



FORZE



CATHODIC PROTECTION EQUIPMENT

www.4zelektronik.com



4Z ELEKTRONİK OTOMASYON & KAYNAK SİSTEMLERİ SAN. ve TİC. LTD. ŞTİ.



4Z Electronics Automation and Welding Systems was established for the design and production of various products in cathodic protection, geophysics and welding systems industries. Our company carries out its activities focusing on corrosion, protection from corrosion and cathodic protection in Organized Industrial Area of İvedik – Ankara, thanks to its experienced labor force and unmatched quality sense. Carrying out the design activities of all its products within its own facilities, 4Z Electronics continues to provide the best services to its customers, investors with its improving quality and dynamic structure within the respective sectors.

International Standards / Top-Quality

Main objective of our company is to design and produce the products as per international standards in respective sectors. Presenting highest-quality product for its domestic and foreign customers, 4Z Electronics adopted keeping the production-standard on the highest level possible as a principle via an idealist perspective.

Continuous Improvement and Development

4Z Electronic, aiming at implementing the cutting-edge technological innovations on its projects, continuously upgrades the whole protection and service processes with estimations on developments within cathodic protection sector. Our company, with customer satisfaction-oriented approach, present the innovative engineering solutions for our dear-valued customers, by reflecting the needs and expectations of the industry on its products under the best manner possible.

Product Tracking / After-Sales Services

Customers of 4Z Electronics feel the sense of professional service conception at every turn. New software updates or hardware changes are tracked as product-based within after sales process, thus being applied on the products at the most suitable time.

Environmentally Conscious, Respecting the Society, People and Environment

4Z Electronics exerts itself to the utmost to be environmentally-conscious and sustainable by using the latest technologies and purest materials in the industry. Our company supports a greener world for future generations thanks to its innovative and inquisitory characteristics.

Global Perspective

Proving its innovative and professional service concept not only domestically but also on the international area, 4Z Electronics is one of the respected companies preferred in the global market with its strong production & marketing strategy.



CATHODIC PROTECTION

BTR-20

Automatic Cathodic Protection Rectifier

High Efficiency CP Rectifier
with Built-in GPS Interrupter
and MODBUS Scada Connection



BTR-20 is a DSP controlled, fully programmable, high efficiency cathodic protection rectifier designed to keep up with the severe conditions faced in harsh working environment, equipped with all the necessary protective components and functions to protect itself under extreme conditions such as overcurrent and overheat or surges coming from any cable connection.

BTR-20 has a high efficiency insulating step down transformer with an efficiency of greater than %90 and is designed to withstand an overload condition of %125 continuously.

BTR-20 Power Module consists of a Low output ripple High efficiency step down DC to DC converter operating at 50 KHz. High switching frequency allows fast output control and line voltage compensation. Utilisation of a DC to DC converter provides an overall efficiency of greater than %85.

The System is able to diagnose and report critical conditions such as Anode, Cathode or Reference electrode cable breaks and also logs the error codes with time stamp for future analyses (-420 model).

It's unique feature of being able to **synchronize multiple rectifiers through GPS satellites** (optional) makes it possible to conduct pipeline diagnostic works without using expensive external interrupters.

İvedik OSB. 1468.cad. No:60 Yenimahalle/ANKARA

+90 312 386 04 04 / +90 312 386 04 02

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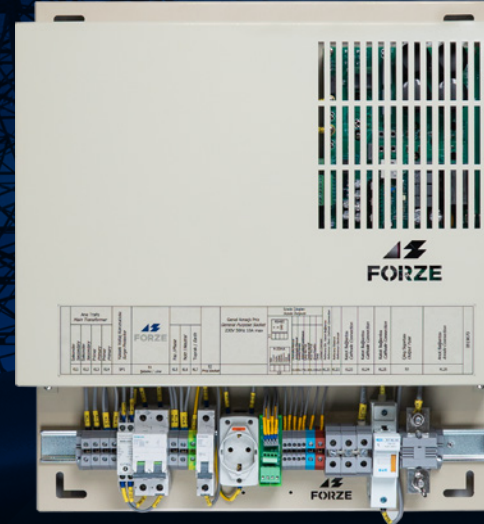
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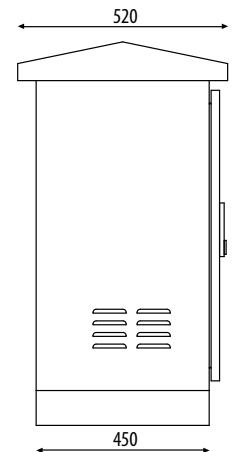
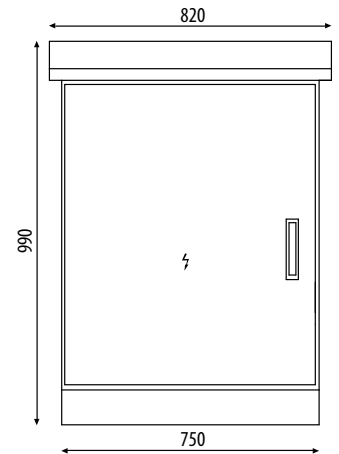


Reliable power topology,
precise output control



Technical Specifications

Input Voltage	230V 50/60 Hz (±%20)
Input Current	0.25 - 50V DC
Output Current	0 - 20A DC
Output Fuse	32A Semiconductor Fuse
Short Circuit Protection	Electronic
Thermal Protection	90°C ± 5°C (Heat Sink Temperature)
Efficiency	>%90
Operating Temperature Range	-30, +60°C
Output Voltage Meter	0-63V DC 0.25V
Output Current Meter	0-25,5A DC 0.1A
Pipe to Soil Voltmeter	0-5,0V DC 20mV
IP Protection	IP54
Dimensions	820 x 990 x 520 mm
Power Control Method	High Frequency DC-DC Converter with MOSFET switch
High Voltage Protection	Protection over all inputs and outputs
Operating Modes	<ul style="list-style-type: none"> • Automatic, Adjustable Voltage Limit • Automatic, Adjustable Current limit • Manual, Constant Current, Interrupted • Manual, Constant Current, Continuous • Manual, Constant Voltage, Interrupted • Manual, Constant Voltage, Continuous
Interrupted Mode of Operation	
On Time Adjustment Range	0.1 - 99.9s (0.1 sec resolution)
Off Time Adjustment Range	0.1 - 99.9s (0.1 sec resolution)
Reference Electrode	1 true differential isolated input
Input Voltage Range	0-5 V DC
Filtering	50-60Hz Notch Filter allows unaffected DC measurements with superimposed AC voltages up to 13V
SCADA Output 1	RS485-MODBUS RTU(YYY=MB)
SCADA Output 2	<ul style="list-style-type: none"> 3 Channels 4-20mA Self Powered • Anode - Cathode Current • Anode - Cathode Voltage • Reference Electrode Voltage
Contact Outputs	<ul style="list-style-type: none"> 4 Pcs Dry Contact Outputs • Automatic / Manual Operation • Interrupted / Continuous Operation • Faulty / Healthy • Power On / Off
Warranty	2 years (componensts and workmanship)
Parts and Service Warranty	10 Years



All measurement devices are integrated with user interface in system.
All measurements can be seen on LCD display.



