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CAMOS

Cable Management Optical System for underground cables



CAMOS Process Unit

Technical Specifications

CAMOS PROCESS UNIT – Technical specifications	
Power supply	
Power supply	24 Vdc
Power consumption	<15W
Connector	Phoenix type 3-pole / 5.08 mm
Mechanical data	
Dimensions	1 rack 19"x 6U/10U x 336 mm (height according to model)
Weight	10 Kg
Material	Stainless steel
Immunity tests	Class 4
Environmental conditions	
Storage temperature	-20°C to +70°C
Operating temperature	0°C to +50°C
Humidity (non condensing)	<=95% relative
Approvals	CE, ISO 9001

CAMOS PROCESS UNIT- Technical specifications	
System	
Samples per cycle	144 Series (288 Optional)
Maintenance oscillos	1 cycle, 80s/c, current phases A,B,C per maintenance position
Protection oscillo	25 cycles (3 prefault), 80s/c, current phases A,B,C per protection position + voltage inputs
Oscillos trigger	digital inputs (1 for maintenance oscillo trigger and 1 for protection oscillo trigger), communications, scheduled
Oscillos storage capacity	50 GB
Oscillos format	ASCII, COMTRADE
Optical connections	
Number of connections	2/4/6 (according to model)
Maximum link length	10 Km
Fiber Type	G652D, G657.A2
Interrogator unit optical connectors	FC/APC female
Pigtail optical connectors	FC/APC male
SLED: Light emitter	
Center wavelength	1550 nm
ASE* power	40 mW
Optical 3dB bandwidth	33 nm
Laser classification	Class 1
Communications	
Communication port	RS485/Modbus RTU/Phoenix type 3-pole 5.08mm
Service port	RS485/ASCII/Phoenix type 3-pole 5.08 mm
Digital outputs	
Number/Type	8/ no-nc (4 for maintenance CPU and 4 for protection CPU)
Vnom/Current max.	250Vac / 16A Idc , 30A 4s
Operating time/Reset time	<8ms/<6ms
Connector	Phoenix type/5.08 mm
Optoisolated digital inputs	
Number	2 (1 maintenance CPU and 1 protection CPU)
Nominal voltage	120 Vdc
Voltage inputs	
Number	3
Vnom	63Vac ± 20%

CAMOS Optical Box

Optical Current Transformers

Technical Specifications

OPTICAL BOX – Technical specifications			
Optical connections	10 m Single Mode fiber for splicing		
Mechanical data	O	I	M
Dimensions			
Weight			
Protection class	IP68	IP66	IPXX
Environmental conditions			
Storage temperature	-40°C to +70°C		
Operating temperature	-20°C to +60°C		
Humidity (non condensing)	95%		

OPTICAL CURRENT TRANSFORMERS – Technical specifications				
Technical data	OCTCS	OCTCC	OCTOC	OCTIS
Current measurement				
Current range	1A-400A	100A-60kA (according to model)	100A-60kA (according to model)	1A-400A
Precision	99%			
Optical connections	10 m Single Mode fiber for splicing			
Mechanical data	O	I	M	
Protection class		IP68	IP66	IPXX
Environmental conditions				
Storage temperature	-40°C to +70°C			
Operating temperature	-20°C to +60°C			
Humidity	95%			

CAMOS Product Configuration

CPU	200	X	YYYY	ZZZ	HY/HN	#
	Serie 200	Function	Structure (Screen currents/ Cable currents)	Samples/cycle	HMI	Version
		M (M) L (M+D+L) D (D)	0006 0 Screen 6 Cable 0606 6 Screen 6 Cable 1206 12 Screen 6 Cable 1506 15 Screen 6 Cable 1806 18 Screen 6 Cable	144 288	y/n	1.0

