ENSTO

Saves Your Energy

D165T - D265T

LV Pole Mounted breaker / digital trip unit

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The protection and management of MV/LV transformers in a rural environment requires specific circuit breakers compatible with significant load differences, thus ensuring full exploitation of the installed power, even in unbalanced operation.

Technical characteristics

1- Post circuit breaker with digital trip unit

	CIRCUIT BREAKERS	
	D165T	D265T
Reference strandard	HN 63-S-11	HN 63-S-11
Voltage rating	440 V	440 V
Current rating	165 A	265 A
Cutout power	4 000 A	6 400 A
Closing power	6 800 A	11 700 A
Number of poles	4	4
Number of outputs	1 ouput	2 outputs
Cable sections	25 / 70 mm²	50 / 150 mm²
Breakdown voltage		
• pulse/earth	20 kV	20 kV
• at 50 Hz	10 kV	10 kV
• between poles	4 kV	4 kV
Control system	Manual	Manual
Installation	on post	on post

2 - Digital trip unit

	P = 50 kVA U = 440 V I = 72,2 A Current in each phase (in A)			P = 100 kVA U = 440 V I = 144,3 A Current in each phase (in A)			Trip time		P = 160 kVA U = 440 V I = 231 A Current in each phase (in A)			Trip time	
	1	2	3	1	2	3	Min	Max	1	2	3	Min	Max
Temperature = + 20 °C													
Initial load	48	48	48	96	96	96			155	155	155		
	85	85	85	170	170	170	1 h 35		280	280	280	55 mn	
	100	100	100	200	200	200	25 mn	1 h 10	320	320	320	26 mn	1 h 10
Triphase balanced	160	160	160	320	320	320	30 s	6 mn	500	500	500	30 s	7 mn 30 s
overload	950	950	950	1900	1900	1900	**0,02 s**	**0,2 s**	3000	3000	3000	**0,02 s**	**0,1 s**
									5640	5640	5640	**0,015 s**	**0,025 s**
	2000	2000	2000	4000	4000	4000	**0,02 s**	**0,05 s**	6400	6400	6400	**0,015 s**	**0,020 s**
	58	58	120	116	116	240	1 h 50		185	185	400	32 mn	
Triphase unbalanced	58	58	160	116	116	320	15 mn	50 mn	185	185	500	11 mn	33 mn
overload	58	58	220	116	116	440	30 s	7 mn	185	185	700	30 s	4 mn
	0	0	950	0	0	1900	**0,02 s**	**0,2 s**	0	0	3000	**0,02 s**	**0,1 s**
Temperature = - 25 °C													
Initial load	76	76	76	152	152	152			240	240	240		
Triphase balanced	110	110	110	220	220	220	1 h		350	350	350	1 h	
overload	130	130	130	260	260	260	14 mn	44 mn	420	420	420	14 mn	45 mn
	190	190	190	380	380	380	30 s	5 mn	600	600	600	30 s	5 mn
Triphase unbalanced	87	87	130	174	174	260	2 h 15		280	280	420	2 h 15	
overload	87	87	180	174	174	360	10 mn	30 mn	280	280	560	13 mn	48 mn
	87	87	240	174	174	480	30 s	6 mn	280	280	760	40 s	5 mn 40 s
Temperature = + 50 °C													
Initial load	25	25	25	50	50	50			80	80	80		
Triphase balanced	70	70	70	140	140	140	1 h 30		231	231	231	1 h 05	
overload	90	90	90	180	180	180	20 mn	1 h 07	300	300	300	17 mn	1 h 05
	160	160	160	320	320	320	45 s	5 mn	500	500	500	35 s	5 mn 40 s
Triphase unbalanced	48	48	100	96	96	200	1 h		155	155	320	1 h	
overload	48	48	130	96	96	260	15 mn	1 h	155	155	420	15 mn	1 h
	48	48	200	96	96	400	30 s	7 mn	155	155	650	30 s	7 mn

Trip time as per HN 63-S-11 + corrected values (in bold type) to match the selectivity of the TPC fuses.

Description

Circuit breaker unit

These units (4 poles 3 of which are protected) cut off in air with metal partition chambers to break the arc.

When the circuit breaker is open, a contact makes an electrical link between the transformer neutral and the station structural earth.

When the circuit breaker is closed, a spark gap limits the rise in potential of the LV neutral, in relation to the structural earthing, for a value exceeding 10 kV.

The circuit breaker is installed inside a weatherproof GRP case.

Digital Trip Unit

The Digital Trip Unit protects the three ratings of the post-mounted transformer (50 kVA, 100 kVA and 160 kVA), whether it be a conventional transformer (no internal protection) or a new transformer with protection (TPC).

The transformer protection rating is set by a selector.

The micro-controller assesses the transformer temperature in real time, based on the currents in the three phases and the external ambient temperature. This ambient temperature is computed based on the probe and a mathematical model that is also a function of the three phase currents.

Equipment part numbers

	ERDF P/N	Ensto Novexia P/N
Complete unit D165T with digital unit, metal case and linkage	69 34 037	2003352
Unit D165T without unit, with metal case and linkage	69 34 035	1014429
Complete unit D265T without digital unit, with metal case and linkage	69 34 038	1014432
Tri-rating digital unit (50 kVA, 100kVA et 160 kVA)	69 35 110	2002219

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