CATHODIC PROTECTION



BTR2050PFC Automatic Cathodic Protection Rectifier



High Efficiency POWER FACTOR
CORRECTED CP Rectifier with Built-in
GPS Interrupter and MODBUS Scada



BTR2050PFC is a DSP controlled, fully programmable, high efficiency cathodic protection rectifier designed to keep up with the severe conditions faced in harsh working environment, equipped with all the necessary protective components and functions to protect itself under extreme conditions such as overcurrent and overheat or surges coming from any cable connection.

BTR2050PFC has a high efficiency insulating step down transformer with an efficiency of greater than %90 and is designed to withstand an overload condition of %125 continuously.

BTR2050PFC Power Module consists of a Low output ripple High efficiency step down DC to DC converter operating at 50 KHz. High switching frequency allows fast output control and line voltage compensation. Utilisation of a DC to DC converter provides an overall efficiency of greater than %85.

The System is able to diagnose and report critical conditions such as Anode, Cathode or Reference electrode cable breaks and also logs the error codes with time stamp for future analyses (-420 model).

It's unique feature of being able to **synchronize multiple rectifiers through GPS satellites** (optional) makes it possible to conduct pipeline diagnostic works without using expensive external interrupters.

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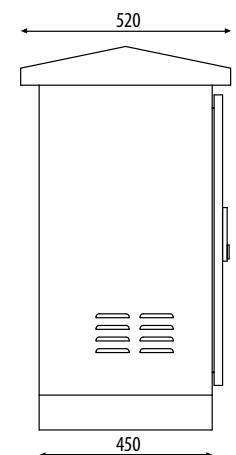
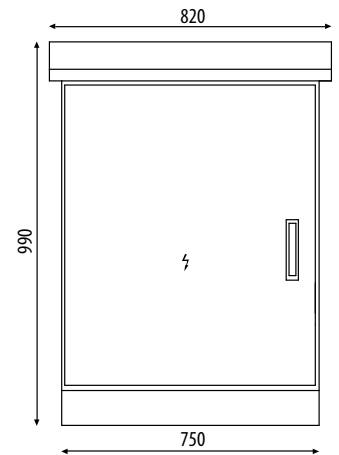


Reliable power topology,
precise output control
and lower input current



Technical Specifications

Input Voltage	230V 50/60 Hz (±%20) 1 Ph
Input Current	5,5A
Power Factor	>0,99
Output Voltage	0,25 - 50V DC
Output Current	0 - 20A DC
Output Fuse	32A Semiconductor Fuse
Short Circuit Protection	Electronic
Thermal Protection	90°C ± 5°C (Heat Sink Temperature)
Efficiency	>%85
Operating Temperature Range	-30, +60°C
Output Voltage Meter	0-63V DC 0.25V
Output Current Meter	0-25,5A DC 0.1A
Pipe to Soil Voltmeter	0-5,0V DC 20mV
IP Protection	IP54
Dimensions	820 x 990 x 520 mm
Panel Material	3mm Hot Dip Galvanised TS EN ISO 1461
Power Control Method	High Frequency DC-DC Converter with MOSFET switch
High Voltage Protection	Protection over all inputs and outputs
Operating Modes	<ul style="list-style-type: none"> • Automatic, Adjustable Voltage Limit • Automatic, Adjustable Current limit • Manual, Constant Current, Interrupted • Manual, Constant Current, Continuous • Manual, Constant Voltage, Interrupted • Manual, Constant Voltage, Continuous
Interrupted Mode of Operation	
On Time Adjustment Range	0.1 - 99.9s (0.1 sec resolution)
Off Time Adjustment Range	0.1 - 99.9s (0.1 sec resolution)
Reference Electrode	1 true differential isolated input
Input Voltage Range	0-5 V DC
Filtering	50-60Hz Notch Filter allows unaffected DC measurements with superimposed AC voltages up to 13V
SCADA Output 1	RS485-MODBUS RTU (Standard)
SCADA Output 2	<ul style="list-style-type: none"> 3 Channels 4-20mA Self Powered • Anode - Cathode Current • Anode - Cathode Voltage • Reference Electrode Voltage
Contact Outputs	<ul style="list-style-type: none"> 4 Pcs Dry Contact Outputs • Automatic / Manual Operation • Interrupted / Continuous Operation • Faulty / Healthy • Power On / Off
Warranty	2 years (components and workmanship)
Parts and Service Warranty	10 Years
Compliance	CE, EN 61204-3, EN61000-4-2, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN55011, EN61000-3-2, EN61000-3-3
Weight	120 kg



All measurement devices are integrated with user interface in system.
All measurements can be seen on LCD display.



CATHODIC PROTECTION

BTR 2x50 Automatic Cathodic Protection Rectifier

High Efficiency CP Rectifier
with Built-in GPS Interrupter
and MODBUS Scada Connection



BTR2x50 is a DSP controlled, fully programmable, high efficiency cathodic protection rectifier designed to keep up with the severe conditions faced in harsh working environment, equipped with all the necessary protective components and functions to protect itself under extreme conditions such as overcurrent and overheat or surges coming from any cable connection.

Btr2x50 has a unique future of being able work with 2 or 3 phase of supply. This feature makes it possible to operate under unstable mains conditions.

BTR2x50 has a high efficiency insulating step down transformer with an efficiency of greater than %95 and is designed to withstand an overload condition of %125 continuously.

BTR 2x50 Power Module consists of a Low output ripple High efficiency step down DC to DC converter operating at 50 KHz.

High switching frequency allows fast output control and line voltage compensation. Utilisation of a DC to DC converter provides an overall efficiency of greater than %90 The System is able to diagnose and report critical conditions such as Anode, Cathode or Reference electrode cable breaks and also logs the error codes which can be analysed over MODBUS connection.

Multiple units can be synchronized through **GPS satellites (optional)** which makes it possible to conduct pipeline diagnostic works without using expensive external interrupters.

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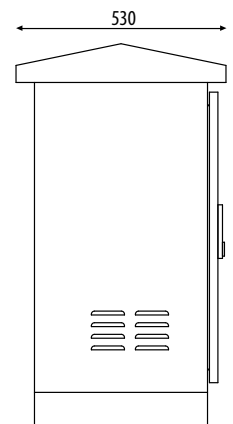
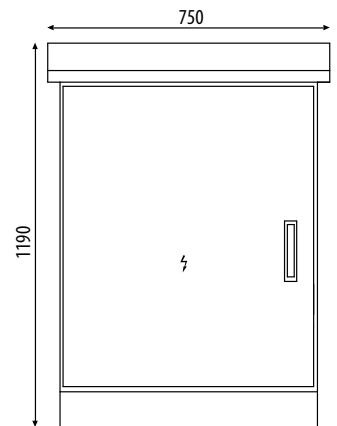