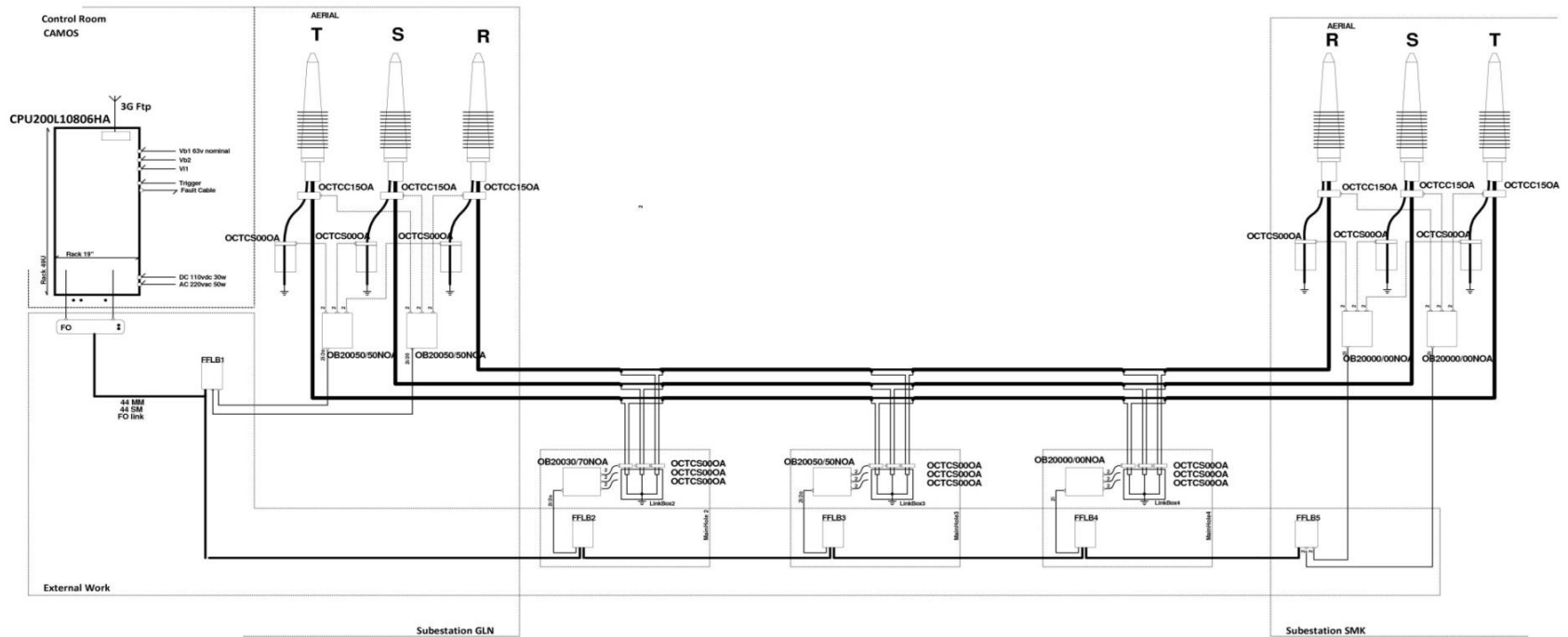
M= Maintenance
L = Location
D= Discriminator

OB	200	AA/BB	TY/ TN	O/ I	#
	Serie	Splitter	Local Temperature	Mechanical	Version
		30/70, first in three 50/50, first in two 00/00, final	TY (Temperature Yes) TN (Temperature No)	O (outdoor) I (indoor)	1.0

CAMOS Product Configuration

OCT	P	S	DD	O/I	#
	Close	Screen	metres of fibre optic	housing	Version
	OCT must be installed when installing the cable	On screen (maintenance and / or short-circuits)	05 (5 metres) 15 (15 metres) 00 (100 metres)	O (outdoor) I (indoor)	1.0
OCT	P	C	DD	O/I	#
	Close	Cable	Metres of fibre optic	housing	Version
	OCT must be installed when installing the cable	Cable current measure	05 (5 metres) 50 (15 metres) 00 (100 metres)	O (outdoor) I (indoor)	1.0
OCT	R	C	DD	O/I	#
	Open	Cable	Metres of fibre optic	housing	Version
	OCT winding after the cable installation is finished	Cable current measure	05 (5 metres) 15 (15 metres) 00 (100 metres)	O (outdoor) I (indoor)	1.0
OCT	1	S	00	M	#
	Mixed (Cooper + Optic)	Screen	Meters of fibre optic	housing	Version
		On screen (Maintenance)	00, 100 metres	M (Manhole)	1.0

