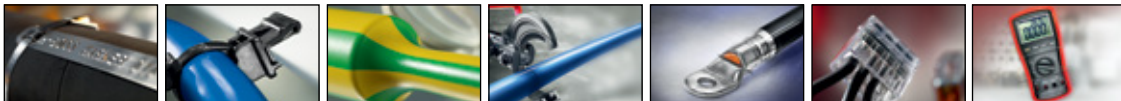


Renewable Energy

System Solutions



MADE FOR REAL



HellermannTyton offers a tailor made String Combiner Box manufacturing service.

Based on the customer requirements, HellermannTyton will design and manufacture the string combiner box (SCB) according to internationally recognised standards using approved components from local and international suppliers.

The process begins with the system design including a Single Line Diagram (SLD) and General Assembly drawing for customer approval.

Following customer sign-off, all products, switch gear and monitoring systems are assembled in an IEC class II double insulated enclosure in an ISO TS 16949 approved facility.

Each enclosure is then mechanically verified for correctness of components used including all wire connections and specified torque settings. These connections and settings are functionality tested for correct measurement and data communication.

The customer receives a tested, labelled and approved for installation SCB that is securely packed.

HellermannTyton has experience in the design and manufacture of SCB from embedded rooftop application through to large utility scale PV plants. Our experience includes the design, manufacturing and delivery of up to 600 SCB with full string monitoring functionality.

In addition, HellermannTyton offers a comprehensive range of installation tools, test-and-measurement equipment designed specifically for the renewable energy industry.

Our broad range of field tested cable protection and fastening products are designed to withstand the harsh renewable energy environment. Many of these components are locally manufactured.

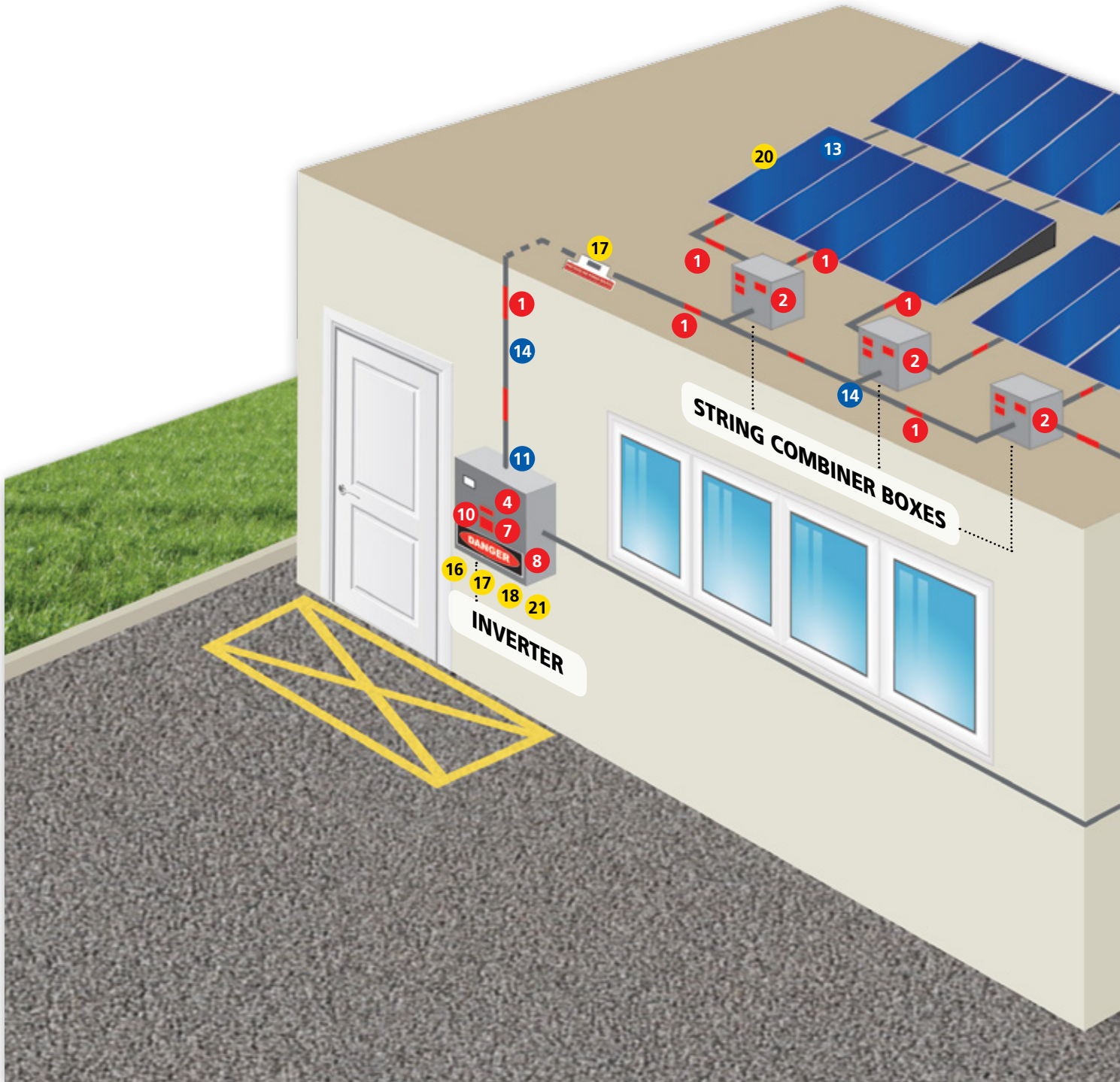
Our knowledgeable Sales and Engineering team, backed by international engineering support, with many years of renewable energy experience, is available to discuss all your requirements from optimal designs to customised manufacturing.

HellermannTyton is committed to customer satisfaction.

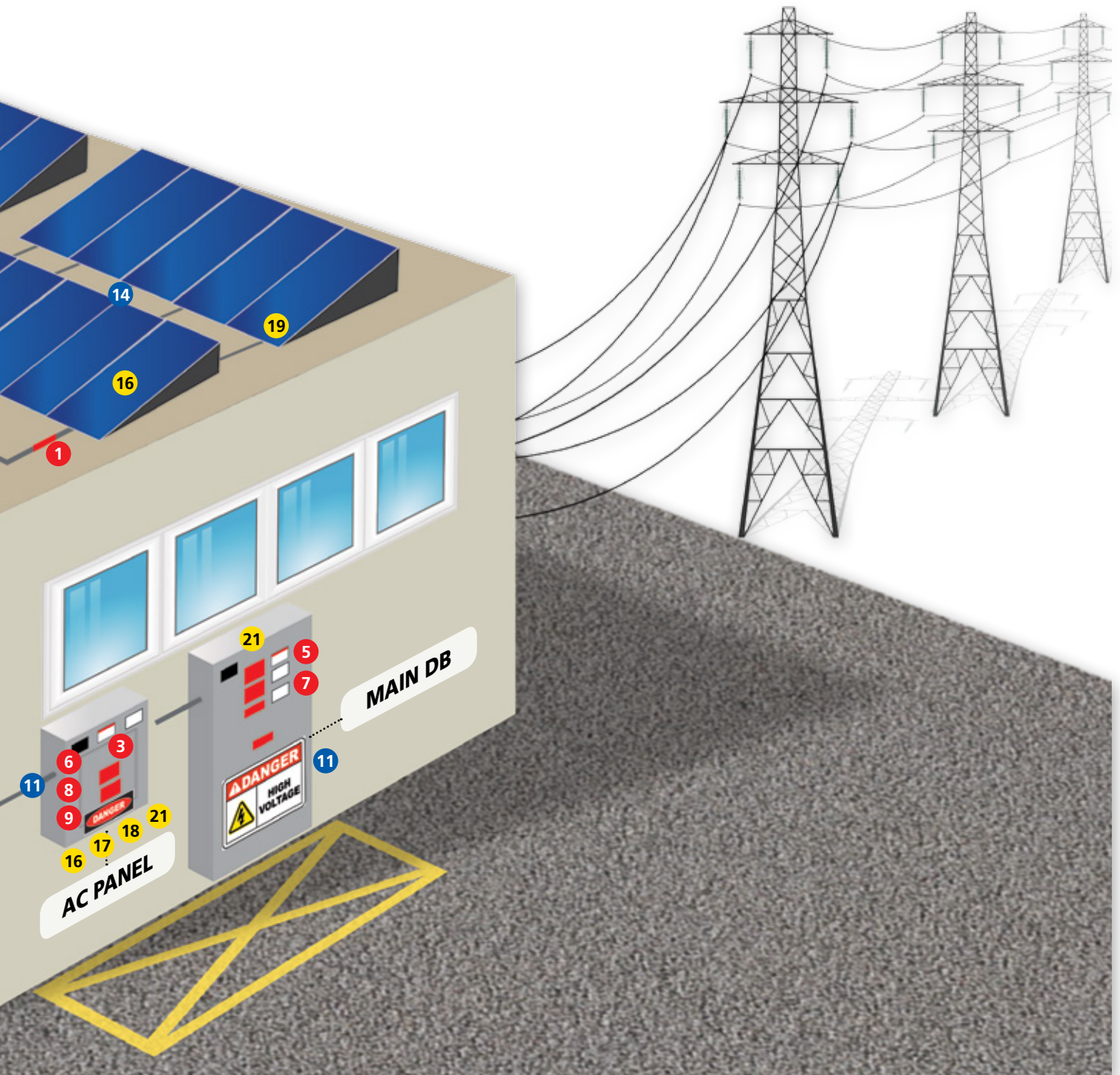
NOTE: Some images and specification may differ from what is included in this catalogue.

