 1000 וולט
- יכולת עמידה בפולס מתח: 12KV
- מנתק בעומס
- 3 סוגים של הגנות: בסיסי, מוגבר, אנרגיה

יתרונות

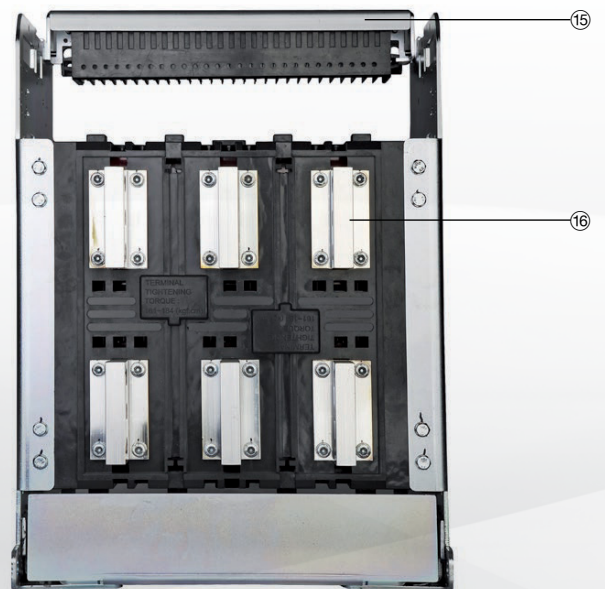
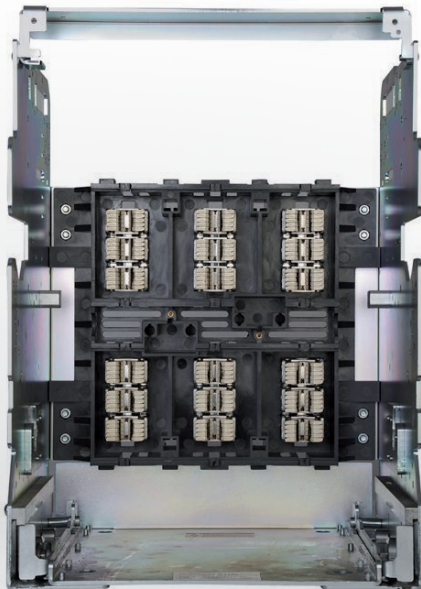
- כושר ניתון גבוה לכל הסדרה $I_{cu} = I_{cs}$.
- פאנל הפעלה אופטימלי וקומפקטי: גובה ועומק זהים.
- חיבור נחושת אופקי/אנכי - קל לסובב את המחבר ב-90 מעלות.
- הרכבה מהירה וקלה של אביזרים.
- יחידת הגנה: תקשורת משולבת, איפוס מרחוק, תאום סלקטיביות, התראת חימום יתר.
- אמינות במידע: נוריות מידע על תקלות - שמירה לחודש מלא, רישום תקלות.
- הגנה מתקדמת: עומס נמוך, מתח לא מאוזן, הגנת מתח יתר/תת מתח.
- מדידת נתונים מתקדמת של: זרם, מתח, הספק, אנרגיה, ביקוש...

מבנה חיצוני

חזית



שלדה

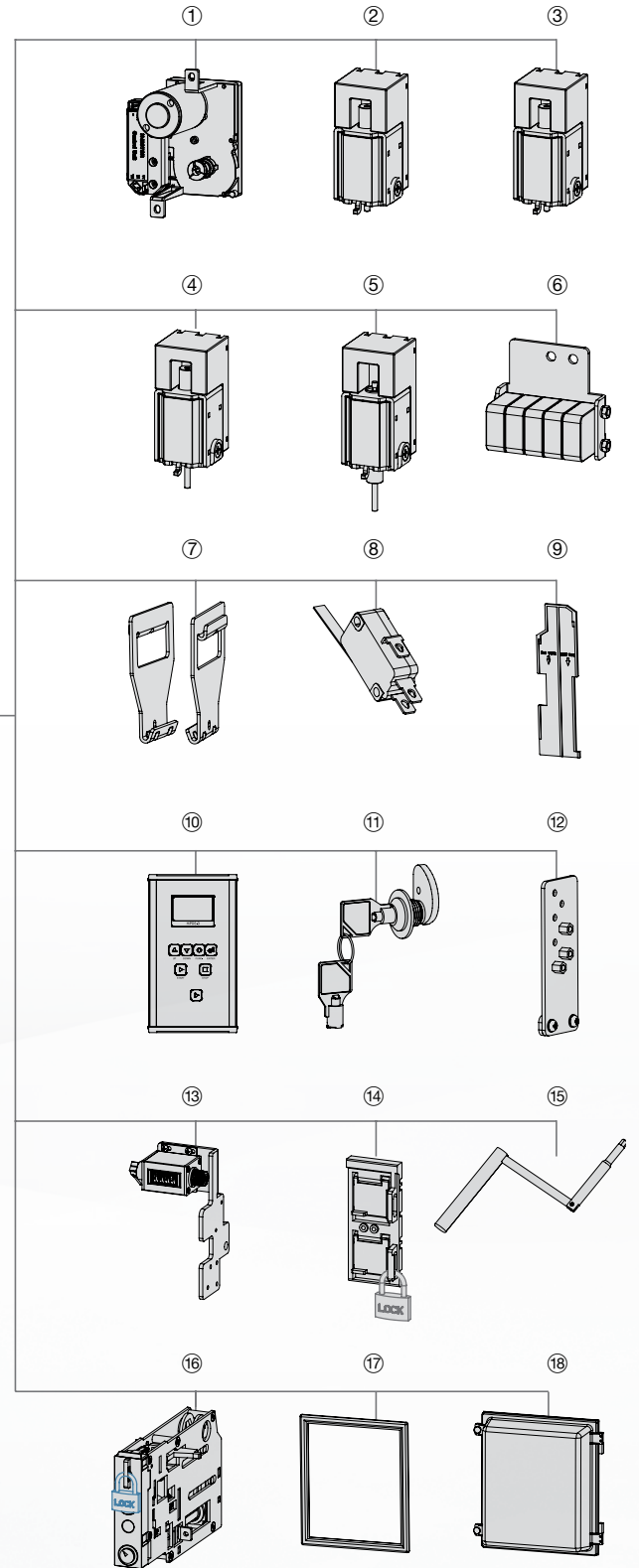


- 15 מגן קשת
- 16 חיבור כניסת/יציאת נחושת
- 17 לחצן איפוס יחידת הגנה
- 18 מסילת הכנסה/הוצאה
- 19 ידית הכנסה/הוצאה

- 8 כפתור שחרור נעילה
- 9 חור ידית פתיחה/סגירה
- 10 מחוון מיקום
- 11 מונה
- 12 מחוון דרוך/פרוק
- 13 ידית דריכה ידנית
- 14 לוחית שם

- 1 מהדקי בקרה
- 2 כיסוי קדמי
- 3 מחוון סגור/פתוח
- 4 כפתור סגירה
- 5 יחידת הגנה (OCR)
- 6 כפתור פתיחה
- 7 מיקום התקן נעילה

