

SCOPE

SCOT M3K+ SCOT MXP+ Circuit Breaker Time Interval Meter



Forget about the high tension...
... SCOT measures CB timings in live EHV switchyards,
quickly & reliably

SCOT M3K+, SCOT MXP+

The Product

SCOPE introduces its next generation of iconic SCOT Series Circuit Breaker Time Interval Meters in all new super light avatars, based on cutting edge microcontroller & embedded technology. SCOT incorporates some state of the art hardware & smart software features making it a must have tool for testing & maintenance engineers. It is compact, lightweight and reliable instrument used for measurement of operation times of all types of HV and EHV circuit breakers under live switchyard conditions.

User can choose from two models, SCOT M3K+ and SCOT MXP+ depending on the type & configuration of circuit breakers.

SCOT M3K+ measures and displays CLOSE, OPEN and C-O times of Main contacts of 3 poles connected end to end, simultaneously. Ideally suitable for CBs with single break per pole.

SCOT MXP+ measures, displays and prints CLOSE, OPEN and C-O times of 2 Main + 2 PIR contacts per pole, 3 poles simultaneously, ensuring measurement of 6 Main + 6 PIR contacts simultaneously. Ideally suitable for CBs having PIR contacts & multiple breaks per pole.

The Measurement

Proper functioning of CBs is of vital importance to ensure safety & availability of power network. These are expected to operate reliably & within specified time limits in order to isolate the faults & save expensive equipments from stress or damage. In order to be assured of such consistent performance of CBs, periodical timing measurements are carried out. SCOT is being used as the most trusted tool for these measurements.

SCOT is connected to give command to CB for CLOSE, OPEN or CLOSE-OPEN operation and timings in milliseconds are directly obtained for Main as well as PIR * contacts. The non-simultaneity of operation of poles as well as contacts* can be verified.



SCOT MXP+

- ① Contact Timing Measurement Channels
- ② Fuse for Coil Supply
- ③ LCD Display
- ④ Breaker Control Section
- ⑤ Master Earthing Connection
- ⑥ Power ON-OFF Switch
- ⑦ Battery Charging Input
- ⑧ Fuse for Battery Protection
- ⑨ USB Port
- ⑩ Thermal Printer (Not available in SCOT M3K+)
- ⑪ Keypad

SCOT MXP+
SCOPE T&M Pvt. Ltd.
PUNE, INDIA-411 026

LOCATION :Pune
BRK. TYPE :CFM
BRK. ID. :Bay 3
SR.No. :1234
MAKE :CDL
SAMP. SPD. :10 KC
PIR :DISABLE
DATE :04/01/14
TIME :15:25:19

OPERATION: OPEN

R-PH(mS)
M1= 22.8 M2= 22.9

Y-PH(mS)
M1= 24.4 M2= 24.4

B-PH(mS)
M1= 22.8 M2= 22.9



Special Features

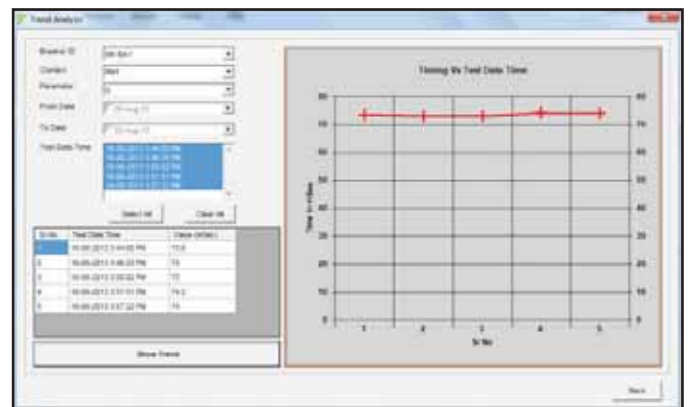
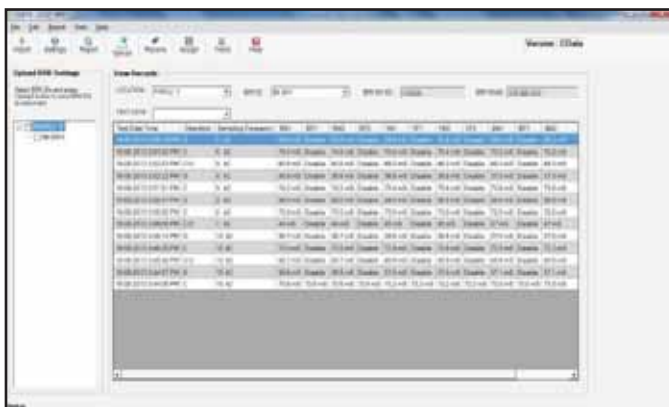
- A radically new design makes SCOT the lightest available CB Time Interval Meter.
- High sampling frequency of up-to 10 KHz offers high timing resolution of 0.1 mS.
- Mains as well as rechargeable Li-ion battery operated. In built battery monitor and cut off circuit for protection against battery deep discharge.
- In built real time clock, memory and printer*. Test time stamping on each record enables time references for future use.
- PC Downloading & Analysis including 'Trend Analysis' possible with "CData SCOT" Software supplied with kit.
- Create CB Identification data (CB Library) on PC and upload to instrument. Save the test results in respective CB folder in kit. Download the same to PC in similar folder structure.
- Instrument debug options like contact status check, command check, memory check, printer check*, PC downloading check are provided.
- Simple operation. Tests can be conducted even by technicians.
- Supplied with rugged test lead set, suitable for testing EHV CBs.
- Enclosed in ultra rugged IP67 class hard molded case.