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HellermannTyton “space-changer” for effective results

Building our own string combiner boxes inspired the design of the DIN rail spacer for effective and safe general wiring and to ensure the DIN rail and back plate are earthed.



DIN Rail Spacer

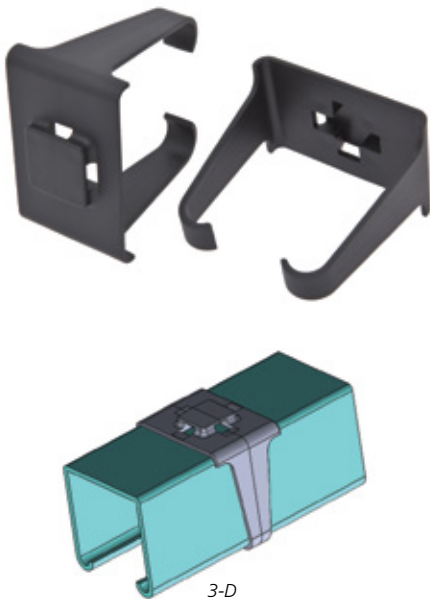
- Patented
- Used to raise DIN rails for general wiring under the DIN rail
- Unique design
- Designed to bottom profile of DIN rail (perfect fit)
- Star design allows screw to earth both DIN rail and back plate

Technical Data

Dimensions (mm)	31.5(L) x 25. (W) x 15 (H)
Dimension including DIN rail (mm)	16 (H)
Screw	M6

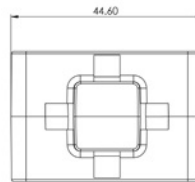
We designed it, because we could

Cable management solutions is part of our DNA and we are always searching for better and more cost effect ways to fasten, fix, install, connect, insulate, protect and identify electrical cables.



Rail Cradle for Cable Ties

- Patented
- Clip around solid side to each lip of unistrut
- Built in cable tie mount
- Cable tie can be inserted multi directional
- Cable to run along unistrut
- Based on TY self-adhesive cable tie mount design
- Cable ties sold separately



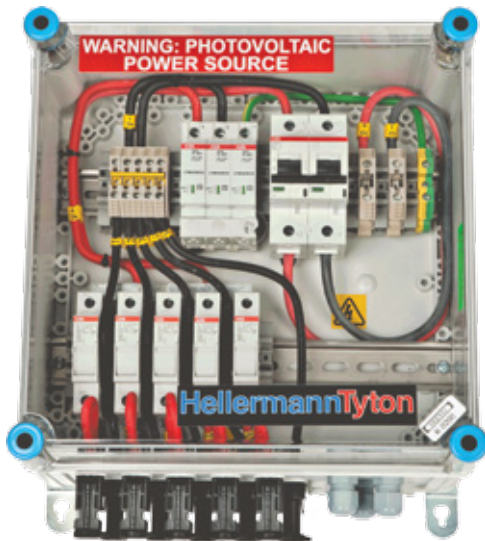
Technical Data

Material	PA66W
Properties	Weather stable
Dimensions (mm)	42(L) x 42 (W) (inside clip/outside of rail)
Unistrut	P1000 and P2000
Cable tie	T50



Benefits of HellermannTyton String Combiner Boxes

- Complete plug and play system
- No wiring necessary on site
- Locally manufactured
- Local support



5 String PV String Combiner Box

- PV panel mount connectors
- PV cable connectors
- Male and female dust covers

Technical Data

IP Rating (Enclosure)	IP65
Voltage	1000V DC
Fuse rating	15A
Isolator	63A
Surge protection	Type 2
Certificates	Test certificates and installation instructions



Custom PV String Combiner Boxes

- UV resistant
- Fuse protection and DC isolation
- PV panel mount connectors
- Male and female dust covers

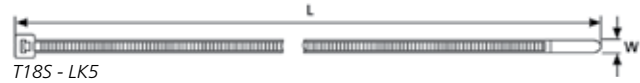
Technical Data

IP Rating (Enclosure)	IP65 – IP66/67
Voltage	1000/1500V DC
Fuse rating	15A upwards
Isolator	Type 1, Type 1&2 or Type 2
Surge protection	Test certificates and installation instructions
Certificates	Test certificates and installation instructions
Optional: Monitoring	<ul style="list-style-type: none"> • 1000/1500V DC string monitoring • Multi string control • Up to 35A string input current • RS485 communication (Modbus) • Fibre communication option • Temperature control inputs



T Series UV and Weather Resistant

- Locally manufactured
- Only available in black
- UV reports available on request



Ordering Information

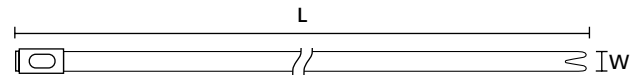
Code	Length (L)	Width (W)	Bundle Ø max.		Material
T18SWBK	83.0	2.3	16.0	80.0	PA66W
T18SWRBK	100.0	2.5	22.0	80.0	PA66W
T30RWBK	150.0	3.5	35.0	135.0	PA66W
T50RWBK	200.0	4.6	50.0	225.0	PA66W
T50WIBK	300.0	4.6	85.0	225.0	PA66W
T50WLBK	390.0	4.6	110.0	225.0	PA66W
T120SWBK	278.0	7.6	55.0	535.0	PA66W
T120WGSBK	225.0	7.6	55.0	535.0	PA66W
T120WRBK	390.0	7.6	105.0	535.0	PA66W
LK5WBK	535.0	13.2	150.0	1115.0	PA66W

UV test reports available on request.



MBT Stainless Steel Cable Ties

- Patented non-releasable locking feature
- Corrosion, weather and high temperature resistant



Ordering Information

Code	Length (L)	Width (W)	Bundle Ø max.		Material
MBT5S	127.0	4.6	25.0	670.0	SS316
MBT8S	201.0	4.6	50.0	67.0	SS316
MBT14S	362.0	4.6	102.0	670.0	SS316
MBT20S	521.0	4.6	152.0	670.0	SS316
MBT27S	681.0	4.6	203.0	670.0	SS316
MBT33S	838.0	4.6	254.0	670.0	SS316
MBT8H	201.0	7.9	50.8	1115.0	SS316
MBT14H	362.0	7.9	102.0	1115.0	SS316
MBT20H	521.0	7.9	152.0	1115.0	SS316
MBT27H	681.0	7.9	203.0	1115.0	SS316
MBT33H	838.0	7.9	254.0	1115.0	SS316
MBT14XH	362.0	12.3	102.0	2225.0	SS316
MBT20XH	521.0	12.3	152.0	2225.0	SS316
MBT27XH	681.0	12.3	203.0	2225.0	SS316
MBT33XH	838.0	12.3	254.0	2225.0	SS316

All dimensions in mm. Subject to technical changes.

Recommended Tensioning Tools

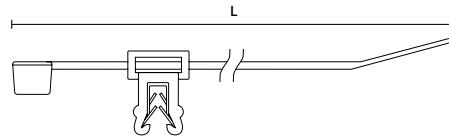
Nylon	EVO9	MK10TEN
Stainless Steel	MK9SST	HT338

For our full product basket, please refer to our website www.hellermannTyton.co.za



2-Piece Fixing Ties for Edges, 1.0-3.0mm, Top Fixing

- Pre-assembled 2-Piece fixing tie with EdgeClip
- Cable tie head can be moved after bundling
- For edges of 1.0-3.0mm
- Harsh environments
- Available in black only



Fixing Tie with EC4

Ordering Information

Code	Type	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part
156-00570	T50ROSEC4A-W		4.60	200.0	45.0	225.0	PA66W	PA66W

All dimensions in mm. Subject to technical changes.