מאפיינים / אביזרים צד גוף



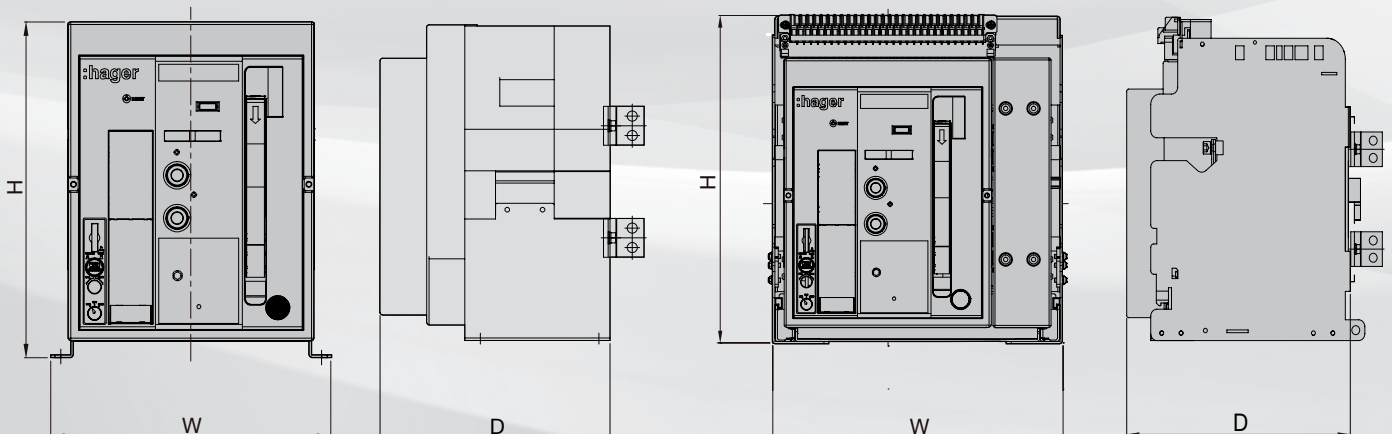
- | | | | |
|----|-------------------------|---|-----------------------|
| 10 | בודק נייד של יחידת הגנה | 1 | מנוע הפעלה |
| 11 | נעילת מפסק | 2 | סליל הפעלה |
| 12 | מונע שגיאת הכנסה | 3 | סליל הפסקה |
| 13 | מונה שעות עבודה | 4 | סליל הפסקה שני |
| 14 | כיסוי כפתור ON / OFF | 5 | סליל חוסר מתח |
| 15 | ידית הכנסה/הוצאה | 6 | מגעי עזר |
| 16 | מנגנון הכנסה/הוצאה | 7 | אוזני הרמה |
| 17 | מסגרת לדלת | 8 | מפסק גבול מוכן לסגירה |
| 18 | כיסוי אבק לדלת | 9 | מחיצת בידוד בין פאזות |

נתונים - שלח מפסקים אוטומטיים

Frame		A		B			C	
Type		H	N	N	S	P	P	
Rated current	A	630-2000		630-4000			3200-5000	
Rated operating voltage (Ue)	V	690						
Rated insulation voltage (Ui)	V	1000						
Rated impulse withstand voltage (Uimp)	KV	12						
Frequency	Hz	50/60						
Number of poles	poles	3-4						
Current setting range (...x In max)	Ir	0.4-1.0						
Rated current of neutral pole (...% x In)	%/In	100%						
Rated breaking capacity (Icu)	AC 690/600/550V	KA	36	50	50	65	85	85
	AC 415/380/220V	KA	50	65	65	85	100	100
Rated service breaking capacity (Ics)	AC 690/600/550V	KA	100% Icu					
	AC 415/380/220V	KA	100% Icu					
Rated short-time capacity (Icw)	1s	KA	50	65	65	85	85	85
	3s	KA	36	36	50	55	65	65
Rated making capacity (Icm) (kA peak)	AC 690/600/550V	KA	76	105	105	143	187	187
	AC 415/380/220V	KA	105	143	143	187	220	220
Utilization category (according to IEC 60947-2)			B					
Time								
Maximum total breaking time	ms	40						
Closing operating time	motor charging time	s	5					
	max. closing time	ms	40					
Operating cycle								
Mechanical life cycle	without maintenance		20000	15000			10000	
	with maintenance		30000	20000			20000	
Electrical life cycle	without maintenance	times	5000	up to 2000A: 10000 from 2500A: 5000			2000	
	with maintenance	times	10000	up to 2000A: 15000 from 2500A: 10000			5000	
Dimensions								
External dimension (W x H x D, except busbar)	fixed type	3 pole	mm	337x404x296	408x404x296	633x404x296		
		4 pole		422x404x296	523x404x296	803x404x296		
	draw-out type	3 pole		328x460x368	399x460x368	624x460x368		
		4 pole		413x460x368	514x460x368	794x460x368		
Weight	fixed type	3 pole	kg	34	up to 3200A: 44 4000A: 61	76		
		4 pole		44	up to 3200A: 55 4000A: 81	81		
	draw-out type	3 pole		63	up to 3200A: 87 4000A: 107	145		
		4 pole		80	up to 3200A: 130 4000A: 161	173		

דגם קבוע

דגם נשלף

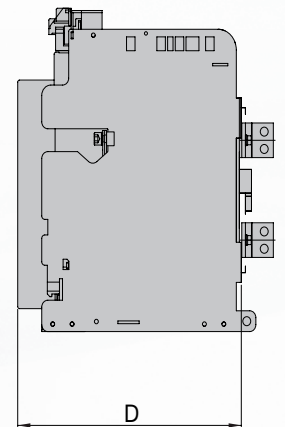
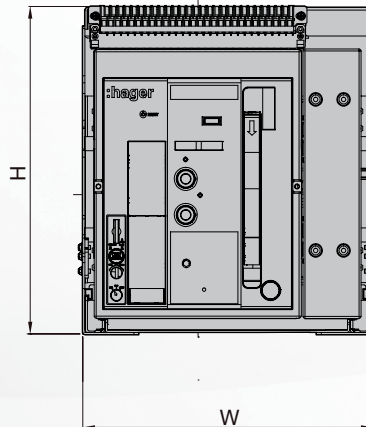
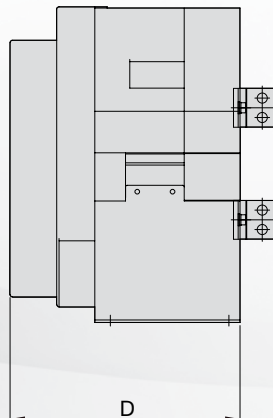
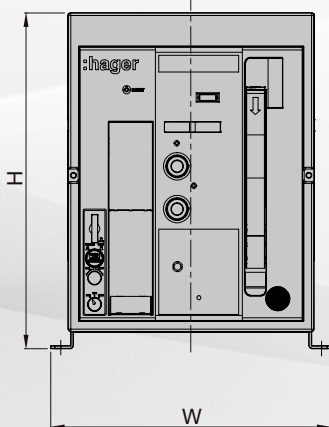


נתונים - שלח מנתקים בעומס








Frame			A	B	C	
Type			N....A	N....A	P....A	
Rated current	A		630-2000	630-4000	3200-5000	
Rated operating voltage (Ue)	V			690		
Rated insulation voltage (Ui)	V			1000		
Rated impulse withstand voltage (Uimp)	KV			12		
Frequency	Hz			50/60		
Number of poles	poles			3-4		
Rated current of neutral pole (...% x In)	%/In			100%		
Rated short-time capacity (Icw)	1s	KA	65	65	85	
	3s		36	50	65	
Rated making capacity (Icm) (KA peak)	AC 690/600/550V	KA	105	105	187	
	AC 415/380/220V		143	143	220	
Utilization category (according to IEC 60947-3)			AC23			
Time						
Maximum total breaking time	ms		40			
Closing operating time	motor charging time	s	5			
	max. closing time	ms	40			
Operating cycle						
Mechanical life cycle	without maintenance	times	20000	15000	10000	
	with maintenance		30000	20000	20000	
Electrical life cycle	without maintenance	times	5000	up to 2000A: 10000	2000	
				from 2500A: 5000		
	with maintenance		10000	up to 2000A: 15000	5000	
				from 2500A: 10000		
Dimensions						
External dimension (W x H x D, except busbar)	fixed type	3 pole	mm	337x404x296	408x404x296	633x404x296
		4 pole		422x404x296	523x404x296	803x404x296
	draw-out type	3 pole		328x460x368	399x460x368	624x460x368
		4 pole		413x460x368	514x460x368	794x460x368
Weight	fixed type	3 pole	kg	34	up to 3200A: 44	76
					4000A: 61	
	4 pole	44		up to 3200A: 55	81	
				4000A: 81		
	draw-out type	3 pole		63	up to 3200A: 87	145
					4000A: 107	
	4 pole	80	up to 3200A: 130	173		
				4000A: 161		