Reliable power topology,
precise output control



Technical Specifications 230V

Input Voltage	230V 50 Hz (±%20)
Input Current	18A
Output Voltage	0 - 50V DC (±0,25V)
Output Current	0 - 50A DC (±0,25A)
Output Fuse	63A Semiconductor Fuse
Short Circuit Protection	Electronic
Thermal Protection	90°C ± 5°C (Heat Sink Temperature)
Efficiency	>%85
Operating Temperature Range	-30, +60°C
Output Voltage Meter	0 - 81,92V DC (±%1 +0.25V)
Output Current Meter	0 - 61,44A DC (±%1 +0.25A)
Pipe to Soil Voltmeter	±30V DC (±%1 +20mV)
IP Protection	IP54
Dimensions	1190 x 750 x 530 mm
Power Control Method	High Frequency DC-DC Converter with MOSFET switch
High Voltage Protection	Protection over all inputs and outputs
Operating Modes	<ul style="list-style-type: none"> • Automatic, Continuous • Manual, Constant Current, Interrupted • Manual, Constant Current, Continuous • Manual, Constant Voltage, Interrupted • Manual, Constant Voltage, Continuous
Interrupted Mode of Operation	
On Time Adjustment Range	0.1 - 99.9s (0.1 sec resolution)
Off Time Adjustment Range	0.1 - 99.9s (0.1 sec resolution)
Reference Electrode	1 true differential isolated input
Input Voltage Range	±5V DC
Filtering	50-60Hz Notch Filter allows unaffected DC measurements with superimposed AC voltages up to 13V
SCADA Output 1	RS485-MODBUS RTU (Standard)
SCADA Output 2 (Optional)	<ul style="list-style-type: none"> 3 Channels 4-20mA Self Powered • Anode - Cathode Current • Anode - Cathode Voltage • Reference Electrode Voltage
Contact Outputs	<ul style="list-style-type: none"> 4 Pcs Dry Contact Outputs • Automatic / Manual Operation • Interrupted / Continuous Operation • Faulty / Healthy • Power On / Off
Warranty	2 years (components and workmanship)
Parts and Service Warranty	10 Years



All measurement devices are integrated with user interface in system.
All measurements can be seen on LCD display.

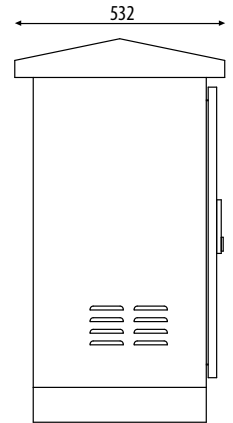
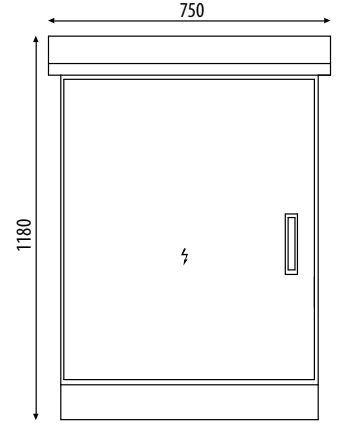


Güvenilir güç kontrol sistemi
Hassas çıkış kontrolü



Technical Specifications 400V

Input Voltage	400V 50/60 Hz ($\pm 10\%$), 2 Ph/3 Ph
Input Current	2 Ph 10A, 3 Ph 5,5A
Output Voltage	0 - 50V DC ($\pm 0,25V$)
Output Current	0 - 50A DC ($\pm 0,25A$)
Output Fuse	63A Semiconductor Fuse
Short Circuit Protection	Electronic
Thermal Protection	90°C \pm 5°C (Heat Sink Temperature)
Efficiency	>%85
Operating Temperature Range	-30, +60°C
Output Voltage Meter	0 - 81,92V DC ($\pm 1\%$ +0.25V)
Output Current Meter	0 - 61,44A DC ($\pm 1\%$ +0.25A)
Pipe to Soil Voltmeter	$\pm 30V$ DC ($\pm 1\%$ +20mV)
IP Protection	IP54
Dimensions	1180 x 750 x 532 mm
Power Control Method	High Frequency DC-DC Converter with MOSFET switch
High Voltage Protection	Protection over all inputs and outputs
Operating Modes	<ul style="list-style-type: none">• Automatic, Continuous• Manual, Constant Current, Interrupted• Manual, Constant Current, Continuous• Manual, Constant Voltage, Interrupted• Manual, Constant Voltage, Continuous
Interrupted Mode of Operation	
On Time Adjustment Range	0.1 - 99.9s (0.1 sec resolution)
Off Time Adjustment Range	0.1 - 99.9s (0.1 sec resolution)
Reference Electrode	1 true differential isolated input
Input Voltage Range	$\pm 5V$ DC
Filtering	50-60Hz Notch Filter allows unaffected DC measurements with superimposed AC voltages up to 13V
SCADA Output 1	RS485-MODBUS RTU (Standard)
SCADA Output 2 (Optional)	<ul style="list-style-type: none">3 Channels 4-20mA Self Powered• Anode - Cathode Current• Anode - Cathode Voltage• Reference Electrode Voltage
Contact Outputs	<ul style="list-style-type: none">4 Pcs Dry Contact Outputs• Automatic / Manual Operation• Interrupted / Continuous Operation• Faulty / Healthy• Power On / Off
Warranty	2 years (components and workmanship)
Parts and Service Warranty	10 Years



All measurement devices are integrated with user interface in system.
All measurements can be seen on LCD display.

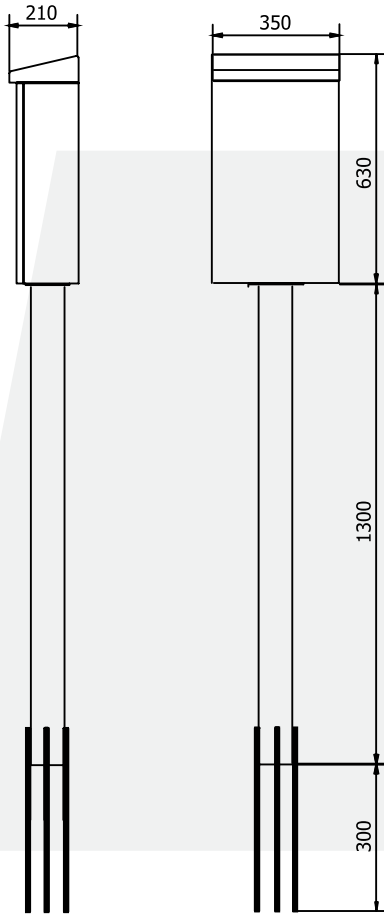


KATODİK KORUMA

Z-Panel



Vandal Proof enclosure for Solid State Mitigation Cells (SSMC)



All dimensions in "mm"

Zpanel is a robust enclosure designed to be a housing for Solid State Mitigation Cells in outdoor applications.

Z-Panel offers easy installation for SSMC3.7kA, SSMC5.5kA, SSMC10kA, and SSCM30kA models.

Hot dipped galvanized steel enclosure keeps its robustness for long years even under extreme conditions.

Hidden inbus screws provides a secure cover-lock mechanism.



CATHODIC PROTECTION

PATENT
PENDING

SMC10 Smart Mitigation Cell



Mitigate the effects of DC interference and Telluric currents with Variable Resistance Grounding



SMC10 is a Smart Mitigation Cell which allows controlled DC current drain to ground in the situations where AC, DC interference or **telluric effect** cause over protection on a cathodically protected structure.

The structure to reference value is constantly compared to the desired set value by monitoring a reference electrode. When the reference value exceeds the set value, SMC10 drains appropriate current to the ground so that the protection potential is exactly at the desired point. Variable Resistance Grounding provides precise adjustment of the drained current within a very large range. SMC10 drains AC interferences directly to ground continuously to minimize the AC influence on the protection. SMC10 can also be used to drain excessive current caused by large AC interference between Anode to Cathode connections of the CP rectifiers.

SMC10 becomes open-circuit for the DC currents when the protection potential is below the desired point and behaves in just the same manner as a normal polarization cell.

