ENSTO - Saves your energy

Ensto Underground offers a comprehensive solution for 1-36kV cable networks.

The products have been developed to endure the most varying and demanding conditions and both their mechanical and electrical properties have been thoroughly type tested. Ensto products exceed the requirements of international and national standards.

The shear bolt connector and cable lug range stocked by JEAN MÜLLER NZ Ltd offer many advantages over other brands available including:

- both LV and MV lugs available
- wider range of LV connectors and lugs
- less tools required
- competitive pricing.

Low voltage cable connectors & lugs 1KV

Shear head bolt connectors with barrier 1kV

ESLJ

Nominal cable size	No. of bolts	Tools required for installation	Part No.
Suitable for solid and stranded, sector and circular shaped cables			
6-50mm²	2	14mm Socket	ESLJ6-50
35-95mm²	2	14mm Socket	ESLJ35-95
95-240mm²	4	21mm Socket	ESLJ95-240
150-300mm²	4	21mm Socket	ESLJ150-300

Fillers

SLJT*

Nominal cable size	Part No.
Used with ESLJ connectors when the cable to be joined is smaller	
16-35mm² for ESLJ35-95	SLJT2
50-70mm² for ESLJ95-240	SLJT3
95-120mm² for ESLJ150-300	SLJT4

Shear head bolt cable lugs 1kV

ESAL

Nominal cable size	No. of bolts	Tools required for installation	Part No.
Suitable for solid and stranded, sector and circular shaped cables			
6-50mm²	2	14mm Socket	ESAL6-50
50-95mm²	2	14mm Socket	ESAL50-95
95-185mm²	2	21mm Socket	ESAL95-185
150-300mm²	2	24mm Socket	ESAL150-300

Medium voltage cable connectors & lugs 36kV

ESMJ

Shear head bolt connectors with barrier 36kV

Nominal cable size	No. of bolts	Tools required for installation	Part No.
Suitable for solid and stranded, sector and circular shaped cables			
10-95mm²	2	17mm Socket	ESMJ10-95
50-240mm² NEW	4	24mm Socket	ESMJ50-240
*70-240mm²	4	24mm Socket	ESMJ70-240
95-300mm² NEW	6	24mm Socket	ESMJ95-300
*120-300mm²	6	24mm Socket	ESMJ120-300
185-400mm²	6	22mm Socket	ESMJ185-400
300-630mm² NEW	6	24mm Socket	ESMJ300-630
*400-630mm²	6	24mm Socket	ESMJ400-630

ESML

Shear head bolt cable lugs 36kV

Nominal cable size	No. of bolts	Tools required for installation	Part No.
With 13mm palm hole			
10-95mm²	2	17mm Socket	ESML10-95
50-240mm²	2	24mm Socket	ESML50-240
95-300mm² NEW	2	28mm Socket	ESML95-300
*120-300mm²	2	28mm Socket	ESML120-300
185-400mm²	3	22mm Socket	ESML185-400
300-630mm² NEW	3	22mm Socket	ESML300-630
*400-630mm²	3	22mm Socket	ESML400-630

* As above some items have been superseded. The range and usefulness has been improved.
Stock is available of both as we transition stock out and replace.

KE69, KE64, KE63

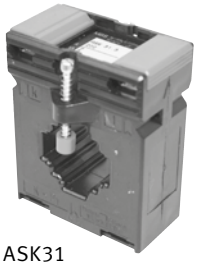
Clampo Pro Bi-Metalic Terminals

Nominal cable size	Screw size	No. of poles & colour	Part No.
Suitable for copper and aluminium cables			
16-95mm²	5mm Allen Key	1 pole, grey	KE62
35-150mm²	8mm Allen Key	1 pole, grey	KE63
35-240mm²	8mm Allen Key	1 pole, grey	KE64
35-240mm²	8mm Allen Key	2 pole, grey	KE69

Terminal shrouds

			Part No.
Terminal shroud for KE62			KEL62
Terminal shroud for KE63			KEL63
Terminal shroud for KE62			KEL64