דגם קבוע

דגם נשלף



יחידות הגנה

Reference		HWX611	HWX612	HWX613	HWX621	HWX622	HWX623	HWX633
Type		LI	LSI	LSIG	LI Amp	LSI Amp	LSIG Amp	Energy
Frequency 50/60 Hz		•	•	•	•	•	•	•
OCR								
Power	externals	•	•	•	•	•	•	•
	self	•	•	•	•	•	•	•
Protection function	LTD	•	•	•	•	•	•	•
	STD	-	•	•	-	•	•	•
	INST	•	•	•	•	•	•	•
	PTA	-	-	-	•	•	•	•
	GFT	-	-	•	-	-	•	•
	neutral protection	•	•	•	•	•	•	•
	fail safe	•	•	•	•	•	•	•
	MCR	•	•	•	•	•	•	•
Indication	long time pick up LED	•	•	•	•	•	•	•
	fault LED	L, I	L, S/I	L, S/I, G	L, I PTA	L, S/I PTA	L, S/I, G PTA	L, S/I, G PTA
	LCD display, Amp and measurement	-	-	-	•	•	•	-
	LCD display, Amp, Energy, voltage, power, energy, demand and measurement	-	-	-	-	-	-	•
Digital output	separately continuous contact	• (2NO) L, I	• (2NO) L, S/I	• (3NO) L, S/I, G	• (3NO) L, I, PTA	• (3NO) L, S/I, PTA	• (4NO) L, S/I, G, PTA	• (4NO) L, S/I, G, PTA
ZSI		•	•	•	•	•	•	•
Reset button		•	•	•	•	•	•	•
Advanced functions	COM	-	-	-	•	•	•	•
	event / fault recording	-	-	-	•	•	•	•
	under/over voltage protection	-	-	-	-	-	-	•
	unbalanced current / voltage protection	-	-	-	-	-	-	•
	reverse power protection	-	-	-	-	-	-	•
	power P, Q, S, power factor, 3 phases voltage	-	-	-	-	-	-	•
	demand current / voltage	-	-	-	-	-	-	•

Characteristics of OCR

Basic functions	Long-time Overload Protection (LTD)	Long-time overload protection function is for the protection of circuit overload. The protection is based on true rms value of currents.
	Short Time (STD)	Short-time short-circuit protection prevents impedance type short-circuit of power distribution system. Such kind of short-circuit normally is caused by partial short-circuit. Current normally exceed overload range but not be too large.
	Instantaneous (INST)	Instantaneous short-circuit protection functions prevents solid type short-circuit in power distribution system, which is normally caused by inter-phase fault and will generate large short-circuit current. Then an instantaneous tripping is required. Such protection is based on true rms value of currents.
	Ground Fault Trip (GFT)	The ground fault protection for equipment is used to detect current flowing through the grounding conductors which may present a hazardous condition.
	Neutral protection	Available at 100% x In of the phase currents 4P, or disabled, it is applied to the overcurrent protections L, S and I.
	Thermal Memory	To prevent unacceptable repeated or periodical overload, control unit will track and record thermal effect of overload current and trigger tripping operation when accumulated thermal effect reaches predefined threshold.
	Pre Trip Alarm (PTA)	The protection unit includes an alarm indication that will be lit continuously when the current is above 100% of the pickup setting. The settable PTA indicates the set threshold is reached before the protection is tripped.
	Fail-safe	ACB must be protected against the short-circuits although Isd and Ii has set as "NON". When It detects current more than 10 x In, this function is operating.
	Making Current Release (MCR)	Closing on short-circuit (MCR): this function trips the ACB when a short-circuit current flows during ACB closing operation, and lock the ACB to keep it inoperative. MCR is operated by 8 times of CT rating. The function is active with an auxiliary supply. MCR is operated by 8 times of CT rating.
	Field test	Field test on circuit breakers have long provided diagnostic for the electrical components and simulate long time, short time, instantaneous delay. This function requires a control power supply (available for Amp and Energy type OCRs).
	Override	The purpose of this function is to protect ACB and wire from a current over Icw. Detects a peak value of current. This function breaks the ACB without a time delay (< 30ms) Pick-up : 15 x Ict.
	Fault event	Records 256 numbers of the fault info, fault phase, current value and time stamp. This function records the last wave of that time when the trip occurs and can check the wave via the communication.
System event	Records 200 numbers of the trip unit information, i.e trip unit power on, protection setting change and so on. This event can check via the communication.	
Advanced functions (only energy type)	Under Voltage Relays and Over Voltage Relay (UVR/OVR)	<ul style="list-style-type: none"> Minimum voltage protection UVR: This function calculates the minimum rms value of the three phase to phase voltages. Protection is activated when at least one of the three phase to phase voltages is below the threshold set by the user. Maximum voltage protection OVR: This function calculates the maximum rms value of the three phase to phase voltages. Protection is activated when at least one of the three phase to phase voltages are simultaneously above the threshold set by the user.
	Unbalance voltage and current	U unbal calculates the rms value of the unbalance between the three phase to phase voltages. I unbal is activated by an unbalance between the rms values of the three phase currents. This is set by a communication and monitored.
	Reverse power rP	Calculates the value of the total active power on the three phases. Is activated when the total active power of the three phases flows in the direction opposite. The direction of flow is set by the user in the "Power Sign": <ul style="list-style-type: none"> "+" corresponds to the normal direction of flow, i.e from the top on the acb to the bottom; "-" is the opposite.

חדש במולכו

- פילרים מיוצרים על פי תקן DIN43629
- דרגת הגנה IP44
- גודל 1 ו-גודל 2 ניתן לקבל גם עם דלתות לא סימטריות



Size 00
Width 480mm

Size 0
Width 585mm

Size 1
Width 780mm

Size 2
Width 1110mm

:hager

מולכו 
ציווד חשמל ותעשייה בע"מ

h3+ הבחירה היא שלך

מהגרסה המסורתית לחכמה
גלה את התחכום במגוון מפסקי h3+

שלושה גדלים קומפקטיים, זמינים בין ל-630A עם 3 או 4 קטבים, h3+ מספק הגנה מעולה וכושר ניתוק של עד 110kA. מפסק קומפקטי המצויד בהגנה טרמית מגנטית או אלקטרונית, המסוגל להעניק יעילות מדויקת: גמישות כיוול הגנות ליישומי חלוקת חשמל.



חדש

h3+/P160
208 variants



חדש

h3+/P250
254 variants



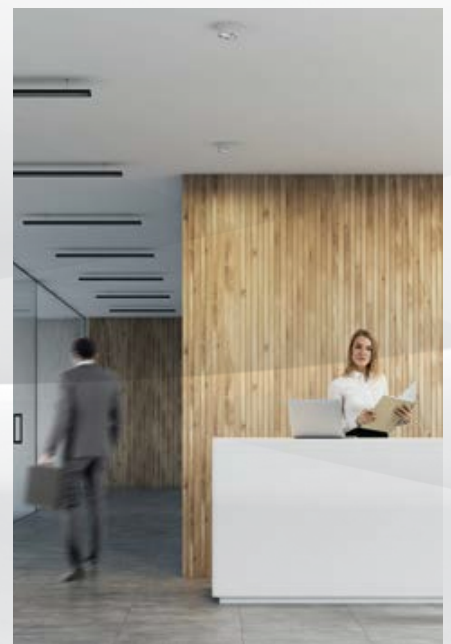
חדש

h3+/P630
78 variants

הדור החדש של מפסקים קומפקטיים h3+ זמינים בשתי גרסאות: המסורתית להגנה על מתקני החשמל ומודל אנרגיה לשיפור איכות האנרגיה של הבניינים שלכם.