Note: * - These features are available only in SCOT MXP+.

CData SCOT: PC Downloading & Analysis Software

This windows based software has facility of creating DUT (CB) ID details which can be uploaded to instrument & downloading of test results from instrument to PC. Instrument is having a plug-n-play facility using USB cable. So once the software is installed on PC, instrument can be directly connected without wasting any time.

Trend Analysis for trending of historical data of a specific DUT over specified period and Report Generation for the tests taken is also possible. Organising records, printing of report on any external printer (not part of supply) is also possible. This report can be exported to PDF or Microsoft Excel. You can add operator name and any additional notes if you want to add. Overall, software facilitates effective data management & makes condition monitoring of CBs quite easy.



Benefits

- Quick & simple tool to assess the operational healthiness of circuit breakers.
- Understand the non simultaneity of pole & break operation.
- Battery operation enables measurement in absence of AC supply, especially useful on under-construction sites.
- Proven reliability in EHV switchyard environment. Thousands of units in use worldwide.
- Suits equally to Utilities, OEMs, Test Labs as well as Testing & Commissioning Companies.

SCOT M3K+, SCOT MXP+

Specifications

Parameter	SCOT M3K+	SCOT MXP+
Contact Timing Channels	3 (Main contacts of 3 poles connected end to end, simultaneously)	12 (Up-to 2 Main + 2 PIR contacts per pole, 3 poles simultaneously, i.e. 6 Main + 6 PIR contacts simultaneously)
Sampling Speed	10kHz, 5kHz, 2kHz, 1kHz & 100Hz, Selectable	
Timing Range	1Sec, 2Sec, 5Sec, 10Sec & 100Sec respectively for above Sampling Speeds	
Resolution	0.1 mSec, 0.2 mSec, 0.5 mSec, 1 mSec & 10 mSec respectively for above Sampling Speeds	
Accuracy	Value \pm 0.05% \pm 1 Digit	
Breaker Control	Two solid state contacts rated at 300V, 35A AC/DC for breaker operation	
Trigger Options	Close, Open, Close-Open	
Display	4 Line X 20 character backlit LCD	
Printer	In-built, 58 mm thermal printer (Available only in SCOPT MXP+)	
Keypad	5 keys	
Memory	1 MB, 100 records, Internal	
Inbuilt Battery	Li-Ion, 11.1 V, 4 Ah	
Power	Input to Battery Charger - 90 to 275 VAC, 50/60 Hz \pm 10% ;100 to 300 VDC Charger output - 13.5 VDC, 1000 mA Max.; Instrument consumption -15VA	
Communication Port	USB	
Software	CData SCOT - For PC Downloading & Analysis, Windows based	
Environment	0 to 50°C, Upto 95% RH (Non condensing)	
Dimensions	300 x 250 x 200 mm	
Instrument Weight	5 kg	

Ordering Information

Description		Quantity	
Circuit Breaker Time Interval Meter, Model M3K+ complete with standard accessories		1 Set	
Circuit Breaker Time Interval Meter, Model MXP+ complete with standard accessories		1 Set	
Description	Quantity	Description	Quantity
Standard Accessories			
Timing Test Cables, High Flexibility, Wear Resistant, 15m	1 Set	CData SCOT : PC Downloading & Analysis Software on CD	1 No.
Breaker Control Cable, 7m	1 No.	Soft Carrying Case for Instrument and Test Lead Set	1 No.
Master Earthing Cable, 7m	1 No.	Instruction Manual	1 No.
Battery Charger	1 No.	Factory Test & Calibration Report	1 No.
USB Communication Cable	1 No.	Thermal Printer Paper Roll (Only with SCOT MXP+)	1+1 No.
Spare Fuses	1 Set		
Optional Accessories			
A box of 10 Thermal Paper Rolls for SCOT MXP+	1 Set	Test Lead Set of 7m length for MV/HV CBs	1 Set

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