Current transformers class 1



ASK31

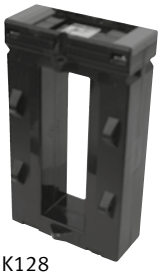
Max size of primary conductor (mm)		Primary current	Secondary current (A)	VA	Part No.
Bar	Cable Dia				
Foot or busbar mount Class 1 accuracy					
30 x 10mm	26mm	200A	5A	5VA	ASK31.3/200/5
30 x 10mm	26mm	400A	5A	5VA	ASK31.3/400/5
30 x 10mm	26mm	600A	5A	5VA	ASK31.3/600/5

ASK51

50 x 12mm	44mm	800A	5A	10VA	ASK51.4/800/5
50 x 12mm	44mm	1000A	5A	10VA	ASK51.4/1000/5
50 x 12mm	44mm	1200A	5A	10VA	ASK51.4/1200/5

ASK101

100 x 10mm	70mm	600A	5A	10VA	ASK101.4/600/5
100 x 10mm	70mm	800A	5A	10VA	ASK101.4/800/5
100 x 10mm	70mm	1000A	5A	10VA	ASK101.4/1000/5
100 x 10mm	70mm	1200A	5A	10VA	ASK101.4/1200/5
100 x 10mm	70mm	1500A	5A	10VA	ASK101.4/1500/5



ASK128

128 x 38mm	-	1000A	5A	10VA	ASK128.4/1000/5
128 x 38mm	-	1200A	5A	10VA	ASK128.4/1200/5
128 x 38mm	-	1500A	5A	15VA	ASK128.4/1500/5
128 x 38mm	-	2000A	5A	15VA	ASK128.4/2000/5
128 x 38mm	-	2500A	5A	15VA	ASK128.4/2500/5

Standoff insulators

Stand off height (mm)	Fixing thread	Part No.
Colour - red		
25	M6	DB25/PM6
34	M8	DB34/PM8
34	M10	DB34/PM10
50	M10	DB50/PM10
50	M12	DB50/PM12
65	M10	DB65/PM10
65	M12	DB65/PM12

Power distribution blocks

Incoming cables		Outgoing cables		Part No.
Qty	Size (mm²)	Qty	Size (mm²)	
A space saving and cost saving alternative to DIN-Rail mount terminals. Panel or DIN-Rail mounting IP20 finger proof terminals Plated brass block accepts aluminium or copper cables				
3	2.5 - 16	4	2.5 - 6	FTG-1/080
1	10 - 35	6	2.5 - 16	FTG-1/125
1	6 - 16			
1	35 - 120	5	2.5 - 16	FTG-1/250
		4	2.5 - 10	
		2	6- 35	

PDB-500

Compact Power Distribution Block
1x Cu/Al input 500mm² max
2x Cu/Al outputs 300mm² max

Power distribution block 500mm² - 2x300mm² Cross section

	Cu/Al		Rated torque (Nm)	Part No.
	Round solid (mm²)	Round stranded (mm²)		
Input	95-500	95-500	30-60	PDB 500
Output (x2)	50-300	50-300	25-35	

Sector shaped Al-conductors 90mm²-300mm² have to be pre-rounded with a crimping-tool.

MiniClic System

Busbar mount and connection

Connection	No. of outputs	Current rating total & per output	Part No.
Busbar	10	250/50A	MC22001

MC22001

Panel mount with incoming terminal

Connection	No. of outputs	Current rating total & per output	Part No.
25-120mm²	10	250/50A	MC22002
25-120mm²	50	250/50A	MC120021

MiniClic cube

Connection	No. of outputs	Current rating total & per output	Part No.
1.5-10mm²	Grey	50A	MC00001
1.5-10mm²	Blue	50A	MC00001N
1.5-10mm²	Green	50A	MC00001PE
1.5-10mm²	Red	50A	MC00001R