TM, MAG, LSnl, LSI, LSIG, Energy: six trip unit versions designed to effectively protect your installations and optimize the cost of your switchboards.

	TM		MAG		LSnl		LSI			LSIG			Energy		
	P160	P250	P160	P250	P160	P250	P160	P250	P630	P250	P630	P160	P250	P630	
Breaking capacity	25,40, 50 or 70kA		25,40, 50 or 70kA		25, 40, 50 or 70kA		25, 40, 50 or 70kA			40, 50, 70, 110 kA	25, 40, 50, 70 kA	25, 40, 50 or 70kA		40, 50, 70, 110 kA	
Ratings	25 - 160 A	50 - 250 A	25 - 160 A	100 - 250 A	40 - 160 A	40 - 250 A	40 - 160 A	40 - 250 A	250 - 630 A	40, 100, 160, 250 A	250 - 630 A	40 - 160 A	40 - 250 A	250 - 630 A	
No. of poles (P) and trip units (D)	3P3D or 4P4D (N: 0 -100% or 0 - 50%)		3P3D or 4P4D		3P3D or 4P4D (N: 0, 50 or 100%)		3P3D or 4P4D (N: 0, 50 or 100%)			3P3D or 4P4D (N: 0, 50 or 100%)		3P3D or 4P4D (N: 0, 50 or 100%)			
RCD add-on block	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	
Configuration tool												Yes			
Panel display												Yes			
Communicating version												Yes			



השעונים הדיגיטליים החדשים שלנו

שעונים דיגיטליים EGN200, EGN100 ו-EGN400 משלבים את כל הפונקציות של שעון מודרני. למשימות שבועיות פחות מורכבות, EGN103 מביא פיתרון ערוץ אחד פשוט וחסכוני בעלויות.

EGN103



שעון דיגיטלי שבועי,
ערוץ אחד

EGN100



שעון זמן רב-תוכניות
דיגיטלי עם Bluetooth,
ערוץ אחד

EGN200



שעון זמן רב-תוכניות
דיגיטלי עם Bluetooth,
2 ערוצים

EGN400



שעון זמן רב-תוכניות
דיגיטלי עם Bluetooth,
4 ערוצים

שליטה דרך גלי רדיו



TU404

חיבור בעזרת פוטוצל



EEN003

חיבור בעזרת לחצן



WH27130100C



EEN002



EGN103



שעון שבועי/יומי דיגיטלי עם מגע מחליף, 16A, בגודל 2 מודול

Weekly time switch digital 1-channel for time-dependent control of equipment. Programmable via app with Bluetooth interface for easy implementation of exception programs or for saving the switching program (with myHager). Temporary and permanent exception control on the device, bar display for quick recognition of daily programming. Automatic summer/winter time change.

- programmable with Bluetooth (with EGN003)
- changeover
- with potential-free switching contact
- button lock using lock key
- programming without voltage supply possible
- with programming key
- with automatic summer/winter time change
- program cycles: 1 x 7 days
- with screw terminals
- for mounting on DIN top-hat rail
- 5 years power reserve

Technical specifications

Operating voltage	230V (+10% / -15%)
Frequency	50/60 Hz
Contact rating	AC1 μ 16A 230 V~
Power input	0.25 VA
Switching current at $\cos \phi = 0.6$	
Power loss at full load	
230 V incandescent and halogen lamps	max. 2300 W
Number of function channels	1
Number of contacts per channel	2
Shortest switching time	1 min
Number of switching times for On/Off	56
Power reserve [years]	\approx 5 a
Accuracy rate	\pm 1.5 s/day
Operating temperature	- 5 ... 45 °C
Conductor cross-section (flexible)	1 ... 6 mm ²
Conductor cross-section (rigid)	1.5 ... 10 mm ²
Rail-mounted device (RMD) width	2 units



EGN100



שעון דיגיטלי רב תכליתי, ערוץ אחד, 10A, בגודל 1 מודול

Digital multifunctional time switch to control loads with commands such as on, off, pulse or cycle, astronomical function that switches connected loads according to the sunrise and sunset times. Programmable via app with Bluetooth interface for easy implementation of exception programs or for saving the switching program (with myHager). Temporary and permanent exception control on the device. The twilight function measures the lighting level via a photocell and switches depending on the measured value. Automatic summer/winter time change.

- integrated Bluetooth connection
- program cycles: daily, weekly, yearly
- 1 changeover output
- with pulse function
- wired input
- with radio input connection: Quicklink configuration
- button lock
- with automatic summer/winter time change
- with screw terminals
- for mounting on DIN top-hat rail
- 10 years power reserve

Technical specifications

Operating voltage	230V (+10% / -15%)
Frequency	50/60 Hz
Contact rating	AC1 μ 10A 230 V~
Power input	0.17 VA
Switching current at $\cos \phi = 0.6$	
Power loss at full load	
230 V incandescent and halogen lamps	max. 2300 W
Number of function channels	1
Number of contacts per channel	2
Shortest switching time	1 min
Number of switching times for On/Off	100
Power reserve [years]	≈ 10 a
Accuracy rate	± 90 s/year
Operating temperature	- 5 ... 45 °C
Conductor cross-section (flexible)	0.2 ... 2.5 mm ²
Conductor cross-section (rigid)	0.2 ... 4 mm ²
Rail-mounted device (RMD) width	1 unit



EGN200



שעון דיגיטלי רב תכליתי, שני ערוצים, 16A, בגודל 2 מודול

Digital multifunctional time switch to control loads with commands such as on, off, pulse or cycle. Astronomical function that switches connected loads according to the sunrise and sunset times. Programmable via app with Bluetooth interface for easy implementation of exception programs or for saving the switching program (with myHager). Temporary and permanent exception control on the device. The twilight function measures the lighting level via a photocell and switches depending on the measured value. Automatic summer/winter time change.

- integrated Bluetooth connection
- program cycles: daily, weekly, yearly
- 2 changeovers output
- with pulse function
- with radio input connection: Quicklink configuration
- programming without voltage supply possible
- button lock
- LC display with lighting
- with automatic summer/winter time change
- with screw terminals
- for mounting on DIN top-hat rail
- 10 years power reserve

Technical specifications

Operating voltage	230V (+10% / -15%)
Frequency	50/60 Hz
Contact rating	AC1 μ 16A 230 V~
Power input	0.3 VA
Switching current at $\cos \phi = 0.6$	
Power loss at full load	
230 V incandescent and halogen lamps	max. 2300 W
Number of function channels	2
Number of contacts per channel	2
Shortest switching time	1 min
Number of switching times for On/Off	200
Power reserve [years]	\approx 10 a
Accuracy rate	\pm 90 s/year
Operating temperature	- 5 ... 45 °C
Conductor cross-section (flexible)	0.2 ... 2.5 mm ²
Conductor cross-section (rigid)	0.2 ... 4 mm ²
Rail-mounted device (RMD) width	2 units



EGN400



שעון דיגיטלי רב תכליתי, ארבעה ערוצים, 16A, בגודל 4 מודול

Digital multifunctional time switch to control loads with commands such as on, off, pulse or cycle. Astronomical function that switches connected loads according to the sunrise and sunset times. Programmable via app with Bluetooth interface for easy implementation of exception programs or for saving the switching program (with myHager). Temporary and permanent exception control on the device. The twilight function measures the lighting level via a photocell and switches depending on the measured value. Automatic summer/winter time change.