SMC10 includes an industry standard RS485 MODBUS port for connection to SCADA systems. AC, DC currents, Reference to Structure potentials can be monitored over SCADA.



CATHODIC PROTECTION

Variable Resistance Grounding provides precise adjustment of the drained current.



Technical Specifications

Supply Voltage Range	15- 80 VDC
Reverse Polarity Protection	Var
Operating Temperature Range	-20, +50C
Continuous AC Current	20A
Continuous DC Current	10A
AC Fault Current (0.1 sec)	500A
Internal Impedance (AC)	40mOhm
Internal Impedance Range(DC)	0.1 Ohm - 100kOhm
Structure to Earth Treshold	1.3V
Analog Input	1 Bipolar
Analog Input Voltage Range	±10V
Input Impedance	10MOhm
Galvanic Isolation	2500V AC 1 min
LCD Display	3 Lines, total 48 Characters
Information Shown on Display	Reference to Structure Set Value, Reference to Structure DC value, Reference to Structure AC Value, Drained AC Current, Drained DC Current, Modbus ID
Reference to Structure Voltage Adjustment Range	800-1600mV
Over Temperature Protection	Yes
Scada	RS485 Modbus RTU

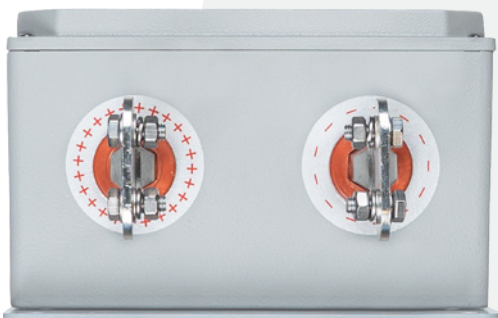


CATHODIC PROTECTION



SSMC Series Solid State Mitigation Cells

Robust, maintenance free Ex Proof
Safety Grounding, DC and AC
Mitigation Solution for CP Systems



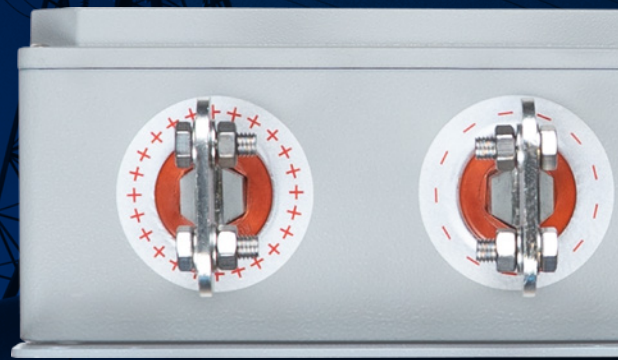
SSMC is a robust polarization cell designed to divert induced AC current to the ground. The internal impedance of the cell is so large for DC current up to a preset DC voltage and almost short circuit for AC current which makes it possible to bypass the AC current to ground while not affecting the cathodic protection current of the structure.

The cell switches on for any voltage present on the protected structure which is 2.0 V negative or 1.0V positive with respect to ground and switches off if the voltage of the pipeline is between these limits, providing overvoltage protection for the pipeline up to the fault current ratings.

The cell does not require any maintenance, can be used in any mounting position and under any whether conditions because of its sealed structure.



Fail safe, never becomes open circuit even under extreme conditions



Technical Specifications

Model	SSMC 3.7kA	SSMC 5.5kA	SSMC 10kA	SSMC 30kA
Atex Data (*Only -Ex models)	Zone 2, Zone 22, T5 (IEP 20 ATEX 0829x)	Zone 2, Zone 22, T5 (IEP 20 ATEX 0829x)	Zone 2, Zone 22, T5 (IEP 20 ATEX 0829x)	Zone 2, Zone 22, T5 (IEP 20 ATEX 0829x)
Continuous AC Current	50A	50A	50A	50A
AC Fault Current (0.1sec)	5,5kA	7,5kA	17kA	40kA
AC Fault Current (0.6sec)	3,7kA	5,5kA	10kA	30kA
Operating Temperature	-20/+50°C	-20/+50°C	-20/+50°C	-20/+50°C
Ingress Protection	IP65	IP65	IP65	IP65
Forward Pol. Threshold Voltage	2,0 VDC	2,0 VDC	2,0 VDC	2,0 VDC
Reverse Pol. Threshold Voltage	1,0 VDC	1,0 VDC	1,0 VDC	1,5 VDC
Lifetime (40°C)	> 15 Years (> 30 Y. Opt.)	> 15 Years (> 30 Y. Opt.)	> 15 Years (> 30 Y. Opt.)	> 15 Years (> 30 Y. Opt.)
Warranty	2 Years	2 Years	2 Years	2 Years
Lightning Protection	100kA (10/350 µs)	100kA (10/350 µs)	100kA (10/350 µs)	100kA (10/350 µs)
Internal Impedance (50Hz)	0.015 ohm	0.015 ohm	0.015 ohm	0.015 ohm
Leakage Current	< 7,5mA	< 10mA	< 15mA	< 7,5mA

AC Fault Current Ratings (Amperes RMS)

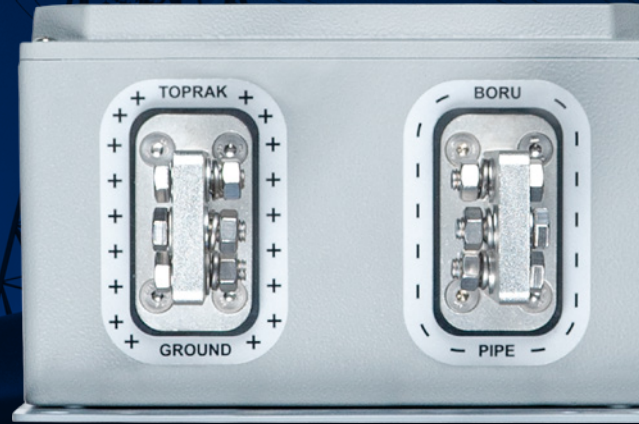
Model	SSMC 3.7kA		SSMC 5.5kA		SSMC 10kA		SSMC 30kA	
	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
1	10kA	10,5kA	10kA	10,5kA	25,5kA	26,5kA	50kA	52kA
3	7,5kA	8,0kA	9,5kA	10kA	20kA	21kA	45kA	47kA
5	5,5kA	6,0kA	7,5kA	8kA	17kA	18,5kA	40kA	43kA
10	4,5kA	5,0kA	7kA	7,5kA	16kA	17kA	39kA	40kA
20	4,0kA	4,5kA	6kA	6,5kA	13,5kA	14,5kA	33kA	35kA
30	3,7kA	4,2kA	5,5kA	5,8kA	10kA	11kA	30kA	31kA