MC00001

TECHNICAL INFORMATION

Current transformers

Type	ASK**
Standards	VDO 414 Part 1; DIN42600; VBG4; IEC60044-1
Construction	
Case	Ultrasonically welded Polycarbonate
Flammability	Self-extinguishing to UL94Vo
Terminals	Nickel Plated Brass
Environment	For dry indoor use.
Temperature	-5 ˚C to +40 ˚C
Ratings	
Voltage maximum	0.72 kV
Frequency	50/60Hz
Nominal Thermal Short Time Current	60 x In
Insulation	Class E
Supply	
Foot Mountings	2
Bar Mount Screws	2 (12 with ASK128)

Standoff insulators

Type		DB25	DB34	DB50	DB65
Operating Temperature		-40 ˚C to +130 ˚C			
Flammability		to UL94VO			
AC Internal Flashover Voltage	kV	20	30	40	40
AC Surface Flashover Voltage	kV	7	10	12	15
Twisting Stress	DN X m	3	5	6	6
Compressive Stress	DN	2100	6500	6800	8300
Cantilever Stress	DN	180	450	450	700
Tensile Stress	DN	300	800	850	1500

Power distribution blocks

			FTG-1/080	FTG-1/125	FTG-1/250
Operational Voltage		VAC	600	600	600
Current Rating Cu/Al		A	85 / 66	130 / 103	300 /260
Short Cct Peak - Ipk		kA	2.7	30	51
Short Cct 1 second - Icw		kA	1.9	4.4	21
Input connections	Qty / Size		1x 2.5-16mm²	1x 10-35mm²	1x 35-120mm²
	Tool		Pozi or flat screwdriver	4mm Allen Key	6mm AllenKey
	Torque	Nm	1.5	3.5	19
Output connections without ferrules	Qty / Size		2x 2.5-16mm² 4x 2.5-6mm²	1x 6-16mm² 6x 2.5-16mm²	4x 2.5-10mm² 5x 2.5-16mm² 2x 6-35mm²
	Tool		Pozi or flat screwdriver	Pozi or flat screwdriver	Flat screwdriver
	Torque	Nm	1.5 / 0.8	3.5 / 2.0	18 / 18 / 31
Mounting			DIN-Rail or base mounting with 2x M5 screws		
Protection			IP20	IP20	IP20
Dimensions (LxWxH) mm			66 x 27 x 47	74 x 27 x 47	96 x 45 x 49

Power distribution block 500mm² - 2x300mm²
Technical data

Material		
Clamping body	Aluminium	Plated
Housing	PA66-VO	Grey RAL 7035
Screw	Steel	Nickle plated
General data		
Heat deflection temperature		130°C - UL94-VO
CTI value of isolation		600
Regulations		IEC 60947-7-1
Electrical data		
Nominal operating current		950A
Nominal voltage		AC 1000V/DC1500V

Cross section			
	Cu/Al		Rated torque (Nm)
	Round solid (mm²)	Round stranded (mm²)	
Input	95-500	95-500	30-60
Output (x2)	50-300	50-300	25-35

Sector shaped Al-conductors 90mm²-300mm² have to be pre-rounded with a crimping-tool.
Article numbers on request.

IP rating

Degrees of protection provided by enclosures (IP-Code) according to IEC/EN 60529:2000-09 (extract)

1st digit	Protection against contact	Protection against ingress of objects	2nd digit	Protection against harmful ingress of water
0	No protection	No protection	0	No protection
1	Protected against access to dangerous parts with the back of the hand	Protected against solid foreign object size ›50mm	1	Protected against dripping water
2	Protected against access to dangerous parts with a finger	Protected against solid foreign object size ›12.5mm	2	Protected against dripping water when tilted up to 15°
3	Protected against access to dangerous parts with a tool	Protected against solid foreign object size ›2.5mm	3	Protected against spraying water
4	Protected against access to dangerous parts with a wire	Protected against solid foreign object size ›1mm	4	Protected against splashing water
5	Protected against access to dangerous parts with a wire	Protected against dust	5	Protected against water jets
6	Protected against access to dangerous parts with a wire	Dust tight	6	Protected against powerful water jets
-	-	-	7	Protected against temporary immersion in water
-	-	-	8	Protected against continuous immersion in water