- integrated Bluetooth connection
- program cycles: daily, weekly, yearly
- 2 changeovers output
- with pulse function
- with radio input connection: Quicklink configuration
- programming without voltage supply possible
- button lock
- LC display with lighting
- with automatic summer/winter time change
- with screw terminals
- for mounting on DIN top-hat rail
- 10 years power reserve

Technical specifications

Operating voltage	230V (+10% / -15%)
Frequency	50/60 Hz
Contact rating	AC1 μ 16A 230 V~
Power input	0.45 VA
Switching current at $\cos \phi = 0.6$	
Power loss at full load	
230 V incandescent and halogen lamps	max. 2300 W
Number of function channels	4
Number of contacts per channel	2
Shortest switching time	1 min
Number of switching times for On/Off	400
Power reserve [years]	\approx 10 a
Accuracy rate	\pm 90 s/year
Operating temperature	- 5 ... 45 °C
Conductor cross-section (flexible)	0.2 ... 2.5 mm ²
Conductor cross-section (rigid)	0.2 ... 4 mm ²
Rail-mounted device (RMD) width	4 units



שעון אסטרונומי EGN200

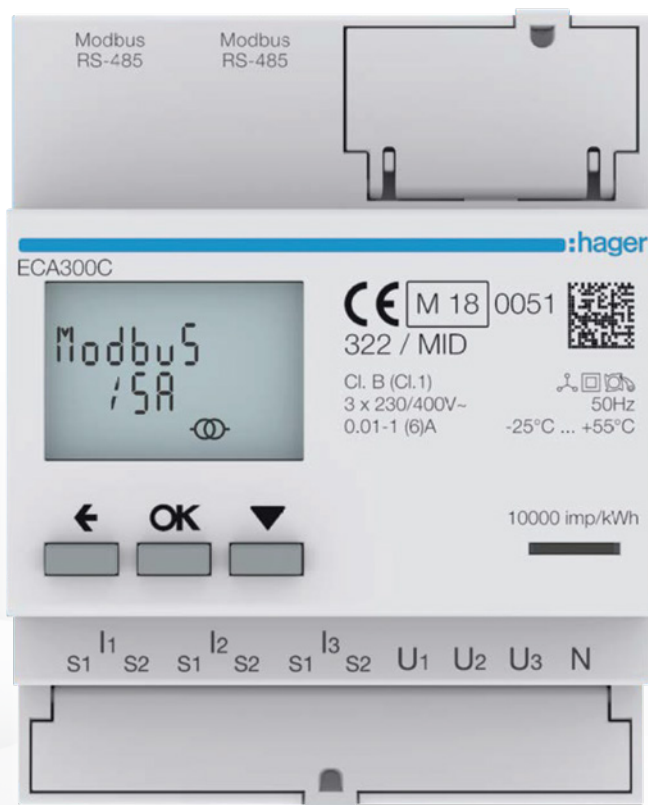
שאיסה בזמן = חסכון באנרגיה

:hager

מולכו 
ציוד חשמל ותעשייה בע"מ

ניהול ומדידת אנרגיה

לעקוב, לתקשר, לייעל



Overview of the range



Reference	ECx140D	ECx180D	ECx180T
Selection criteria			
Connection	Single-phase 40 A direct	Single-phase 80 A direct	Single-phase 80 A direct (3 track)
Supply voltage	230 V AC	230 V AC	230 V AC
Maximum current I _{max}	40 A	80 A	3 x 80 A
Accuracy class, active//reactive energy	Cl.1 / -	Cl.1 / Cl.B // Cl.2	Cl.1 / Cl.B // Cl.2
Max. permissible transformer rating	-	-	-
MID certification, required for use in re-invoicing	MID except ECN140D	MID	-
Connectivity			
No communication	ECN140D	-	-
Pulsed communication	ECP140D	ECP180D	ECP180T
M-bus series communication	ECM140D	ECM180D	ECM180T
RS485 series communication	ECR140D	ECR180D	ECR180T
agardio Modbus communication	-	ECA180D	ECA180T
Functions and values recorded by the product			
Current	• except on ECN140D	•	•
Voltage	• except on ECN140D	•	•
Power factor	• except on ECN140D	•	•
Frequency	• except on ECN140D	•	•
Active power	• except on ECN140D	•	•
Reactive power	-	•	-
Apparent power	-	•	•
Active energy	•	•	•
Reactive energy	-	•	•
Partial resetting of consumption measurements	-	•	•
Energy import/export	• except on ECN140D	•	•
Tariff control	-	•	•
Number of tariffs managed by: physical input / communication	ECN = 1/0 ECP = 1/0 ECM = 1/2 ECR = 1/8	ECP = 2/0 ECM = 2/2 ECR = 2/8 ECA = 1/8	ECP = 2/0 ECM = 2/2 ECR = 2/4 ECA = 2/4
I/O function	• except on ECN140D	depending on version	•
Configurable I/O function	-	depending on version	•
Tariff control by physical input	-	• except ECA180D	•
Tariff control by communication system	depending on version	depending on version	depending on version
Saved by internal memory	•	•	•

Overview of the range



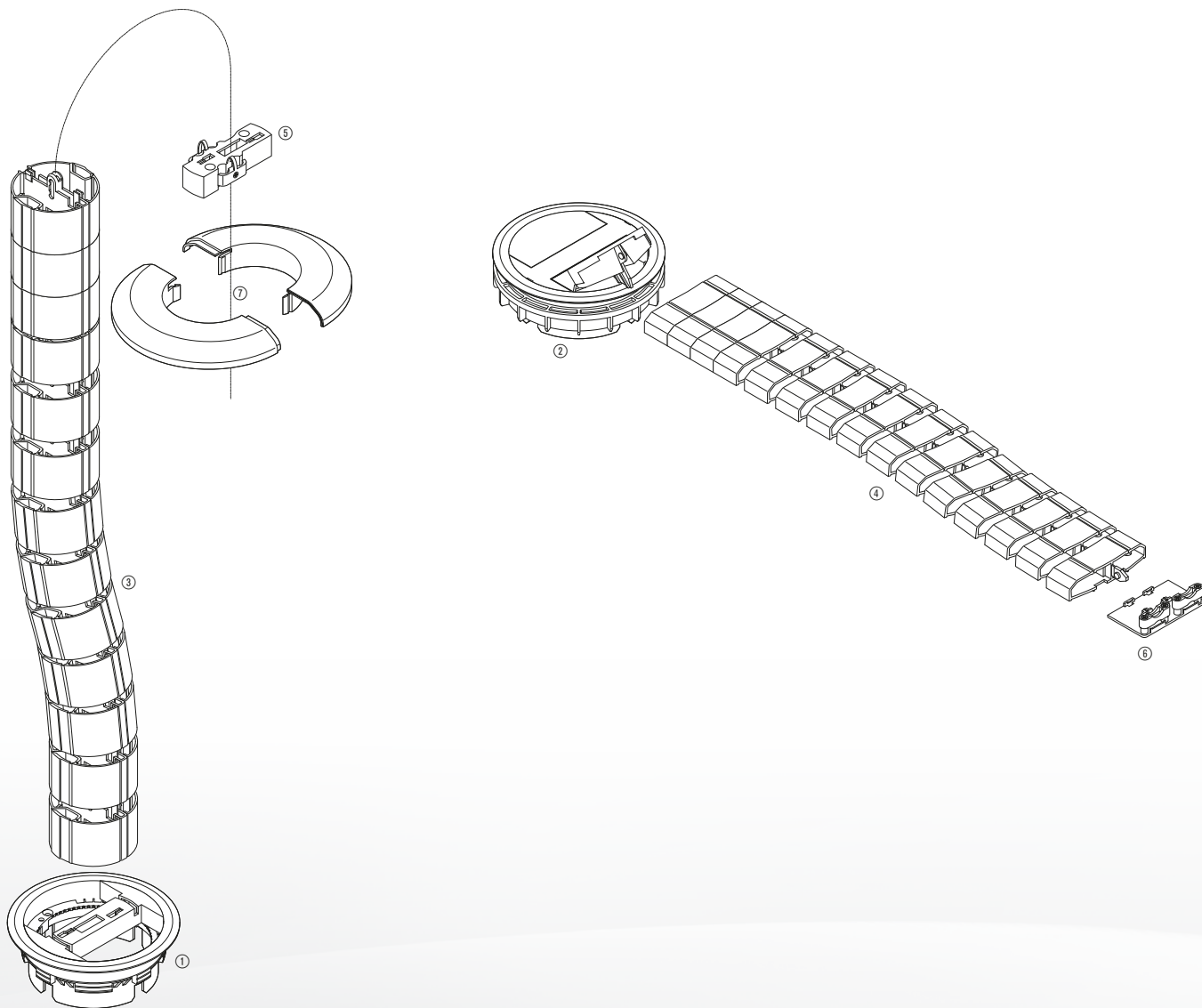
Reference	ECx380D	ECx310D	ECx310D
Selection criteria			
Connection	Three-phase 80 A direct	Three-phase 125 A direct	Three-phase 125 A direct
Supply voltage	400 V AC	400 V AC	400 V AC
Maximum current I _{max}	80 A	125 A	125 A
Accuracy class, active//reactive energy	Cl.1/Cl.B//Cl.2	Cl.1/Cl.B//Cl.2	Cl.1/Cl.B//Cl.2
Max. permissible transformer rating	-	-	-
MID certification, required for use in re-invoicing	MID	MID	MID
Connectivity			
No communication	-	-	-
Pulsed communication	ECP380D	ECP310D	ECP310D
M-bus series communication	ECM380D	ECM310D	ECM310D
RS485 series communication	ECR380D	ECR310D	ECR310D
agardio Modbus communication	ECA380D	ECA310D	ECA310D
Functions and values recorded by the product			
Current	•	•	•
Voltage	•	•	•
Power factor	•	•	•
Frequency	•	•	•
Active power	•	•	•
Reactive power	•	•	•
Apparent power	•	•	•
Active energy	•	•	•
Reactive energy	•	•	•
Partial resetting of consumption measurements	•	•	•
Energy import/export	•	•	•
Tariff control	•	•	•
Number of tariffs managed by: physical input/communication	ECP = 2/0 ECM = 2/2 ECR = 2/8 ECA = 2/8	ECP = 2/0 ECM = 2/2 ECR = 2/8 ECA = 2/8	ECP = 2/0 ECM = 2/2 ECR = 2/8 ECA = 2/8
I/O function	•	•	•
Configurable I/O function	•	•	•
Tariff control by physical input	•	•	•
Tariff control by communication system	depending on version	depending on version	depending on version
Saved by internal memory	•	•	•