CAMOS Lay Out



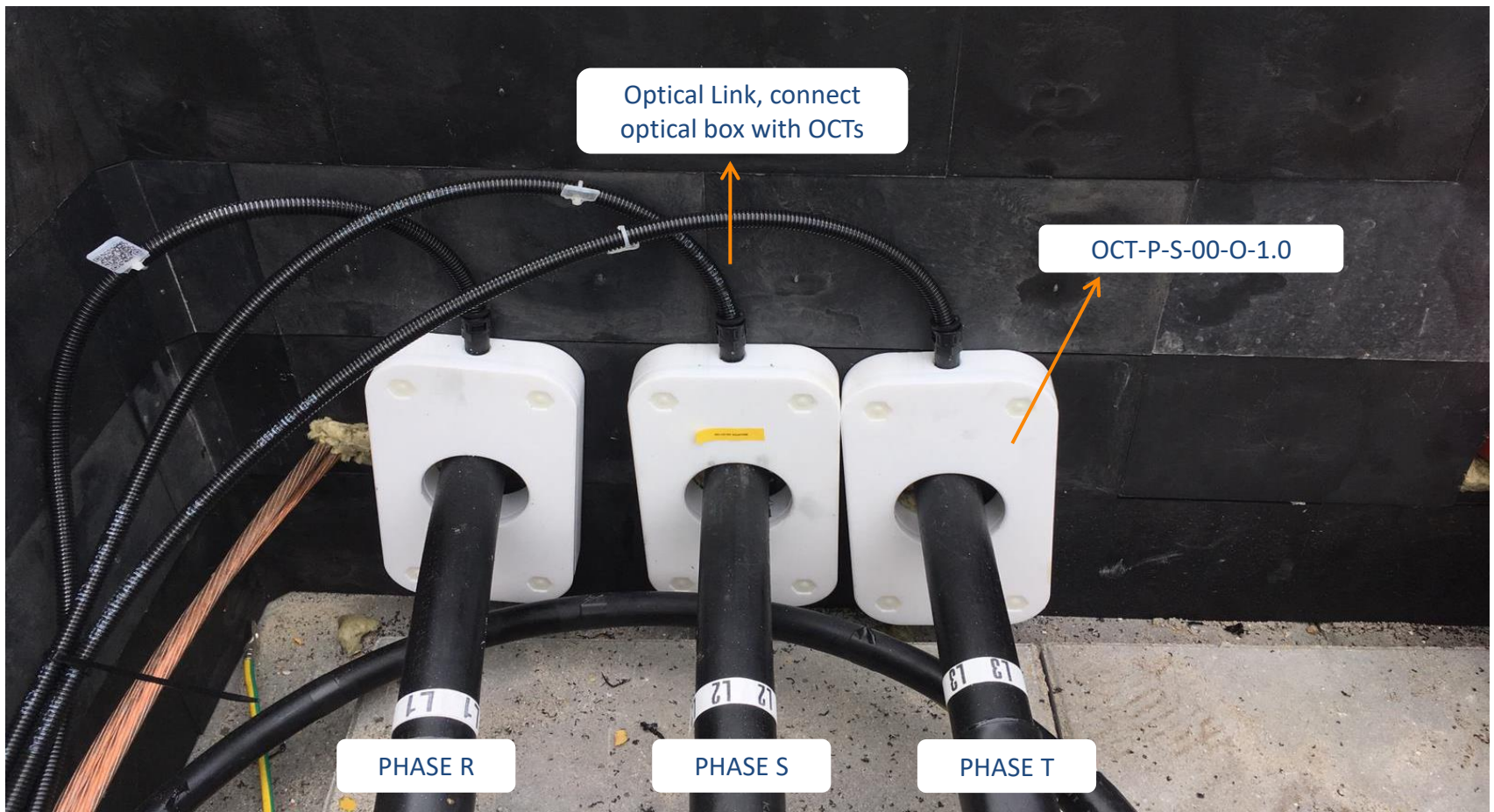
CAMOS Cable Mannagment Optica System	Rack Optical - Electronic part
OPxxx	Optical Part. Optical element for OCT
OCT	Optical Current Transformer
FFxx	Fiber Fusion

Camos GLN-SMK

CAMOS Product Configuration

For Energinet GLN-SMK

Position	Item	Units	Description
GLN substation	CPU-200-L-1806-080-HY-1.0	1	Interrogator unit, 18 screen currents and 6 cable currents, with HMI
	OCT-P-C-10-O-1.0	3	OCT closed for cable, 15 metres of fibre optic, double winding, outdoor
	OCT-P-S-00-O-1.0	3	OCT closed for screen, 100 metres of fibre optic, double winding, outdoor
	OB-200-50/50-TN-O-1.0	2	Optical box, splitter 50/50, no temperature sensor, outdoor
SMK substation	OCT-P-C-10-I-1.0	3	OCT closed for cable, 15 metres of fibre optic, double winding, indoor
	OCT-P-S-00-I-1.0	3	OCT closed for screen, 100 metres of fibre optic, double winding, indoor
	OB-200-00/00-TN-I-1.0	2	Optical box, splitter 0/0 (final), no temperature sensor, indoor
Manhole 3	OCT-P-S-00-O-1.0	3	OCT closed for screen, 100 metres of fibre optic, double winding, outdoor
	OB-200-30/70-TN-O-1.0	1	Optical box, splitter 30/50, no temperature sensor, outdoor
Manhole 6	OCT-P-S-00-O-1.0	3	OCT closed for screen, 100 metres of fibre optic, double winding, outdoor
	OB-200-50/50-TN-O-1.0	1	Optical box, splitter 50/50, no temperature sensor, outdoor
Manhole 9	OCT-P-S-00-O-1.0	3	OCT closed for screen, 100 metres of fibre optic, double winding, outdoor
	OB-200-00/00-TN-O-1.0	1	Optical box, splitter 0/0 (final),no temperature sensor, outdoor



Optical links, connect optical box with interrogator unit

OB-200-30/70-TN-O-1.0

OCT-P-S-00-O-1.0

Optical links, connect optical box with interrogator unit

OB-200-30/70-TN-O-1.0

OCT-P-S-00-O-1.0

Optical links, connect optical box with interrogator unit

OB-200-30/70-TN-O-1.0

OCT-P-S-00-O-1.0





OCT-P-S-00-I-1.0





CPU-200-L-1806-080-HY-1.0