Utilization categories for fuse combination units in accordance with IEC/EN 60947-3:2010-02, VDE 0660 Part 107

AC

Utilization category	Typical applications	Verification of electrical endurance							Verification of making and breaking capacities						
		Make				Break			Make				Break		
		I_e A	I / I_e	U / U_e	cos Φ	I_c / I_e	U_r / U_e	cos Φ	I_e A	I / I_e	U / U_e	cos Φ	I_c / I_e	U_r / U_e	cos Φ
AC-20A(B) [1]	Connecting and disconnecting under no-load conditions	[3]	[2]	[2]	[2]	[2]	[2]	[2]	[3]	[2]	1.05	[2]	[2]	1.05	[2]
AC-21A(B) [1]	Switching of resistive loads, including slight overloads	[3]	1	1	0.95	1	1	0.95	[3]	1.5	1.05	0.95	1.5	1.05	0.95
AC-22A(B) [1]	Switching of mixed resistive and inductive loads, including slight overloads	[3]	1	1	0.8	1	1	0.8	[3]	3	1.05	0.65	3	1.05	0.65
AC-23A(B) [1]	Switching of motor loads and other highly inductive loads	[3]	1	1	0.65	1	1	0.65	[4]	10	1.05	0.45	8	1.05	0.45
									[5]	10	1.05	0.35	8	1.05	0.35

DC

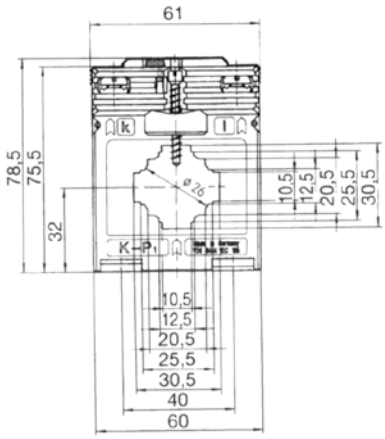
Utilization category	Typical applications	Verification of electrical endurance							Verification of making and breaking capacities						
		Make				Break			Make				Break		
		I_e A	I / I_e	U / U_e	L/R ms	I_c / I_e	U_r / U_e	L/R ms	I_e A	I / I_e	U / U_e	L/R ms	I_c / I_e	U_r / U_e	L/R ms
DC-20A(B) [1]	Connecting and disconnecting under no-load conditions	[3]	[2]	[2]	[2]	[2]	[2]	[2]	[3]	[2]	1.05	[2]	[2]	1.05	[2]
DC-21A(B) [1]	Switching of resistive loads, including slight overloads	[3]	1	1	1	1	1	1	[3]	1.5	1.05	1	1.5	1.05	1
DC-22A(B) [1]	Switching of mixed resistive and inductive loads, including overloads (e.g. shunt motors)	[3]	1	1	2	1	1	2	[3]	4	1.05	2.5	4	1.05	2.5
DC-23A(B) [1]	Switching of highly inductive loads (e.g. series motors)	[3]	1	1	0.75	1	1	0.75	[3]	4	1.05	15	4	1.05	15

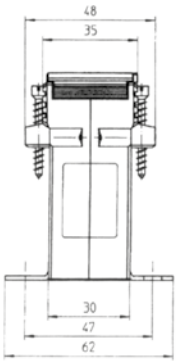
I Making current
I_c Breaking current
I_e Rated operational current
U Voltage
U_e Rated operational voltage

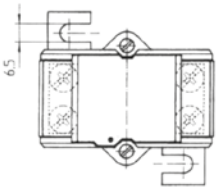
1) A: Frequent actuation, B: Occasional actuation
2) If the switching device has a making and/or breaking capacity, the values for the current and the power factor (time constants) must be stated by the manufacturer.
3) All values
4) $I_e \leq 100A$
5) $I_e > 100A$