2-Piece Fixing Ties for Edges, 1.0-3.0mm, Side Fixing

- Pre-assembled 2-Piece fixing tie with EdgeClip
- Cable tie head can be moved after bundling
- For edges of 1.0-3.0mm
- Harsh environments
- Available in black only

Ordering Information

Code	Type	Drawing	Width (W)	Length (L)	Bundle Ø max.	N	Material Cable Tie	Material Foot Part
156-01231	T18REC21		25	100.0	18.0	80.0	PA66W	PA66W
156-00576	T50ROSEC22		46	200.0	45.0	225	PA66W	PA66W

All dimensions in mm. Subject to technical changes.

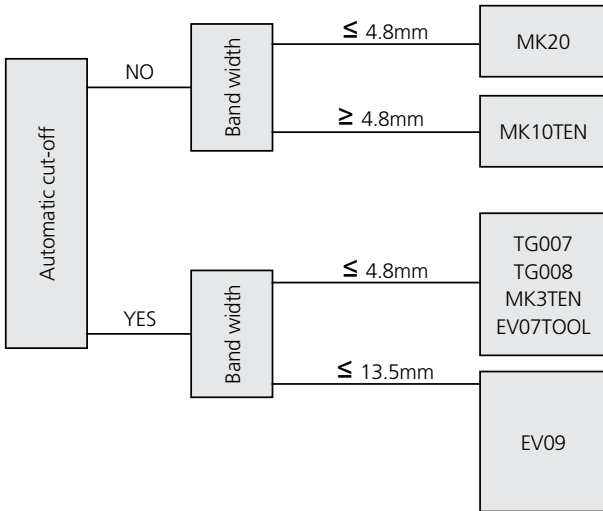
Recommended Tensioning Tools

Nylon	EVO9	MK10TEN
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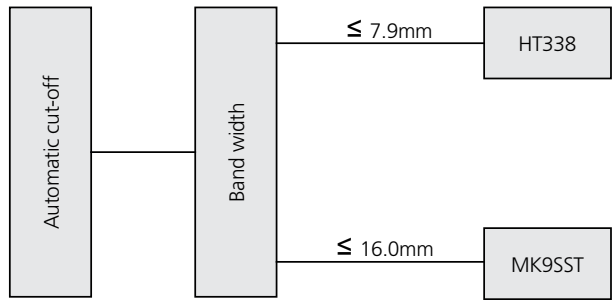
Cable Ties and Fixings

Cable Tie Tensioning Tools

Standard Nylon Cable Ties Selection Guide



Standard Metal Cable Ties Selection Guide



EVO9



- Ergonomic, slip proof handle for a comfortable and secure grip
- Quick tension adjustment with 3 integrated settings
- Fast and precise application with minimum effort
- Extremely low maintenance
- Maximum width 13mm



Nylon cable tie tensioned and cut i.e. no sharp edges

MK9SST

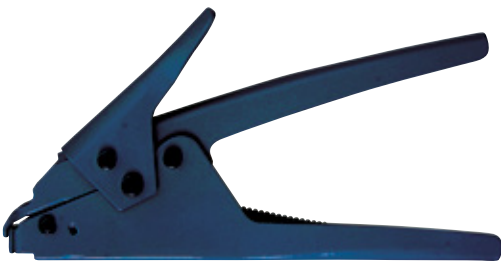


- Stainless steel cable ties only
- Lightweight tool ideal for continuous use in high volume production
- Suitable for **MBT8**, **MBT14**, **MBT20** and **MBT27** series cable ties
- Maximum width of tie: 4.6 - 13mm



Stainless steel cable tie tensioned/cut/no sharp edges

MK10TEN



- Nylon cable ties only with adjusting tensioning force
- Lightweight tool ideal for continuous use in high volume production
- Suitable for **T18**, **T50** and **T120** series cable ties
- Maximum width of tie: 9.5mm



Nylon cable tie tensioned and cut i.e. no sharp edges

HT338 - Budget



- Stainless steel cable ties only
- Fastens and automatically cut ties with adjustable bundling pressure
- Tension adjusting indicator
- Cable tie thickness up to 0.3mm
- Maximum width of tie 7.9mm



Stainless steel cable tie tensioned/cut/no sharp edges



TT430 Thermal transfer printer.

TT430 – Thermal Transfer Printer

- Medium volume single sided printing
- Print on Tiptags
- Print on adhesive labels
- Uses standard ribbons
- Windows compatible
- Options: Cutter (556-00452) and External Reel Holder (556-00451)

Technical Data **HF** ✓ **RoHS** ✓

Print Method	Thermal Transfer
Print Head Type	300dpi, flat type
Print Speed	Up to 125mm/s
Max. Print Width	106.0mm
Max. Label Length	1.000mm
Printer Interfaces	USB 2.0, Ethernet 10/100 Base T
Printer Memory	64MB RAM
Ribbon Type	TTRC+, TTDTHGCT
Specification	CE, FCC, UL

Ordering Information

Code	Description
556-00450	TT430 Thermal Transfer Printer

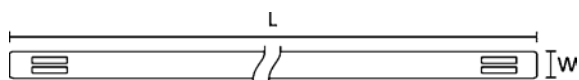


TIPTAG – Identification tags for cable bundle, thermal transfer

- Durable, robust and flexible
- Cable ties width up to 4.7mm
- Perforated format with fastening slots for cable ties

Technical Data

Material	Polyurethane resin DS(PURDS)
Operating Temperature	-65°C to +120°C, intermittent +150°C
Resistant Properties	Weather resistant, UV stabilised, abrasion, chemical
Flammability	Self-extinguishing, UL 94 V0 (3mm)
Recommended Ribbon Type	TTRC+
Printer and software	TT430 Thermal Transfer, TagPrint Pro software



Ordering Information

Code	Length (L)	Width (W)	Colour	Article-No.
TTAGPU11X65WH	65.0	11.0	White (WH)	556-25012
TTAGPU11X65YE	65.0	11.0	Yellow (YE)	556-25019
TTAGPU15X65WH	65.0	15.0	White (WH)	556-25007
TTAGPU15X65YE	65.0	15.0	Yellow (YE)	556-25011
TTAGPU11X100WH	100.0	11.0	White (WH)	556-25021
TTAGPU11X100YE	100.0	11.0	Yellow (YE)	556-25020
TTAGPU15X100WH	100.0	15.0	White (WH)	556-25006
TTAGPU15X100YE	100.0	15.0	Yellow (YE)	556-25010

For our full product basket, please refer to our website www.hellermanntyton.co.za



Heat Shrinkable Wire Identification, Thermal Transfer

TLFX DS - 2:1 'Ladder Style' Sleeves

- Cable range 38.1mm to 1.2mm
- Low smoke propagation, density and toxicity
- High oxygen index value (38%)
- Easy label design with TagPrint Pro
- Printing on both sides

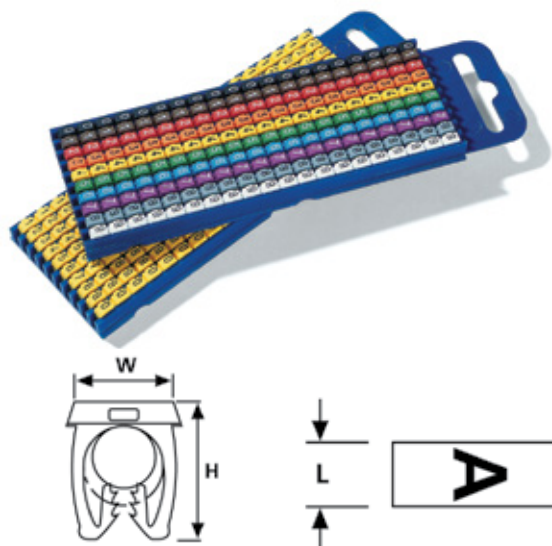
Technical Data **HF** ✓ **RoHS** ✓ **LFH** ✓

Material	Polyolefin, cross-linked (PO-X)
Printing speed	30 mm/s (Recommended)
Ribbon type	TTDTHOUT (Recommended)
Shrink ratio	2:1
Operating Temperature	-55°C to +105°C
Min. Shrink Temperature	+100°C
Printer	TT430 Thermal Transfer

Ordering Information

Code	Description	Supplied Ø D min.	Recov. Ø D max.	Length (L)	Wall Thickness (WT)	Pack Cont.	Colour
553-60001	TLFX32DS-1x50WT	3.2	1.6	50.0mm	0.58	5000 pcs.	White
553-60011	TLFX32DS-1x50YL	3.2	1.6	50.0mm	0.58	5000 pcs.	Yellow
553-60002	TLFX48DS-1x50WT	4.8	2.4	50.0mm	0.61	5000 pcs.	White
553-60012	TLFX48DS-1x50YL	4.8	2.4	50.0mm	0.61	5000 pcs.	Yellow
553-60003	TLFX64DS-1x50WT	6.4	3.2	50.0mm	0.61	3000 pcs.	White
553-60013	TLFX64DS-1x50YL	6.4	3.2	50.0mm	0.61	3000 pcs.	Yellow

All dimensions in mm. Subject to technical changes.