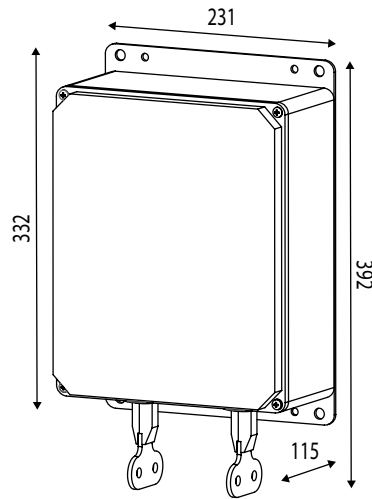
CATHODIC PROTECTION



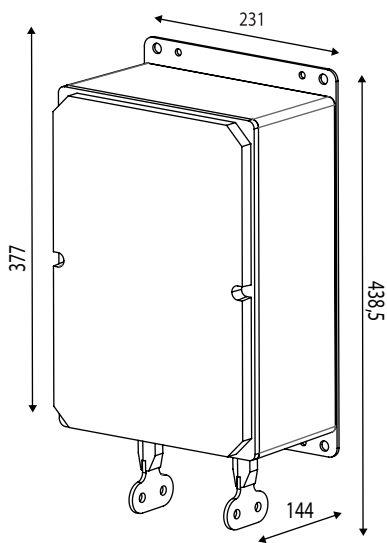
Safely avoid mixed potential built up



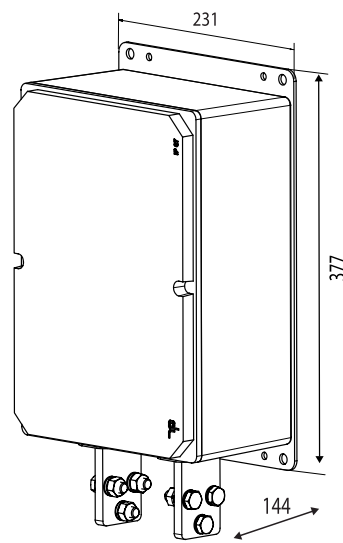
SSMC 3.7kA - SSMC 5.5kA



SSMC 10kA



SSMC 30kA



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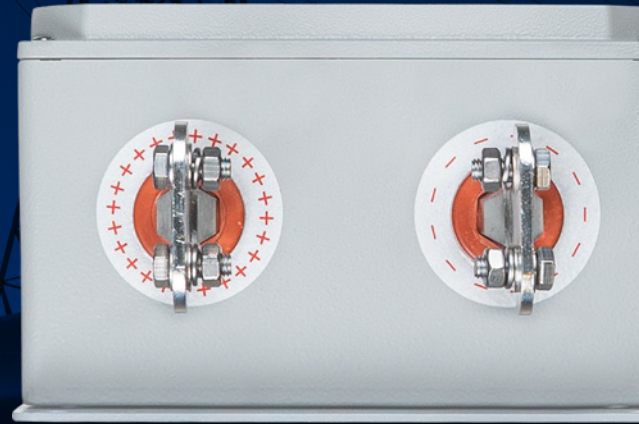
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CATHODIC PROTECTION



-Ex option for Hazardous locations



Model Numbering System

AC Fault Current
(30 Cycle @50Hz)

Options

3.7kA
5.5kA
10kA
30kA

Forward/Reverse
Polarity Threshold
Voltage

Connection Type
S: Standard

SSMC 3.7kA / 50A - 2/1 - LP - S - Ex

Solid State
Mitigation Cell

Continuous AC
Current

Options
20A
50A

Lightning Protection
N: None
LP: 100kA 10/350 µs

Atex Data
Zone 2, Zone 22,
T5 (IEP 20 ATEX
0829x)

Standard Options

SSMC 3.7kA	SSMC 5.5kA	SSMC 10kA	SSMC 30kA
SSMC3.7kA/50A-2/1-LP-S	SSMC5.5kA/50A-2/1-LP-S	SSMC10kA/50A-2/1-LP-S	SSMC30kA/50A-2/1.5-LP-S
SSMC3.7kA/50A-2/1-LP-S-Ex	SSMC5.5kA/50A-2/1-LP-S-Ex	SSMC10kA/50A-2/1-LP-S-Ex	SSMC30kA/50A-2/1.5-LP-S-Ex
SSMC3.7kA/50A-3/1-LP-S	SSMC5.5kA/50A-3/1-LP-S		SSMC30kA/50A-3/1-LP-S
SSMC3.7kA/50A-3/1-LP-S-Ex	SSMC5.5kA/50A-3/1-LP-S-Ex		



CATHODIC PROTECTION



SSMC 0.65kA – 1.3/0.4 Solid State Mitigation Cell



Robust, maintenance free Ex Proof DC and AC Mitigation Solution for CP Systems



SSMC 0.65kA – 1.3/0.4 is a robust discharging cell designed to divert induced AC current to the ground. The internal impedance of the Cell is so large for DC current up to a preset DC voltage and almost short circuit for AC current which makes it possible to bypass the AC current to ground while not affecting the cathodic protection current of the structure.

The cell switches on for any voltage present on the protected Structure which is 1.3 V negative or 0.4V positive with respect to ground and switches off if the voltage of the pipeline is between these limits, providing overvoltage protection for the pipeline up to the fault current ratings.

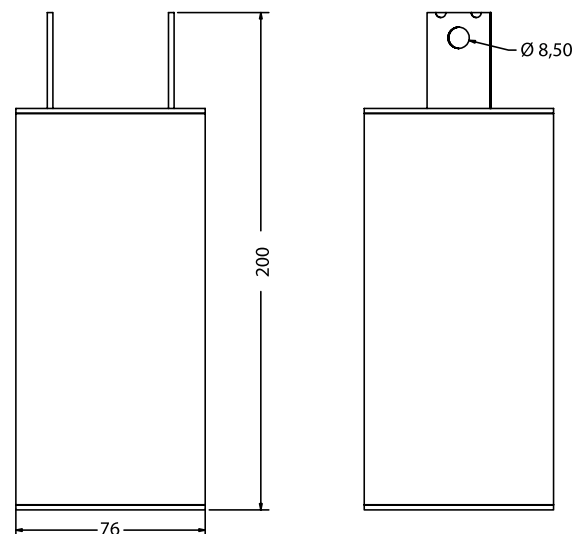
The cell does not require any maintenance, can be used in any mounting position and under any whether conditions because of its sealed structure.



Technical Specifications

	SSMC0.65kA-1.3/04	SSMC0.65kA-1.3/04-Ex
Atex Data	-	Zone 2, Zone 22, T5 (IEP 20 ATEX 0829x)
Continuous AC Current		20A
Forward Pol. Continuous DC Current ¹		15A
Reverse Pol. Continuous DC Current ²		25A
AC Fault Current (0.1sec)		650A
AC Fault Current (0.5sec)		400A
Operating Temperature		-40/+70°C
Ingress Protection		IP67
Forward Pol. Threshold Voltage		1.3VDC (@1mA)
Reverse Pol. Threshold Voltage		0.4VDC (@1mA)
Lifetime (40°C)		> 15 Years
Warranty		2 Years
Dimensions (Dia.xHeight)		76x200mm (Including Terminals))
Internal Impedance (50Hz)		0.035 ohm

Not recommended for safety grounding.





Z-Collect GPS Multi-Logger



Multi function datalogger
with integrated high
accuracy GPS receiver

- Integrated GPS
- 4 Insulated channels with Digital Notch filters for 50 and 60 Hz rejection
- AC & DC simultaneous readings for each channel
- Records chainage, GPS location, time and date with each readings
- Keyboard with alphanumeric keys
- Graphic LCD display
- Designed for outdoor use



Z-Collect is a multi function datalogger with integrated high accuracy GPS receiver. It is designed to be a compact hand held device for on site measurements while it can easily be combined with the carrying apparatus for site surveys.