עמודונים לחשמל ולתקשורת



שקועים ותעלות



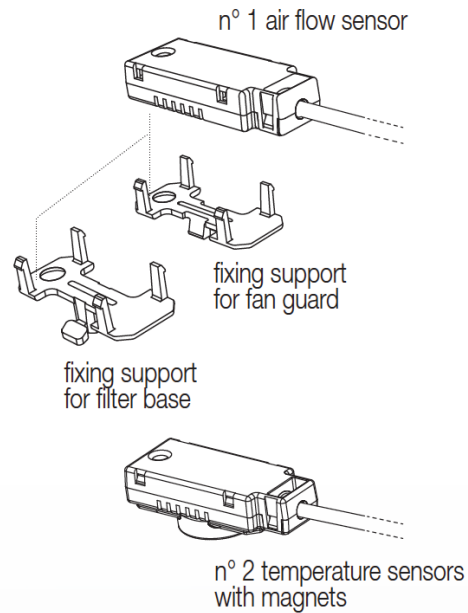
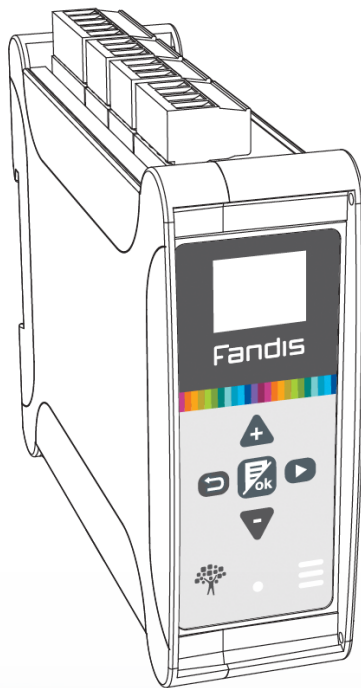


electraplan.DB-HB

- ① Cable outlet with connection for round chain
- ② Cable outlet with connection for flat chain
- ② Round chain
- ④ Flat chain
- ⑤ Connection adapter for round chain
- ⑥ Connection adapter for flat chain
- ⑦ Rosette for round chain

מזגנים ובקרים ללוחות





Models	
Sensis stand alone (no interface)	SNS00U00X
Sensis Modbus RTU	SNS01U00X
Sensis PROFINET	SNS02U00X SNS02UM00X
Sensis ASI	SNS03U00X
Sensis CAN-OPEN	SNS04U00X
Sensis CC-link	SNS05U00X
Sensis EtherCat	SNS06U00X
Sensis Modbus/TCP	SNS07U00X
Sensis Profibus	SNS08U00X
Sensis SERCOS III	SNS09U00X
Sensis IO LINK	SNS10U00X
Sensis Ethernet/IP	SNS11U00X SNS11UM00X
Sensis VARAN	SNS12U00X
Sensis POWERLINK	SNS13U00X

Technical Data	
Rated current	150mA
Rated voltage	24 V DC
Rated power	3.6W
Operating temperature	-10°C (14°F) ÷ 55°C (131°F)
Storage temperature	-25°C (-13°F) ÷ 70°C (158°F)
Humidity	up to 99% no condensing
Pollution degree	2
Overvoltage category	II

-M00X supporta protocolli MQTT/OPCUA (Available at the end of 2019)



בקר חדשני לניהול מידע בלוחות חשמל



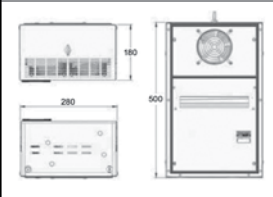
מזגנים ללוחות חשמל מתוצרת Fandis איטליה

FCU03W21T COOLING UNIT

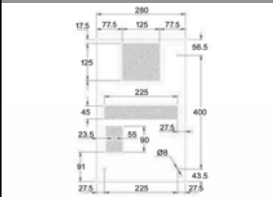
Description: 300W Compressor Cooling Unit



Technical drawing



Cut out



Housing material : powder coated Aluzinc
Color : RAL 7035
Protection degree : IP54 towards cabinet according to EN60529 std
Fixing system : by screws
Sealing : Integrated polyuretane foam sealing gasket
Mounting : external
Rated temperature range : from +20°C to +50°C
Setting temperature : from +30°C to +40°C
Controller : Digital electronic thermostat
Electrical connection : Plug-in connector
Suggested T fuse rating : 4A
Noise : 61 dB
Refrigerant type : R134a
Condensation evaporator : integrated
Air filter : on request
Special versions : other voltages and UL version available on request

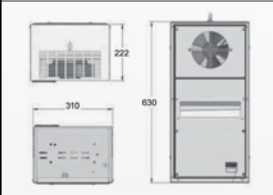
Model	Voltage	Rated Cooling Power L35L35	Rated Cooling Power L35L50	Rated Electrical Power L35L35	Rated Current L35L35	Dimensions	Weight	Approvals
	Vac	W	W	W	A	mm	kg	
FCU03W21T	230	330/360	270/280	190/220	1,3/1,5	500x280x180	20	CE

FCU05W21T COOLING UNIT

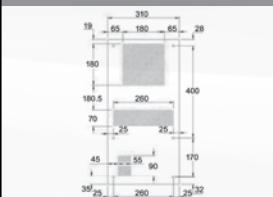
Description: 500W Compressor Cooling Unit



Technical drawing



Cut out



Housing material : powder coated Aluzinc
Color : RAL 7035
Protection degree : IP54 towards cabinet according to EN60529 std
Fixing system : by screws
Sealing : Integrated polyuretane foam sealing gasket
Mounting : external
Rated temperature range : from +20°C to +50°C
Setting temperature : from +30°C to +40°C
Controller : Digital electronic thermostat
Electrical connection : Plug-in connector
Suggested T fuse rating : 6A
Noise : 67 dB
Refrigerant type : R134a
Condensation evaporator : integrated
Air filter : on request
Special versions : other voltages and UL version available on request