Wire Identification Clip (WIC Markers)

- Snap-on markers
- Robust locking mechanism



Technical Data **HF** ✓ **RoHS** ✓

Material	Polyamide 6.6 (PA66)
Colour	International resistor colour code with marking text
Flammability	UL94 V0
Operating Temperature	0-9 Yellow with marking text A-Z, 0-9 and symbols.
Certification	IEC 304, EN 60062, UL94






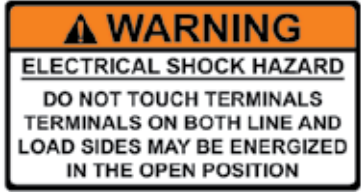


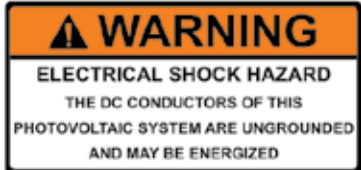
Ordering Information

Code	Cable Dimensions		Marker Dimensions			Dispenser	
	OD (mm)	(mm) ²	Width (W)	Height (H)	Length (L)	Size	Colour
WIC0	0.8 - 2.2	0.15 - 0.75	3.6	5.5	3.0	200.0	Green
WIC1	2.0 - 2.8	0.5 - 1.5	5.0	6.4	3.0	200.0	Red
WIC2	2.8 - 3.8	1.5 - 2.5	5.6	7.1	3.0	200.0	Blue
WIC3	4.3 - 5.3	4.0 - 6.0	8.0	9.6	3.0	100.0	Yellow

All dimensions in mm. Subject to technical changes.

PV Solar Labels

- Warn personnel about risks associated with equipment and operation
- Identify PV products
- Pre-printed labels made with UV stable ink and materials

Code	Description	Length (L)	Width (W)	Label
PVLABEL206	String Combiner Box	25.40	165.10	
PVLABEL237	AC Disconnect	25.4	95.25	
PVLABEL238	DC Disconnect	25.4	95.25	
PVLABEL243	Main DB	44.4	139.70	
PVLABEL244	AC Panel	25.4	165.10	
PVLABEL497	DC Disconnect / Main Service Disconnect /Breaker Panel	50.8	95.25	
PVLABEL498	Inverter / AC Panel	50.80	104.60	
PVLABEL587	AC Panel	19.05	104.6	
PVLABEL588	Inverter	50.8	104.6	

All dimensions in mm. Subject to technical changes.

For our full product basket, please refer to our website www.hellermannTyton.co.za



Nylon Glands

- Watertight
- Multiple interlock facets guarantee equal compression against cable
- Advanced thread design improves cap/cable compression
- Thread, 20.0 x 1.5mm

Ordering Information

Code	Colour	Material	Clamping Range diam.	Thread Length
AGN001GY*	Grey	Glass Filled Nylon	6.5 to 12.5	11.5
BCS1WT	White	ABS	10.0 to 12.5	13.0
BS0WT	White	ABS	8.5 to 10.5	13.0
BS1WT	White	ABS	10.0 to 12.5	13.0
BS0BK	Black	ABS	8.5 to 10.5	13.0
BS1BK	Black	ABS	10.0 to 12.5	13.0

Notes: *Glass-filled Nylon Glands have limited UV-resistance. All dimensions in mm



Convoluted Tubing

- High impact
- Flexible
- Durable, crush resistant

Technical Data

RoHS ✓

Material	UV Stabilised PVC
Compression Force (N)	740
Operating Temperature (°C)	-5 to +60
Colour	Light grey
Approvals	SABS IEC 60614-1:1994 IEC 60614-2-3:1990 Authorisations Committee approval no: 0211064

Ordering Information

Code	Nominal Size (mm)	
	I.D	O.D
V20HT3905	15.5	20.0
V25HT3905	20.5	25.0

All dimensions in mm. Subject to technical changes.



HTB Standard Lugs and Ferrules

Approvals:

- SANS IEC61238-1:2003 (Lugs)
- SABS IEC61238 / Authorisation No: 0902175 (Ferrules)
- Test Report available on request

Cable Size (mm ²)	1.5	2.5	4	6	10	16	25	35	50	70
		95	120	150	185	240	300	400	500	630

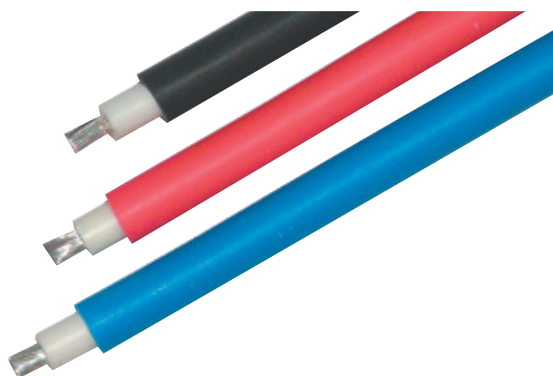


PV Connectors

- Allow strings of panels to be easily connected by pushing the connectors from adjacent panels together by hand
- A tool to disconnect them is required to avoid accidental disconnection when cables are pulled

Technical Data

Connector material	PPO
Contact material	Silver plated copper
Current rating	20A - 30A
Voltage rating	Up to 1500V DC
Temperature range	40°C – +85°C
Protection class	II
Ingress protection	IP68



PV Cables

- High impact
- Extreme weather conditions
- Permanent installations.

Technical Data

Types of tables	TUV cable UL cable Dual cable
Colours	Red and black
Size (mm)	4,6,10,16,25
Resistant properties	UV, water and oil
Flammability	Flame retardant



Dust Covers (Locally manufactured)

- Prevents possible damage of the male or female pin due to:
 - Dust and water ingress
 - Connections causing hot connection
- Designed and manufactured locally
- Compatible with most PV Connectors
- Suitable for:
 - PV panel mount connectors
 - PV cable connectors
 - PV branch connectors



PVBP Solar Backpack Tool Kit

- Suitable for harsh and demanding environments including solar
- Conforms to safety standards
- Backpack is water resistant
- Quality tools with lifetime warranty
- Weight: 8 Kg (Max weight capacity 12 Kg)
- 1000V insulated tools included



Code	Description
INSSET	Screwdriver set insulated 7 piece
PVCT46	PVC Crimper 2.5 - 6.0mm ²
PVST46	Solar Cable Stripper
HT20013	1000V Insulated 13mm Open-Ended Spanner
HT21010	1000V Insulated 10mm Ring Spanner
H015	Hacksaw Junior
AW100	1 Wrench Adjustable 100mm
HUK1	1 Universal Panel Key
01604LM	Allen Hex Key Set L/Arm Ball Point
HAMB300	Hammer 300g Ball Pein
HD16L	Crimp Tool Uninsulated 1.5 - 1.6mm ²
YAC5	Crimp Tool Bootlace 0.5 - 6mm ²
CC22	Cutter Copper and Aluminium 25mm ²
PC230W	Pliers Combination 1000V 225mm
HDC205H	Cutter Diagonal Side 1000V 205mm
HLN200	Pliers Snap Nose 1000V
TOOLBAGBP	Bag dimensions: 46cm (H) x 38cm (W) x 21cm (T)



PK1000V - 17 Piece Electrical Tool Kit 1000V

- Quality tools with lifetime warranty
- High voltage
- All tools and Multimeter can be purchased individually