Measure with Geo Stamp: Measure and store the data with geographical and time stamp. Define GPS locations for test stations and track potentials easily.

Conduct Site Surveys: Combine Z-Collect with interrupters to perform CIPS, DCVG or CIPS+DCVG.

Datalogger: Keep track of 4 different measurements with or without GPS synchronisation. Measure AC and DC values simultaneously for each channel.



CATHODIC PROTECTION

Measure and store the data
with geographical and time stamp

Technical Specifications

Input	Isolation	Protection	Measurement Type	Filtering	Input Impedance
A	✓	1000 V	Simultaneous AC & DC	50&60Hz Notch	-10M Ω
B	✓				
C	✓				
D	✓				

Recording Interval	1 ms - 9999 s
Memory	250.000 Samples/Channel, Total 2.000.000 samples capacity
Memory Endurance	>100000 Write/Erase
Data Retention	>100 Years
Display	160x104 monochrome LCD
Data Shown on Display	AC and DC values for each channel, Battery-Memory capacity used, Device status
Number of Buttons	50 keys (keyboard with alphanumeric keys)
GPS	Galileo, GLONASS, GPS / QZSS
Operating Temperature	-10 +45 °C
Computer Connection	USB
Dimensions (Cables and Connectors excluded)	W:165/85 x L:220 x H:51mm
IP Protection	IP65 (protected against dust and splash water)
Warranty	2 years (components and workmanship)



CATHODIC PROTECTION



Z-Log 44B Datalogger



4 insulated channel
datalogger for CP systems



Z-Log 44B Datalogger is designed for harsh environment to collect long time data. The insulated inputs allow any input channel to be connected in any combination without ground loop problem. Each channel is capable of recording AC and DC values simultaneously. The data recorded can be transferred to PC via a USB connection and analyzed through table or graphical representation. The real time values of all channels, battery status and used memory capacity are shown on the LCD display.



Insulated inputs allow any input channel to be connected in any combination without loop formation



Technical Specifications

Channels	Isolation	Protection	Measurement Type	Meas. Range		Resolution	Accuracy		Filtering	Input Impedance
				DC	AC		DC	AC (50 & 60Hz)		
A	✓	300V	Simultaneous AC & DC	±40V	28V	5mV	0.5%+0.1V	2%+0.5V	50&60Hz Notch	-10MΩ
B	✓	300V		±74V	49V	10mV	0.5%+0.1V	2%+0.5V		-10MΩ
C	✓	150V		±160mV	100mV	20μV	1%+0.1mV	3%+0.5mV		-200kΩ
D	✓	500V		±74V	49V	20mV	0.5%+0.3V	2%+1V		-10MΩ

Recording Interval	1 ms - 9999 s
Memory	500.000 Samples/Channel, Total 4.000.000 samples capacity
Memory Endurance	>100.000 Write/Erase
Data Retention	>100 Years
Display	3x16 Characters LCD Display
Data Shown on Display	AC and DC values for each channel, Battery-Memory capacity used, Device status
Number of Buttons	4 Pcs
Operating Voltage	5-12V DC/ 8 pcs. 1.5V AA Alkaline Battery
Operating Current (Sampling)	100mA max.
Operating Temperature	-20 - 55 °C
Computer Connection	USB
Dimensions (Cables and Connectors excluded)	W:55 x L:275 x H:52 mm
Weight (Including Batteries)	~ 1kg
IP Protection	IP65 (protected against dust and splash water)
Warranty	2 years (components and workmanship)
Compliance	CE



CATHODIC PROTECTION

ZIO 1244

Remote Input/Output Module



Safely isolate and measure
CP potentials over SCADA



ZIO 1244 Input/Output module is designed to measure the DC and AC values of the Pipe to Soil potential simultaneously. The Module can transfer the measured data to the SCADA system over either 4-20mA Analog outputs or through RS485 MODBUS.

Wide input voltage range allows module to be powered with 15 - 80VDC. Reverse polarity protection assures modules connection safety. ZIO1244 also offers 4 Digital Inputs and 4 Relay Outputs for general purpose usage.

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+90 312 386 04 04 / +90 312 386 04 02

info@4zelektronik.com www.4zelektronik.com / www.forze.com.tr

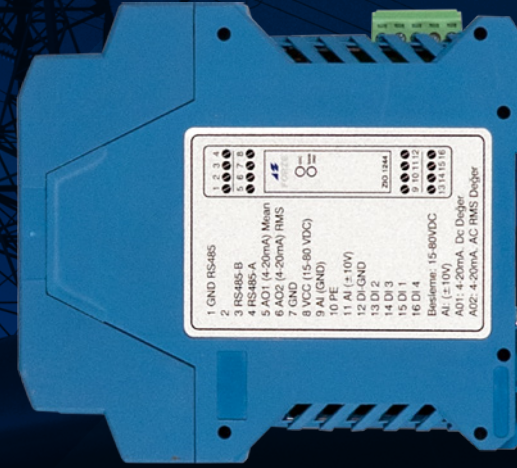
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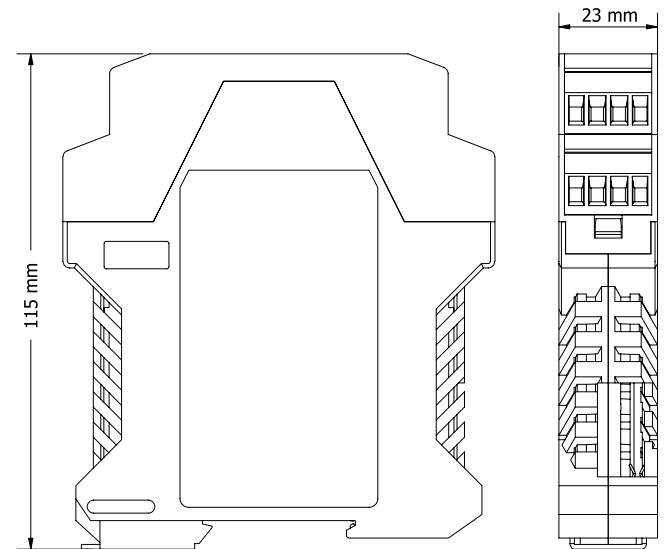
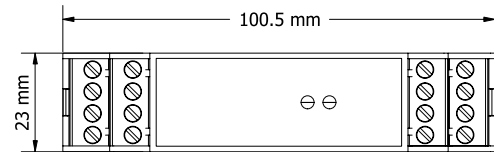
CATHODIC PROTECTION

Zio can transfer the measured data to the SCADA system over either 4-20 mA Analog Outputs or through RS485 MODBUS



Technical Specifications

Supply Voltage	15-80VDC
Reverse Polarity Protection	✓
Input Current	<1A
Number of Analog (AI) Inputs	1
Dielectric Withstand Voltage	2500VAC 60s.
Analog Input Range	±10V *Different analog input options available on request
Input Protection	500V
Burst/Surge Protection	✓
Input Impedance	10Mohm
Measurement Accuracy for DC	0.5%+20mV
Measurement Accuracy for AC	2%+0.1V
Resolution	5mV
Number of Digital (DI) Inputs	4
Galvanic Isolation	✓
Dielectric Withstand Voltage	2500VAC 60s.
Digital Input Voltage Range	15-30VDC
Number of Digital (DO) Outputs	4
Output Type	Relay
Contact Current Rating	4A 250VAC
Number of Analog (AO) Outputs	2
Analog Output Type	4-20mA
Analog Output Power Source	External
Analog Output Load Range	0-1000Ohm
Analog Output (AO1) Data	Mean Value of AI
Analog Output 1 (AO1) Mapping	• 4mA - 4.5mA=-OL • 5mA=-10V • 12mA= 0V • 19mA=+10V • 19.5-20mA= +OL
Analog Output (AO2) Data	AI AC RMS Value
Analog Output 1 (AO1) Mapping	• 4mA= 0V • 20mA=7VAC RMS
Digital Communication	RS485 MODBUS RTU
Communication Speed	9600bps
Over Range Alarm	✓
Operating Temperature Range	-30,+60°C
Mounting Style	Din Rail





Z-Smart Smart Test Station



Multichannel measurement solution
in a battery powered compact device



Z- Smart is a Smart Test Station designed for Cathodic Protection Systems. Almost all required parameters of the Cathodically Protected Structure can be monitored over GSM network.