DIMENSIONS

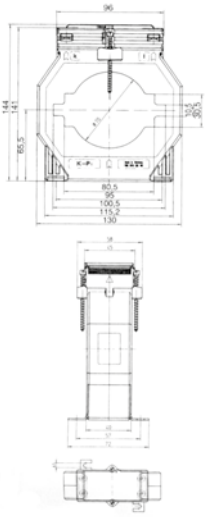
ASK31.3



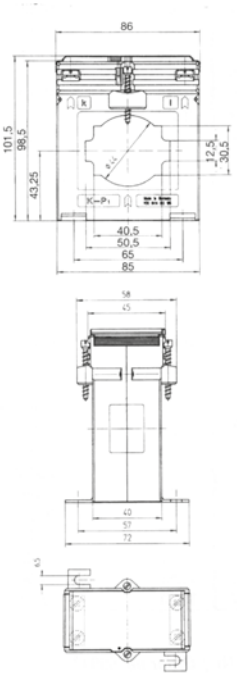




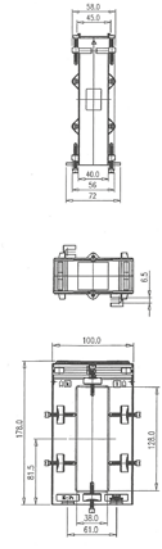
ASK101.4



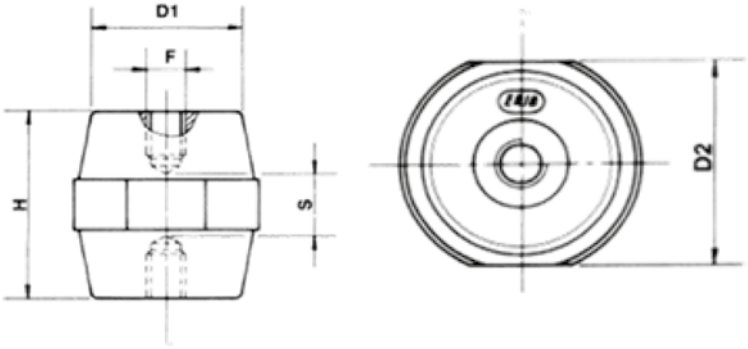
ASK51.4



ASK128.4

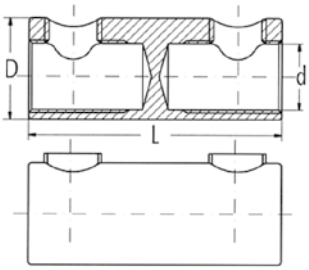


DB Standoff Insulators

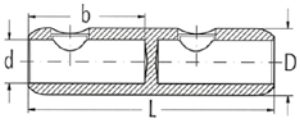


	F	H	D1	D2	S
DB25	M6	25.2	15	19	9
DB34	M8	35	28	32	10
DB34	M10	35	28	50	10
DB50	M10	51	29	36	20
DB65	M10	63.5	35	41	30

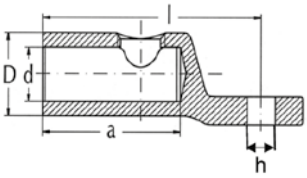
Shear head bolt connectors & lugs



	L	D	d
ESLJ6-50	54	20	11
ESLJ35-95	58	31	20
ESLJ95-240	119	38	26
ESLJ150-300	130	43	29



	L	D	d
ESMJ10-95	70	25	14
ESMJ95-240	120	34	20.5



	L	D	d	h	Palm Width
ESAL6-50	50	20	10	10.3	20
ESAL50-95	74	25	15	10.5	25
ESAL95-185	85	30	19	12.5	30
ESAL150-300	114	42	29	12.5	42
ESML10-95	60	26	14	13	26
ESML95-240	103	34	20	17	34