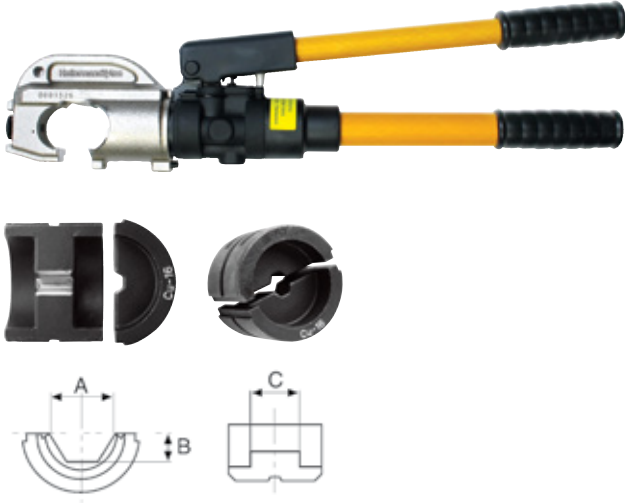
Code	Description
T235H	3 1/2 Digit, Multimeter
HLN200	200mm Long Nose Pliers (1000V)
HDC205H	200mm Diagonal Cutter (1000V)
HCP200H	200mm Combination Pliers (1000V)
INSSET	7 Piece 1000V German Insulated Screwdrivers
AW200	200mm Adjustable Spanner
HUK1	Universal Key
WAK2	Utility Knife
CC38	Cable Shear Wire Stripper
45092	0.32 - 6mm Cable Shear Wire Stripper
TORCH1	Torch
PCS	Bag Dimensions: 39cm (H) x 24cm (W)

HYCP400 - Hand Hydraulic Crimper

- Excludes dies

HYCP400KT - Hand Hydraulic Crimper Kit

- Includes dies



- Automatic low/high - pressure conversion with rapid/slow operating motion
- Pressure relief valve for overload protection
- Head rotates 180°
- Force at die face: 12 metric ton (700 bar)
- C-head opening: 32mm
- Dies sold separately

Die Code	DIE No.	A	B	C
CP40016D	Cu-16	7.20	3.12	14
CP40025D	Cu-25	8.43	3.67	14
CP40035D	Cu-35	10	4.33	16
CP40050D	Cu-50	11.60	5.02	16
CP40070D	Cu-70	13.70	5.95	15.60
CP40095D	Cu-95	15.90	6.85	15.70
CP400120D	Cu-120	17.98	7.79	16
CP400150D	Cu-150	20.10	8.70	15
CP400185D	Cu-185	22.33	9.67	14
CP400240D	Cu-240	25.43	11.01	13
CP400300D	Cu-300	28.44	12.32	11.20
CP400400D	Cu-400	30	14.55	11.50

Crimping Range
16mm ² - 400mm ²



K240KT - Battery Operated Hydraulic Crimper

- Approximately 200 crimps per charge at 50mm²
- 18 Volt Lithium-Ion battery powered (2 included)
- 5.3 Ton die force
- Head rotates 180°
- Dies included (10mm² to 240mm²)

Die Code	Crimp Sizes
H1851016D	10mm ² and 16mm ² (dual die)
H1852535D	25mm ² and 35mm ² (dual die)
H185070D	50mm ² and 70mm ² (dual die)
H1859512D	95mm ² and 120mm ² (dual die)
H185150D	150mm ² (single die)
H185185D	185mm ² (single die)
H240240D	240mm ² (single die)

Spare Accessories

Code	Description
K20KTBATT	Battery



PVCT46 - PV Crimper (Solar)



- Standard die for 2.5/4/6mm² (AWG14/12/10) solar PV cable
- Adjustable crimping pressure
- MC4 Solar connectors
- Right angle head design- Prevents wrist bending
- Pull force on crimping pins - 45 kg

Crimping Range	
Metric	AWG
2.5mm ²	10mm ²
4mm ²	12mm ²
6mm ²	14mm ²



PVCT46B - PV Crimper (Solar)



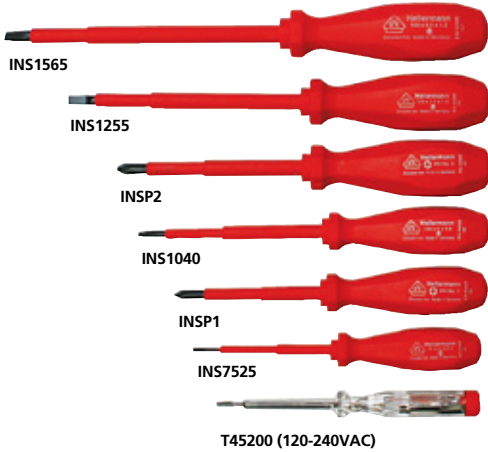
- Standard die for 2.5/4/6mm² (AWG14/12/10) solar PV cable
- Suitable for Bizlink connectors

Crimping Range	
Metric	AWG
2.5mm ²	10mm ²
4mm ²	12mm ²
6mm ²	14mm ²



INSSET - 1000V Insulated Screwdriver Set

- 7 Piece including neon tester
- Flat blade and Phillips set



Code	Length (mm)		Tip (mm)		Style
	Overall	Head	Width	Thick	
INS7525	150	75	2.5	0.4	●
INS1040	180	100	4	0.6	
INS1255	220	125	5.5	0.8	
INS1565	255	150	6.5	1	⊕
INSP1	165	80	5	No 1	
INSP2	195	100	6	No 2	
T45000	140	65	3	0.5	Neon ⊕

Can only be purchased individually

INS1780	290	175	8	1.2	●
INSP0	150	60	3	No 0	⊕
INSPV1	170	85	2.5	No 1	⊕

1000V Insulated Ring Spanners



HT21022

- DIN 7447
- Forged from chrome vanadium steel (DIN 838)
- Deep cranked
- EN/IEC 60900:2012



Code	Sizes
HT21013	13mm
HT21014	14mm
HT21017	17mm
HT21019	19mm
HT21022	22mm

1000V Open-Ended Spanners



HT20019

- DIN 7447
- Forged from chrome vanadium steel (DIN 838)
- Deep cranked



Code	Sizes
HT20010	10mm
HT20013	13mm
HT20016	16mm
HT20017	17mm
HT20019	19mm

HT762250 - 1000V Insulated Adjustable Spanner



- Din 3117 B
- Burnished
- Opening width: 30mm
- EN/IEC 60900:2012

Code	Size
HT762250	250mm

Diagonal Cutters - 1000V Heavy Duty



HDC205H

- 1000V – IEC60900 SABS approved
- Chrome molybdenum steel/hardness 38 - 44 HRC
- Cutting edges – induction hardness 58-62 HRC
- General uses – mild steel wire
- **HDC205H** Piano wire



Code	Length (mm)	
	Overall	Head
HDC160	160	42
HDC180	180	44
HDC160H	160	43
HDC180H	180	49
HDC205H	205	54

HT765250 - 1000V Insulated Mini Hacksaw



- Fully insulated

Code	Length
HT765250	150mm

PC230W - 1000V Electrical Plier and Crimper



- High grade carbon steel
- Indent crimper
- Cutting edge for soft and hard wire



Code	Length (mm)	
	Overall	Head
PC230W	225	80

HT100205 - 1000V Insulated Pliers

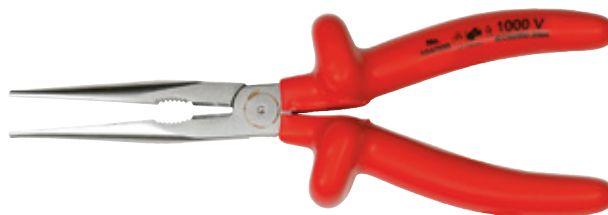


- Size: 250mm
- DIN ISO 5746
- Induction-hardened cutting edges
- Suitable for hard wire



Code	Size
HT100205	250mm

HT104200 - 1000V Insulated Long Nose Pliers



- Size: 200mm
- DIN ISO 5745
- Induction-hardened cutting edges
- Suitable for hard and soft wire



Code	Size
HT104200	200mm

HT90026 - 1000V Insulated 26 Piece Tool Kit

- Tools are not sold separately



Description	Sizes
Engineers Pliers	200mm
Side Cutters	160mm
Telephone Pliers	200mm
Reversible Ratchet	1/2"
Extension	250mm 1/2"
Stripper Knife	-
Cable Knife	-
Sockets	10, 11, 12, 13, 14, 17, 19mm
Open-Ended Spanner	10, 11, 12, 13, 14, 17, 19mm
Voltmeter	-
Screwdrivers	3.5 x 100, 5.5x125, 6.5x150, 8x175

For our full product basket, please refer to our website www.hellermannTyton.co.za