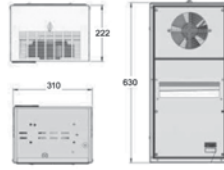
Model	Voltage	Rated Cooling Power L35L35	Rated Cooling Power L35L50	Rated Electrical Power L35L35	Rated Current L35L35	Dimensions	Weight	Approvals
	Vac	W	W	W	A	mm	kg	
FCU05W21T	230	530/560	410/430	280/330	2/2,2	630x310x222	24	CE

FCU08W21T COOLING UNIT

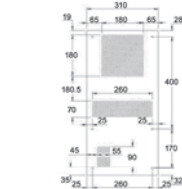
Description: 800W Compressor Cooling Unit



Technical drawing



Cut out

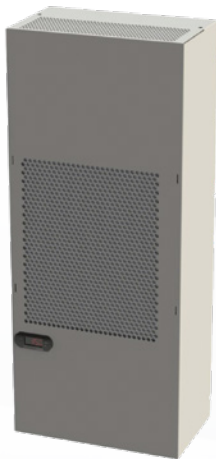


Housing material : powder coated Aluzinc
Color : RAL 7035
Protection degree : IP54 towards cabinet according to EN60529 std
Fixing system : by screws
Sealing : Integrated polyuretane foam sealing gasket
Mounting : external
Rated temperature range : from +20°C to +50°C
Setting temperature : from +30°C to +40°C
Controller : Digital electronic thermostat
Electrical connection : Plug-in connector
Suggested T fuse rating : 6A
Noise : 67 dB
Refrigerant type : R134a
Condensation evaporator : integrated
Air filter : on request
Special versions : other voltages and UL version available on request

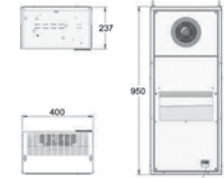
Model	Voltage	Rated Cooling Power L35L35	Rated Cooling Power L35L50	Rated Electrical Power L35L35	Rated Current L35L35	Dimensions	Weight	Approvals
	Vac	W	W	W	A	mm	kg	
FCU08W21T	230	860/940	690/720	400/460	2,9/3,2	630x310x222	28	CE

FCU15W21T COOLING UNIT

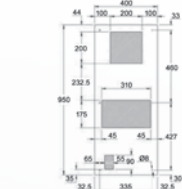
Description: 1500W Compressor Cooling Unit



Technical drawing



Cut out



Housing material : powder coated Aluzinc
Color : RAL 7035
Protection degree : IP54 towards cabinet according to EN60529 std
Fixing system : by screws
Sealing : Integrated polyuretane foam sealing gasket
Mounting : external
Rated temperature range : from +20°C to +50°C
Setting temperature : from +30°C to +40°C
Controller : Digital electronic thermostat
Electrical connection : Plug-in connector
Suggested T fuse rating : 8A
Noise : 67 dB
Refrigerant type : R134a
Condensation evaporator : integrated
Air filter : on request
Special versions : other voltages and UL version available on request

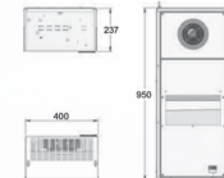
Model	Voltage	Rated Cooling Power L35L35	Rated Cooling Power L35L50	Rated Electrical Power L35L35	Rated Current L35L35	Dimensions	Weight	Approvals
	Vac	W	W	W	A	mm	kg	
FCU15W21T	230	1420/1560	1140/1190	660/760	5,2/5,8	950x400x237	40	CE

FCU20W21T COOLING UNIT

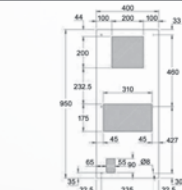
Description: 2000W Compressor Cooling Unit



Technical drawing



Cut out



Housing material : powder coated Aluzinc
Color : RAL 7035
Protection degree : IP54 towards cabinet according to EN60529 std
Fixing system : by screws
Sealing : Integrated polyuretane foam sealing gasket
Mounting : external
Rated temperature range : from +20°C to +50°C
Setting temperature : from +30°C to +40°C
Controller : Digital electronic thermostat
Electrical connection : Plug-in connector
Suggested T fuse rating : 12A
Noise : 67 dB
Refrigerant type : R134a
Condensation evaporator : integrated
Air filter : on request
Special versions : other voltages and UL version available on request

Model	Voltage	Rated Cooling Power L35L35	Rated Cooling Power L35L50	Rated Electrical Power L35L35	Rated Current L35L35	Dimensions	Weight	Approvals
	Vac	W	W	W	A	mm	kg	
FCU20W21T	230	1960/2150	1570/1640	930/1070	6/6,6	950x400x237	46	CE



גוף תאורה R1 גוף תאורה Q

מיועדים להצפה ולמגרשי חניה
85w-100w LED



מתאם לעמוד תאורה



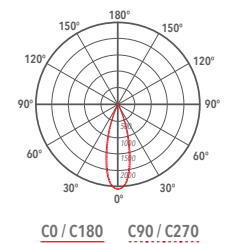
Pitagora

גוף תאורה לשבילים, מעברים ומגרשי חניה מצויד בטכנולוגיית LED מתקדמת המאפשרת מקסימום הספק וניצולת במינימום צריכת חשמל.
מצויד בפרוטוקול תקשורת DALI ויכולות עימנום ע"פ דרישה.
ניתן להרכבה על עמודים בקוטר 40mm-60mm.
גוף התאורה עשוי מיציקת אלומיניום צבוע באבקת אפוקסי, ברגים ומחברים מנירוסטה, אטמים מסיליקון וכיסוי זכוכית 5mm.
ניתן לקבל במגוון אלומות אור ובמגוון צבעי אור 2700k-4000k



Colour

Dark grey **4**



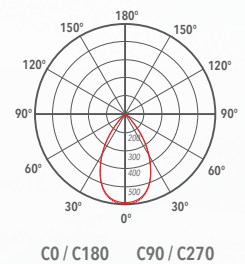
Cartesio

גוף תאורה לשבילים, מעברים ומגרשי חניה מצויד בטכנולוגיית LED מתקדמת המאפשרת מקסימום הספק וניצולת במינימום צריכת חשמל.
מצויד בפרוטוקול תקשורת DALI ויכולות עימנום ע"פ דרישה.
ניתן להרכבה על עמודים בקוטר 40mm-60mm.
גוף התאורה עשוי מיציקת אלומיניום, צבוע באבקת אפוקסי, ברגים ומחברים מנירוסטה, אטמים מסיליקון וכיסוי זכוכית 5mm.
ניתן לקבל במגוון אלומות אור ובמגוון צבעי אור 2700k-4000k



Colour

Dark grey **4**



Brixia

(Dali)

גוף תאורה רחובות מדגם Brixia
גוף תאורה רחובות מצויד בטכנולוגיית LED מתקדמת המאפשרת מקסימום הספק וניצולת במינימום צריכת חשמל.

מצויד בפרוטוקול תקשורת DALI ויכולות עימעות.
מיועד להתקנה על עמודים בינוניים ונמוכים למעברים, מעברי חציה, רחובות ומגרשי חניה.
גוף התאורה עשוי מיציקת אלומיניום, צבוע באבקת אפוקסי בתנור, ברגים ומחברים מנירוסטה.
אטם סיליקון וזכוכית מחוסמת 5mm.

ניתן לקבל במגוון אלומות אור ובמגוון של צבעי אור 2700k-4000k



Driver designed to provide the best performance, reliability and configuration options in road areas.

Available on request DALI versions.

Voltage 220-240 V AC 50 / 60Hz. Operating temperature -40°+50°

Surge protection device: Integrated SPD, 10kV-10kA

Installation

Can be installed with a pole-top or lateral mounting, from 42 mm to 60 mm diameter pole.