Z- Smart does not require any power source thanks to its low power battery powered design. The battery lasts for 4 to 5 years for a daily basis data reading. Designed for harsh environment and wide temperature range, does not require maintenance. AC superimposed DC signals can be flawlessly read and true RMS value of the AC signal can be measured for AC Corrosion analyses.

Scope of Application: It's used in measurement and monitoring of current, voltage and other parameters related to cathodic protection.



CATHODIC PROTECTION

Zsmart does not require any power source thanks to its battery powered design. The battery provides 4-5 years of service for a daily data transfer.



Technical Specifications

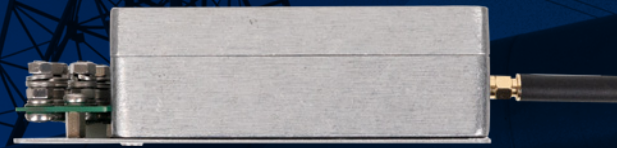
(Table shows full options, models with reduced options available.)

Input	Protection	Measurement Range		Resolution		Accuracy		Filtering	Input Impedance
		DC	AC	DC	AC	DC %	AC %		
Pipe	1000 V	±15V	10V	1mV	1mV	%0,5 + 5mV	%2 + 5mV	50&60Hz Notch	>10MΩ
Foreign Pipe	1000 V	±15V	10V	1mV	1mV	%0,5 + 5mV	%2 + 5mV		
Coupon 1 Voltage	1000 V	±15V	10V	1mV	1mV	%0,5 + 5mV	%2 + 5mV		
Coupon 2 Voltage	1000 V	±15V	10V	1mV	1mV	%0,5 + 5mV	%2 + 5mV		
Coupon 1 Current	1000 V	±15mA	10mA	10µA	10µA	%1 + 50µA	%2 + 50µA		
Coupon 2 Current	1000 V	±15mA	10mA	10µA	10µA	%1 + 50µA	%2 + 50µA		

Recording Interval	Min 1s, Max 1 Week
Memory	Up to 1.700.000 samples capacity
Memory Endurance	>100000 Write/Erase
Data Retention	>100 Years
GSM / GPRS Bands	GSM 850 MHz, E-GSM 900 MHz, DCS 1800 MHz, PCS 1900 MHz
Operating Voltage	3.6 V Lithium
Operating Temperature	-30 - +70 °C
Communication	GPRS
Dimensions (Width x Length x Height)	80 x 165 x 56 mm (without GSM antenna and its connector)
Weight (Including Battery)	~ 630 gr
IP Protection	IP65 (protected against dust and splash water)
Warranty	2 years (components and workmanship)

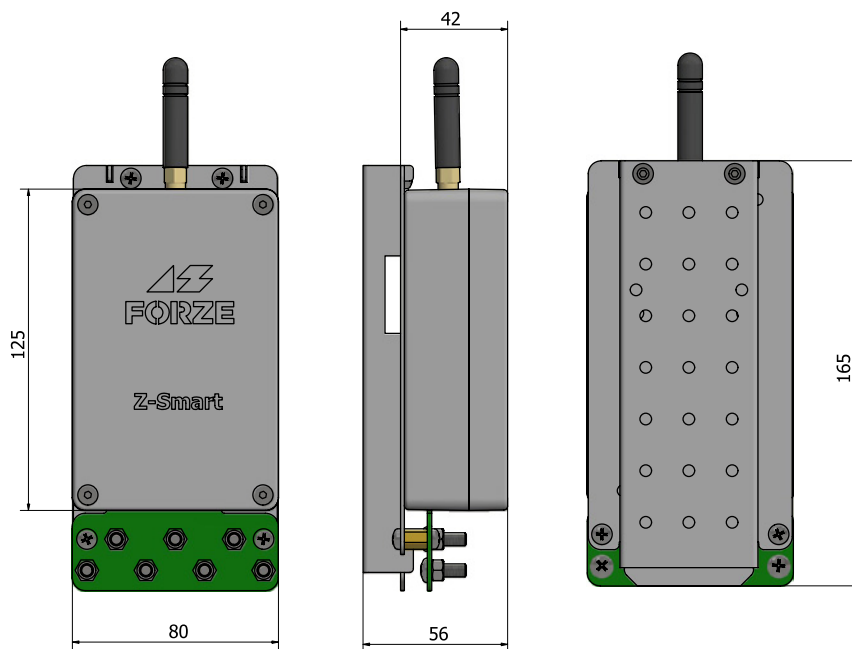


Fits into existing stations thanks to its compact form



Parameters Measured

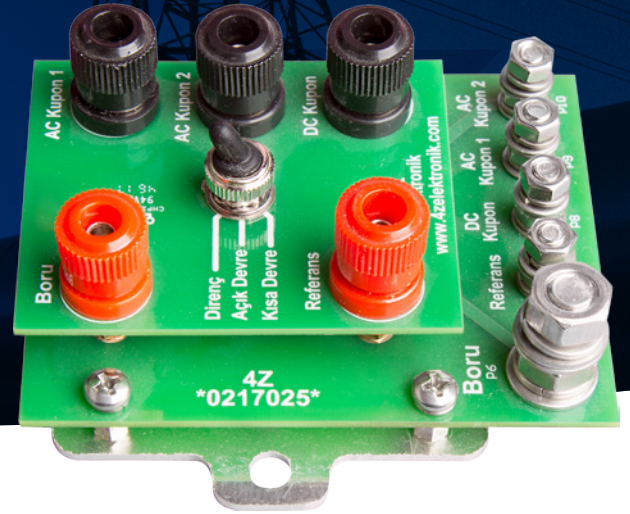
Pipe to Ref 1 Voltage	VDC/VAC	Coupon 1 to Ref 1 natural potential	VDC	
Foreign pipe to Ref 1 Voltage		Coupon 2 to Ref 1 natural potential		
Pipe to Ref 2 Voltage		Coupon 1 to Ref 2 "Instant Off" Potential		
Foreign Pipe to Ref 2 Voltage		Coupon 2 to Ref 2 "Instant Off" Potential		
Pipe to Foreign Pipe Voltage		Coupon 1 to Ref 2 natural potential		
Coupon 1 Current	mADC/mAAC	Coupon 2 to Ref 2 natural potential		
Coupon 2 Current		Battery Voltage		°C
Coupon 1 to Ref 1 "Instant Off" Potential	VDC	Internal Temperature		°C
Coupon 2 to Ref 1 "Instant Off" Potential		GSM Network Status		%