CAT IV 1000V

TBM869

- Probe input warning
- Crest mode
- Duty cycle
- Dual display

Technical Data

Feature	Parameter	Accuracy
DC Voltage	500mV, 5, 50, 500, 1000V	0.02% + 2 Digit
AC Voltage	500mV, 5, 50, 500, 1000V	1.2% + 40 Digit (20Hz-45Hz)
DC Current	500μ, 5000μ, 50mA, 500mA, 5.10A	0.15% + 20 Digit (0.5% + 50 Digit att 500μA)
AC Current	500μ, 5000μ, 50mA, 500mA, 5.10A	0.5% + 50 Digit
Resistance	500, 5k, 50k, 500k, 5m, 50mΩ	0.07% + 10 Digit
Temperature	-50°C to 1000°C	0.3% + 1.5°C
Capacitance	50nF, 500nF, 5μ, 500μ, 25mf	0.8% + 3 Digit
Frequency Line: Logic	10Hz to 3kHz	0.002% + 4 Digit
Counts	5 -4/5 Digits	500000 Counts

Model Specification

Power Source	1 x 9V Battery
Standard Accessories	Temp Probe TBMTEMPPROBE
Optional Accessories	USB Cable and Software TBU86X
Certificates	UL, IEC61010-1. Certificate of Conformance



LIFETIME WARRANTY

CAT IV 1000V

TBM812

- General Purpose
- Splash/Drop proof
- 1000V AC/DC
- Input warning
- USB interface
- Dual display
- Backlit
- Input warning

Technical Data

Feature	Parameter	Accuracy	Protection
DC Voltage	60mV, 600mV, 6V, 600V, 1000V	0.08% + 2 Digit	1050Vrms, 1450V peak
AC Voltage	60mV, 600mV, 6V, 600V, 1000V	2.0% + 3 Digit	1050Vrms, 1450V peak
DC Current	600μ, 6000μ, 60mA, 600mA, 6.10A	0.2% + 4 Digit	0.44A/1000V Fuse (IR10kA) 11A/1000V Fuse (IR20kA)
AC Current	600μ, 6000μ, 60mA, 600mA, 6.10A	1.0% + 4 Digit	0.44A/1000V Fuse (IR10kA) 11A/1000V Fuse (IR20kA)
Resistance	40.1Ω - 60MΩ	1.5% + 5 Digit	1.2V DC open circuit
Capacitance	60nF, 600nF, 6μ, 60μ, 600μ, 20mF	5.0% + 5 Digit	
Frequency	5Hz - 1MHz	0.004% + 4 Digit	
Transient			12kV surge
Protection			(1.2/50 μs) surge
Counts	3 -9/10 Digits	10 000 Counts	

Model Specification

Power Source	1 x 9V Battery
Optional Accessories	USB Cable and Software TBU86X , USB Adaptor Magnetic Hanger TBMH01
Certificates	UL, IEC61010-1. Certificate of Conformance



CAT IV 1000V

TBM197 2000A AC/DC

- Jaw size: 55mm
- Dual display
- Non-contact EF detection
- VFD (Variable frequency drives)
- Data logging
- Diode

Technical Data

Feature	Parameter	Accuracy
DC Current	100, 200, 500, 1000, 2000A	±2 % + 5 Digit
AC Current	100, 200, 500, 1000, 2000A	±2 % + 5 Digit
DC Voltage	6, 60, 600, 1000V	±1.4 % + 7 Digit
AC Voltage	6, 60, 600, 1000V	±1.4 % + 7 Digit
Resistance	600, 6k, 60k, 6M, 40MΩ	±0.5 % + 5 Digit
Frequency	400Hz	
Temperature	-50°C to 1000°C	±0.3 % + 4 Digit
Capacitance	60nF, 6μ, 60μ, 600μ, 2000μF	±2.0 % + 5 Digit
Counts	3 -5/6 Digits	6000 Counts

Model Specification

Power Source	2 x 1.5V AA Batteries
Standard Accessories	Carry Pouch
Optional Accessories	Temp Probe TBMTEMPPROBE , TBU19X
Certificates	UL, IEC61010-1. Certificate of Conformance



T2000 Earth Resistance Clamp

- Jaw size: 32mm
- Direct earth probes measurement
- Leakage current
- Alarm thresholds
- Current noise
- Data HOLD function
- 99 measurement storage locations

Technical Data

Feature	Parameter	Accuracy
Resistance	0.01Ω-0.999Ω	±(1.0%+0.01Ω)
	0.10Ω-0.99Ω	±(1.0%+0.01)
	1Ω-49.9Ω	±(1.5%+0.1Ω)
	50.0Ω-99.9Ω	±(2.0%+0.3Ω)
	100Ω-199.9Ω	±(3.0%+1Ω)
	200Ω-395Ω	±(6.0%+5Ω)
	400Ω-590Ω	±(10%+10Ω)
AC Current	600Ω-1000Ω	±(20%+20Ω)
	0.00A-80mA	±(2.5%+1mA)
	80-650mA	±(2.5%+2mA)
	650-999.5mA	±(2.5%+0.003A)
	1.000-3.995mA	±(2.5%+0.01A)
	4.00-20.00mA	±(2.5%+0.05A)



CAT III 150V

Model Specification

Power Source	4 x 1.5V AAA Batteries
Standard Accessories	Resistive Test Loop, Carry Case
Certificates	UL, IEC61010-1. Certificate of Conformance



THT60

- 160 x 120 Pixels
- Thermal infrared camera
- Touch screen 3.5" TFT
- Micro-SD card and USB interface to PC
- 8 Standard + 10 custom colour palettes
- Built in laser pointer and illuminator
- PiP function
- PAL/NTSC video out

Technical Data

Temperature Range	-20°C to 400°C
Thermal Sensitivity	<0.08°C @ 30°C
Visual Range	(FOV) 29.8° x 22.6° (lens 7.5mm)
Spectral Range	8 to 14μm
IR Resolution	160 x 120 pixels
Colour Palettes	8 Standard, 10 Custom Colours
Thermal Image Sensitivity	80mK at 30°, 50Hz
Digital Zoom	1x to 20x
Save File Format	JPEG, MPEG4
Integrated Photo Camera	60 x 480 pixels
Image Frequency	50Hz
Thermal Image Detector	IR UFPA

Model Specification

Power Source	2 x 7.4V Lithium-Ion Rechargeable Batteries
Standard Accessories	7.5mm lens and protection cover, AC/DC adapter + universal plugs, Charger base, 4GB micro SD card and card reader, USB cable for PC connection, RCA video output cable, Rubber support for LCD hood, Rubber support for tripod, Earphone set, CD-ROM with THTLink software, User manual, Hard carry case
Optional Lenses	RL1160-11mm, RL2260-22mm and RL3360-33mm
Certification	ISO9000



MAINTENANCE AND EFFICIENCY OF THE PHOTOVOLTAIC SYSTEM	SOLARIV	IV500	SOLAR300N	PVCHECK
PAGE	61	61	62	62
Continuity of protective conductors with 200mA				•
Insulation measurement with test voltage 250, 500, 1000V DC with no service interruption				•
I-V Curve measurement on single module or string	•			
VOC and ISC measurement on single module or string	•			•
Single-Phase and Three-Phase efficiency measurement	1MPPT		1MPPT	
DC side efficiency of the photovoltaic field			•	•
Use of remote unit SOLAR02 with USB \ RF connection	RF	USB		RF
Measurement of irradiation with reference cell	•	•	•	•
Temperature measurement of cell and environment	•	•	•	•
POWER QUALITY ANALYSIS				
AC/DC voltage in single-phase/three-phase systems		•		DC
AC/DC current in single-phase/three-phase systems			•	DC
Cosphi, Power Factor			•	
Voltage unbalance (NEG%, ZERO%)			•	
Power/Energy: Active P, Reactive Q, Apparent S	Only active P		•	Only active P
Voltage and current harmonics up to the 49th with THD%			•	
Voltage anomalies (dips, peaks) with 10ms resolution (@ 50Hz)			•	
Voltage fast transients (spikes) with 5µs resolution (200kHz)			•	
Electric motor starting current (INRUSH)			•	
Voltage flickers (Pst, Plt)			•	
Full analysis according to EN50160			•	
Phase sequence			•	
Neutral-Ground Voltage			•	
Neutral current			•	
MEMORY AND RECORDING				
Internal memory capacity	249 curves I-V 8 days@ PI =10 min	249 curves I-V	15MB 90 days@ PI =10 min	999 Locations
Recording with selectable integration period	5s-60m		5s-60m	5s-60m
Indicative memory duration (in days @ PI=10min @ max number of parameters)	8		90	
Indication of recording duration for power quality analysis				•
Internal memory extension with Compact Flash card				•
Default and custom recordings			•	
REAL-TIME DISPLAY				
Summary table of main electric parameters	•	•	•	•
Voltage/current waveforms			•	
Tables or histograms of Harmonics and THD%			•	
Voltage/current vector diagram			•	