Inclination Pole head 0° - 5° - 10° - 15° - 20°.

Control System

F: fixed non-dimmable

DA: Automatic dimming (virtual midnight) with default profile

DAC: custom DA profile

FLC: constant luminous flux

DR: dimming by voltage regulator

DALI: DALI digital dimmer interface

D10: 1-10V analogue dimmer interface

NEMA: possibility to apply the NEMA IP66 connector to apply compatible devices (up to 7 pins).

Optical Group Life (Tq=25°C, 700mA)

≥100.000 hr L80B20 / ≥ 110.000hr TM21-L70

Applications

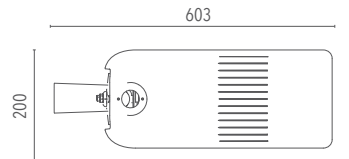
Car parks, street, pedestrian areas

Size (mm)

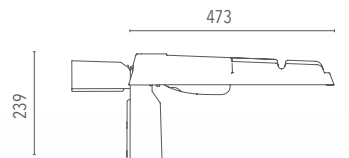
473x200x239

Colour

Dark grey 4

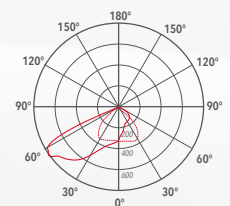


Superficie superiore 0,09 m²



Superficie laterale 0,04 m²

Ø Palo : 42 - 60 mm
Ø Pole : 42 - 60 mm



C0 / C180 C90 / C270

Code	Source	Power	Lm (Output)	Lm (Tc=25°)	Temperature	CRI	Beams	Colour	Control
L00BX40H3DA40100	LED	100 W	14400 lm	16300 lm	4000 K	>80	H3	Dark grey	DALI

Accessories



Fast connector
IP 2 poles
LKITA00000000017



Fast connector
IP 3 poles
LKITA00000000003



Fast connector
IP 4 poles
LKITA00000000018



Fast connector
IP 5 poles
LKITA00000000103



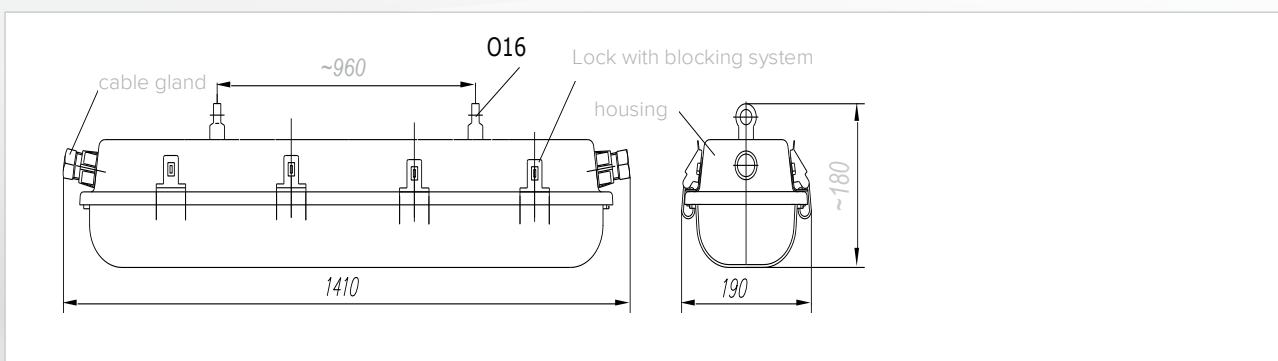
גופי תאורה מוגני התפוצצות



ELBA |  Lighting technology

מולכו 
ציוד חשמל ותעשייה בע"מ

גופי תאורה מוגני התפוצצות



Product type	L [mm]	m [mm]	l [mm]	h [mm]
CFSM-03 LED II 2G Ex eb mb op is IIC T4 Gb	1410	~960	190	~180

Technical features

- Rated voltage: 230V/ 50Hz;
- Surrounding temperature:
 - -20°C...+ 40°C
 - +5°C...+ 35°C for the variants with emergency lighting kit.

Compliance with the European Directives

- Low Voltage Directive
- Electromagnetic Compatibility Directive
- RoHS Directive, WEEE Directive
- Directive 2014/34/UE “Equipment and protective systems intended for use in potentially explosive atmospheres”

The product could be realised in more variants functions of the colour temperature of the LEDs.

Product type	Product code	Rated voltage [V]	Freq. [Hz]	Active power [W]	Power factor	Temperature class	Protection degree	Class of protection against electric shock	Weight [Kg]	Total initial LED flux/ in emerg. mode [lm]	Luminous efficiency LED module [lm/W]
CFSM-03-LED 6000K	23418061	230	50	53	0.92÷0.96	T4	IP54	I	8.5	5600	106
CFSM-03-LED 4000K	23418062	230	50	53	0.92÷0.96	T4	IP54	I	8.5	5000	94
CFSM-03-LED 6000K 1,5h/3h	on request	230	50	53	0.9÷0.95	T4	IP54	I	9.5	5600 11% 1.5h 6% 3h	106
CFSM-03-LED 4000K 1,5h/3h	on request	230	50	53	0.9÷0.95	T4	IP54	I	9.5	5000 11% 1.5h 6% 3h	94

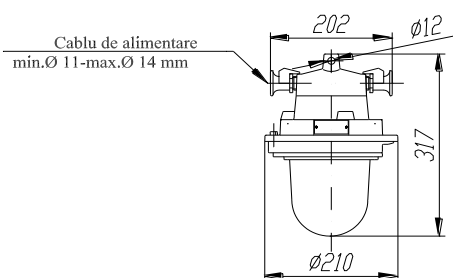
1,5h/3h with emergency lighting kit (for evacuation) for 1 hour/ 3 hours 11%, 6% - in emergency mode the LED module provides a reduced flux, of 11% respectively 6% from the nominal LED module flux at 230V, necessary for lighting for evacuation

Data subject to change. The values are preliminary and could be modified due to laboratory results.

The tolerance of the initial flux and active power is $\pm 10\%$ from the specified value. These values were measured at the ambient temperature of 25°C, unless is not mentioned another temperature.


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גופי תאורה מוגני התפוצצות



Product type	D [mm]	l [mm]	h [mm]
AI-02C LED	210	202	317

Description

- Painted pressure cast aluminium alloys housing and globe frame.
- Thermo-resistant glass globe for lamp safety.
- Cable insertions with rubber gasket sealing, for cable diameters of $\Phi 11$ - $\Phi 14$ mm.
- Number of terminals: 2 + 2 PE.
- Maximum wire cross section: 2.5 mm².
- Explosion-proof protection  II 2G Ex db eb IIC Gb
 - (d) flameproof enclosures of the optical compartment
 - (e) increased safety of the terminal box
- The luminaire is manufactured and certified according to requirements of the standards SR EN 60598-1, SR EN 60079-0: 2013, SR EN 60079-1: 2015, SR EN 60079-7: 2016.
- Certificate: pending.
- Colour: yellow.

Mounting

- Stationary mounting.
- Monophasic connection individually or in row.

Technical features

- Rated voltage: 230V/ 50Hz;
- Surrounding temperature range: -20°C...+ 40°C.

Compliance with the European Directives

- Low Voltage Directive
- RoHS Directive, WEEE Directive
- Directive 2014/34/UE.

Product type	Product code	Rated voltage [V]	Active power [W]	Power factor	Protection degree	Class of protection against electric shock	Temperature class	Environmental group	Weight [Kg]	Total initial LED module flux [lm]	Total luminous LED module efficiency [lm/W]
AI-02C LED	22431009	230	32	≥0.97	IP54	I	T5	II C	~5	~3000	~94

Data subject to change. The values are preliminary and could be modified due to laboratory results.

The tolerance of the initial flux and active power is $\pm 10\%$ from the specified value. These values were measured at the ambient temperature of 25°C, unless is not mentioned another temperature.

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