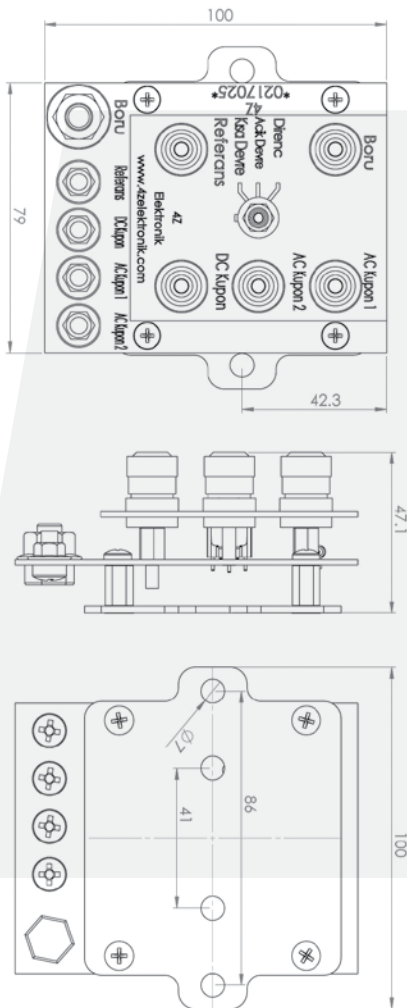


CATHODIC PROTECTION

ZKT5 Coupon Terminal



Independent terminal system
for Coupon Current Measurement



ZKT5 is an independent terminal system which allows 5 terminal coupon connections. The terminal can be mounted in a test station and current measurement of AC coupon can be made according to EN 15280.

The three-position switch provides the following connections between AC Coupon1 and the Structure terminals.

- » Connection over 10R Resistor
- » Open circuit
- » Short circuit



CATHODIC PROTECTION

Magnestep Voltage Step Controller

Safely adjust protection potentials
in sacrificial anode CP systems



MagneStep is a voltage step controller designed to adjust the protection potentials in sacrificial anode cathodic protection systems. Using a MagneStep, it is possible to select one of four steps to keep the protection potential within the acceptable limits, thus avoiding over-protection voltages.

MagneStep is a voltage-based device which provides protection potentials to be almost independent of the protection current. The protection current can range from micro-amperes to amperes with little difference in the protection voltage.

MagneStep also provides a relatively high fault current path (>100A) which provides self-protection under fault conditions. The MagneStep is also fail safe, which means the anode will always be connected to the protected structure even if the fault current exceeds the MagneStep's rating.

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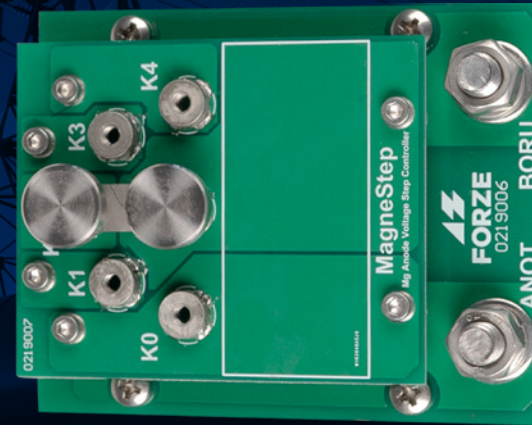
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CATHODIC PROTECTION

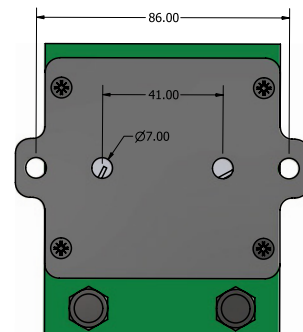
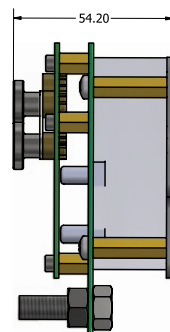
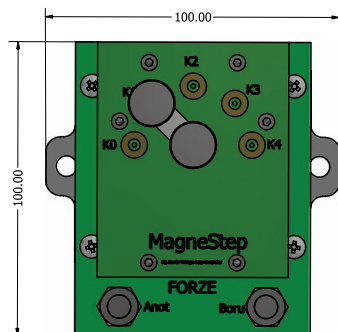
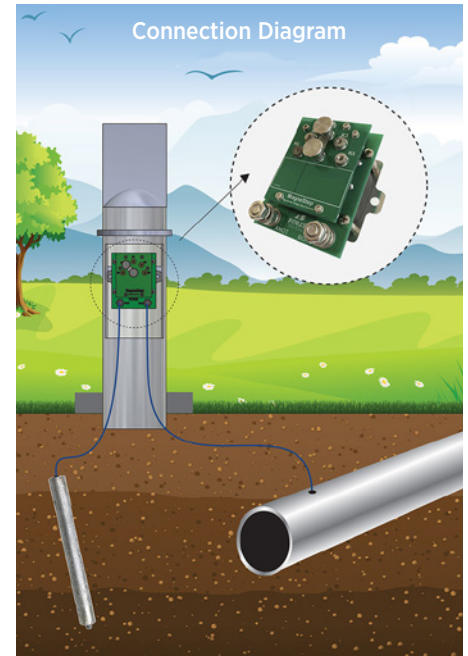
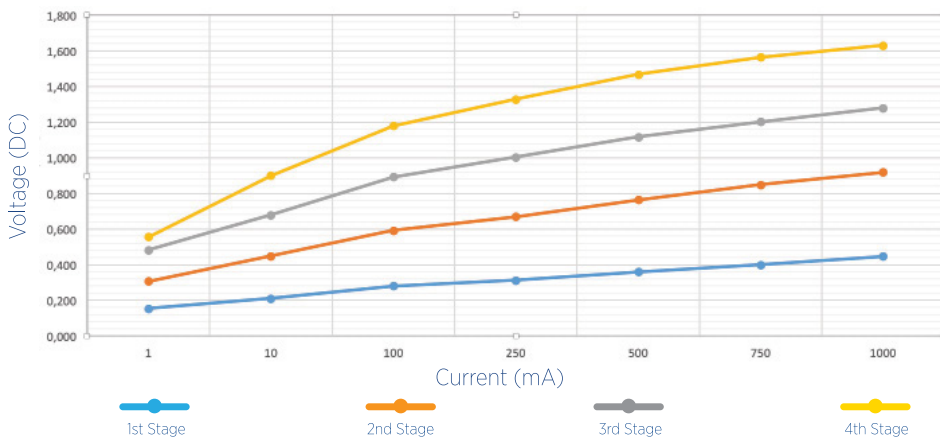
MagneStep is a voltage based device which provides protection potentials to be almost independent of the protection current



Technical Specifications

Number of steps	4
Basic Adjustment for Step	150 mV
Fault Current Rating	100A 0,1 sec
Connection	Connected in series with anode

Current - Voltage Graphic





* Please note that all products, product specifications and data presented in this datasheet or web site are believed to be free of errors and subject to change without prior notification for continued improvement. It is the users responsibility to ensure the suitability of the product for a specific application.



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İvedik OSB. 1468.cad. No:60 Yenimahalle/ANKARA

+90 312 386 04 04 / +90 312 386 04 02

info@4zelektronik.com www.4zelektronik.com / www.forze.com.tr

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