ADDITIONAL CHARACTERISTICS	SOLARIV	IV500	SOLAR300N	PVCHECK
Measuring range of I-V Curve / IVCK	1500V/ 10A 1000V/ 15A	1500V/ 10A 1000V/ 15A		1000V/15A only VOC and ISC
Measuring range for efficiency measurement	1000V DC/ 265V AC		1000V AC-DC 3000A	
Safety category	CAT III 300	CAT III 300	CAT IV 600	CAT III 300
Touchscreen colour display			•	
LCD display with backlight	•	•		•
USB port for data download onto Pen Drive			•	
PC interface with software for Windows	•	•	•	•
Integrated WiFi interface	•	•		
Custom management of internal PV module database	•	•		•
Power supply with rechargeable battery and battery charger			•	
Auto Power Off (APO)	•	•	•	•
Indication of recording duration for efficiency measurement	•		•	
Reference standard for Power Quality Analysis			EN50160	
On display help	•	•	•	•
Size (L x W x H) mm	235 x 165 x 75	235 x 165 x 75	235 x 165 x 75	235 x 165 x 75
Weight (batteries included) kg	1.2	1.2	1	1.2
Reference standard for safety	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1	IEC/EN61010-1

Solutions for Performance and Troubleshooting

Troubleshooting

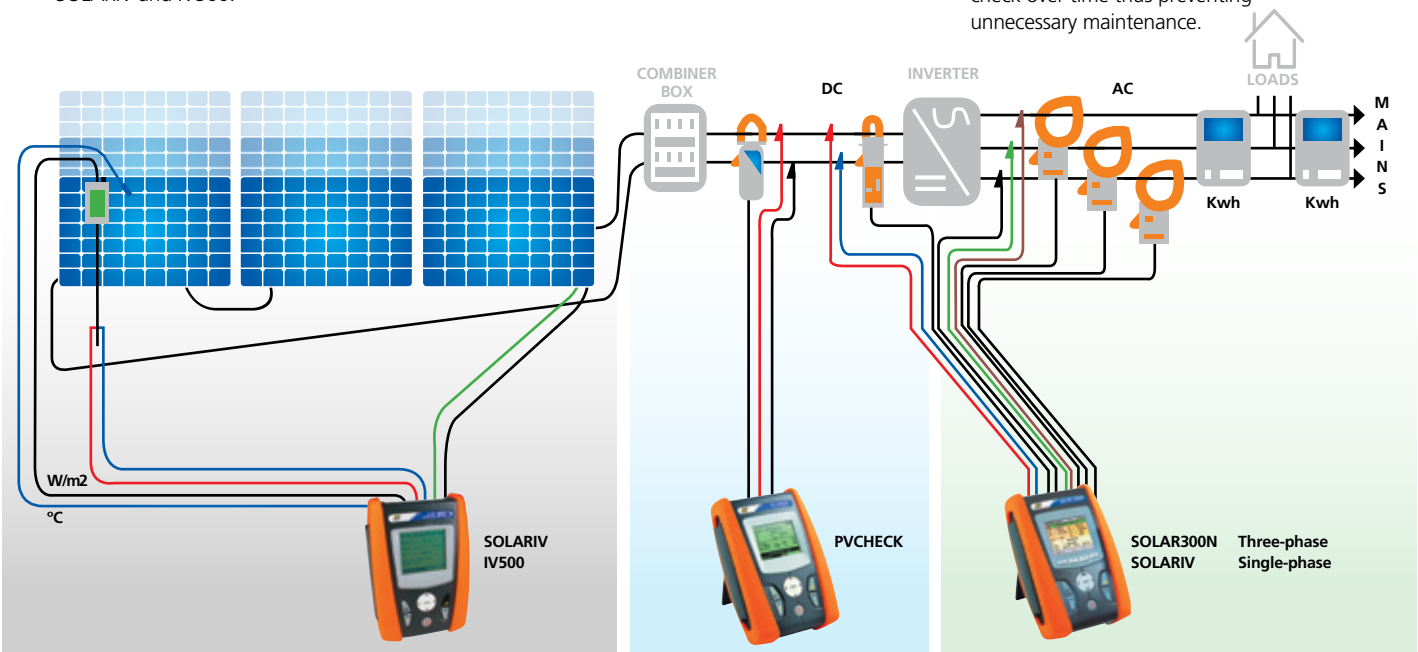
If system efficiency is lower than expected, it is necessary to detect the defective modules so that they can be replaced. This can be achieved by measuring the I-V curve with devices SOLARIV and IV500.

Commissioning Tests

When operating a photovoltaic system, it is necessary to certify its safety according to IEC62446. The suitable device to carry out these verifications is PVCHECK.

Performance

System performance monitoring can possibly detect production loss quickly and efficiently. SOLAR300N and SOLARIV can record the energy production of a system and the inverter performance check over time thus preventing unnecessary maintenance.



Instruments

Photovoltaic Instrument Accessories - Selection Guide



CODE	DESCRIPTION	SOLARIV	IV500	SOLAR300N	PVCHECK
TOPVIEW2006 TOPVIEW2007	PC Windows software + USB/ optical cable	TOPVIEW2006		TOPVIEW2007	TOPVIEW2006
PT300N	PT1000 temperature probe	•		•	○
SOLAR02	Irradiation and temperature remote unit	•	○	•	○
KITGSC4	4 Cables, 4 alligator clips	•	•		•
TKIT800	5 cables, 5 alligator clips			•	
KITPVMC3 - KITPCMC3	2 adapters with connectors MC3	KITPVMC3	KITPVMC3		KITPCMC3
KITPVMC4 - KITPCMC4	2 adapters with connectors MC4	KITPVMC4	KITPVMC4		KITPVMC4
A0055	AC/DC battery charger 230V 50/60Hz			•	
PT400	Touch-screen pen			•	
HT304N	Irradiation measurement sensor	•	•	•	○
M304	Mechanical inclinometer	•	•		○
HT4004N	Standard 10-100A DC clamp, diameter 32mm	•		•	
HT4005K	Standard 200A AC clamp, diameter 40mm	•		•	
C2007	USB cable			•	
HT97U	Standard 10-100-1000A AC clamp, diameter 54mm	○		○	
HTFLEX33E	Flex 3000A AC clamp, diameter 174mm			○	
HP30D1	1000A DC clamp, diameter 83mm	○		○	
HP30C3	3000A AC clamp, diameter 70mm			○	
HP30C2	200-2000A AC clamp, diameter 70mm			○	
606IECN	Magnetic connectors for voltage measurement	○		○	○
BORSA2051	Soft carrying bag				•
VA500	Rigid carrying case	•	•	•	

○ Optional



SOLARIV

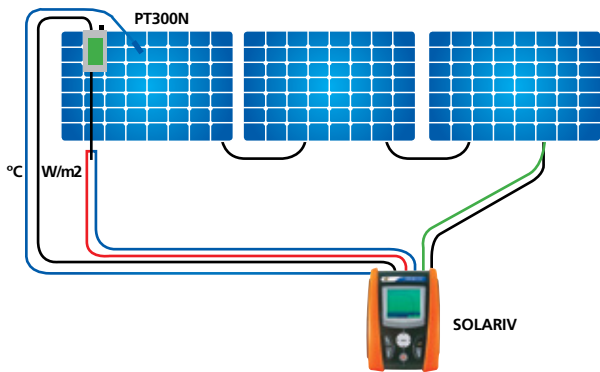
Device for tests and maintenance of single-phase installations

- Measurement of efficiency of a single-phase photovoltaic system
- Measurement of I-V Curve of a module or of a string
- Measurement of open-circuit voltage and of short-circuit current V_{oc}/I_{sc}
- Database of 30 000 selectable photovoltaic modules
- Measurement of PV module/string output voltage up to 1500V DC
- Measurement of PV module/string current up to 10A DC
- Measurement of resistance of series R_s of panels
- DC/AC TRMS single-phase voltage
- DC/AC TRMS single-phase current
- * Measuring a IV curve via remote synchronisation of irradiation and temperature. Refer to IV500.

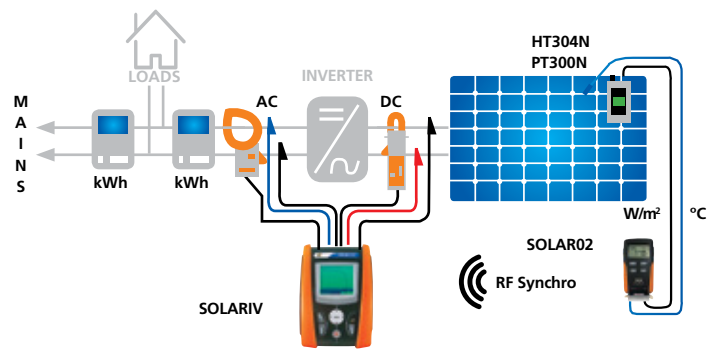
CAT III 300V

Model Specification

Power Source	6 x 1.5V AA Alkaline batteries
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Measuring of curve IV with environmental sensors



Measuring single-phase efficiency with remote environmental sensors



IV500

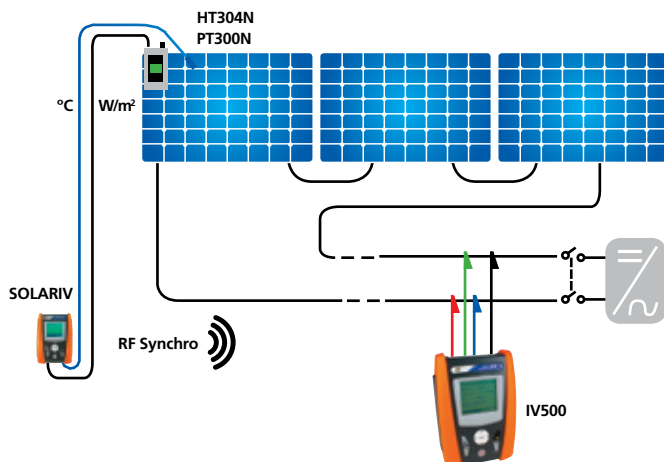
Device for maintenance and troubleshooting

- Measurement of open-circuit voltage and of short-circuit V_{os}/I_{sc}
- Measurement of PV module/string output voltage up to 1500V DC
- Measurement of PV module/string output current up to 10A DC
- Direct comparison with reference conditions (STC - 1000W/m² 25°C)
- Internal memory for data saving

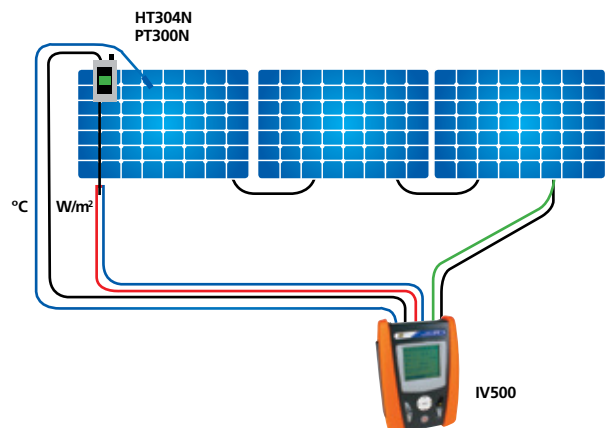
CAT III 300V

Model Specification

Power Source	6 x 1.5V AA Alkaline batteries
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* Measuring a IV curve via remote synchronisation of irradiation and temperature



Measuring of curve IV with environmental sensors

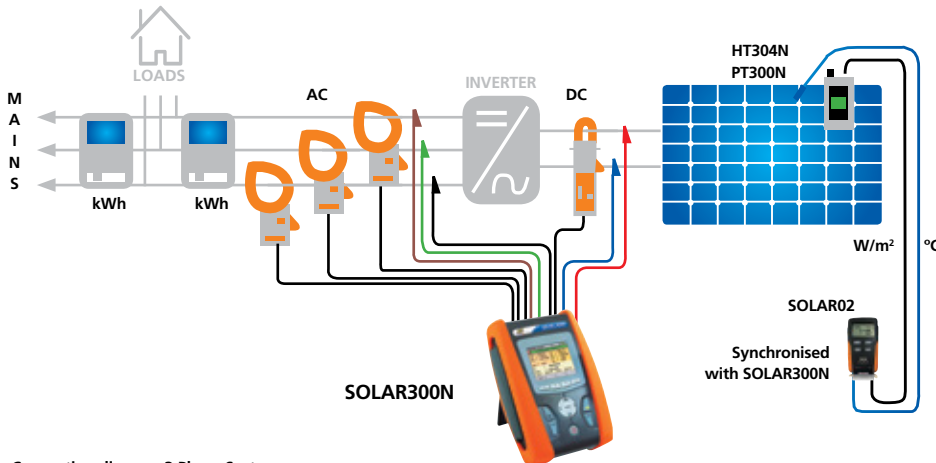


CAT III 600V

SOLAR300N

Device for verification of single-phase and 3-Phase PV system efficiency and power quality analysis in compliance with standard EN50160

- Verification of the efficiency of photovoltaic system
- Analysis of power quality and energy consumption
- DC/AC TRMS voltage (single-phase and 3-Phase)
- DC/AC current (single-phase and 3-Phase)
- DC/AC active power (single-phase and 3-Phase)
- Power factor cosj (single-phase and 3-Phase)
- Solar radiation
- Panel and environment temperature
- Display of testing result (OK/NOT OK)
- Remote unit SOLAR02 for measuring irradiation and temperature
- Periodic recording of power parameters with programmable PI
- Analysis of recordings
- Voltage anomalies and spikes



Connection diagram 3-Phase System



SOLAR02



HT304N

CAT III 300V

PVCHECK and PVCHECK PRO

Commissioning of solar electrical installations

Automatic test in a sequence of:

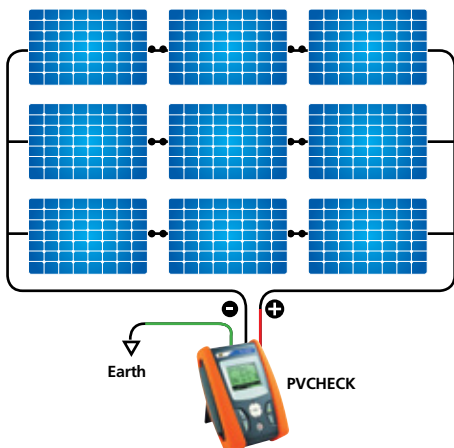
- Measurement of insulation up to 1000V DC
- Open-circuit voltage and short-circuit current Voc/Isc
- Continuity of protection conductors with 200mA
- Internal memory and USB output for PC Connection
- Efficiency measurements of the photovoltaic system
- Efficiency measurement of the photovoltaic field (DC side)

Model Specification

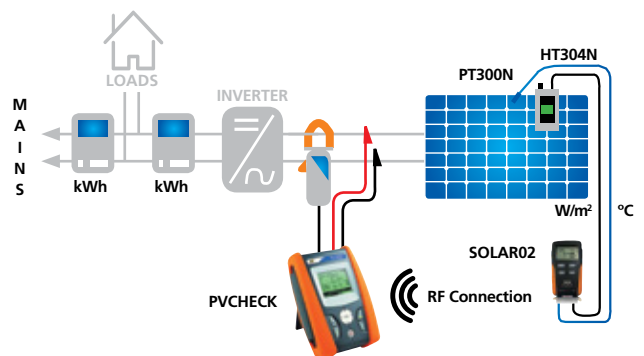
Power Source	6 x 1.5V AA Alkaline Batteries
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PVCHECK PRO

Code	Description
SOLAR02	Remote unit to record irradiation and temperature
HT304N	Kit of 5 cables + alligator clips for voltage measurement Sensor for irradiation measurement
PT300N	Probe PT1000 for panel temperature



"Whole photovoltaic field" insulation measurement method



Measuring efficiency of photovoltaic field

MADE FOR REAL[®]

HellermannTyton

Catalogue:
**General Product
2017/18**



1. Cable Ties and Fixing
2. Heat Shrink
3. Cable Protection Systems
4. Electrical Installations
5. Identification Systems

HellermannTyton

Catalogue:
**Tools and Instruments
2018**



1. Tools
2. Instruments



Customised Solutions

HellermannTyton embraces new challenges to solve our customers' needs. Our local engineering team considers a host of variables relative to productivity, function, performance, compliance and value. Our manufacturing facility is ISO TS16949 quality management and ISO 14001 environmental management accredited.



Complete Renewable Catalogue



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