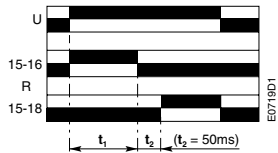


Electronic timer for star-delta starters

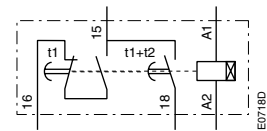
3



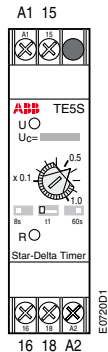
TE5S...



Chart



Equivalent diagram



Front face

Description

When used in star-delta starters, the TE5S lags the star connection and provides a lapse of 50 ms before the switch over to delta connection.

According to the type of device chosen, the electronic circuit has a 24 V AC / DC, 110 to 120 V AC, 220 to 240 V AC or 380 to 440 V AC supply. An output relay with reversing contact ensures high current switching. A two-position switch allows selection of one of the two time delay ranges: 0.8 to 8 s or 6 to 60 s. The 0.1 to 1.0 graduated button allows an initial setting without steps within the previously selected range which can then be adjusted using a chronometer.

Note: We recommend that you allow for temperature drift for the final adjustment of the time delay setting. Drift: -0.2 % per °C.

For example, a setting made at 20 °C will yield a time delay shorter by 7 % at 55 °C in a cubicle (-0.2 % per °C i.e. $-0.2 \times 35 = -7 \%$).

Regardless of these settings the TE5S provides a fixed "lapse" of 50 ms between the opening of contact 15-16 and the closing of contact 15-18. This time delay prevents from arc short-circuit during star to delta switching.

Operation

On energization, the green U indicator light (voltage applied) comes on. Contact 15-16 then immediately moves to the closed position.

Count-down of the programmed time immediately commences. When the time delay has elapsed, contact 15-16 opens and at the same time the 50 ms lapse, t_2 , begins after which contact 15-18 moves to the closed position. The yellow R indicator light comes on.

On de-energization, the U and R indicator lights go out and, after the 250 ms resetting time, the device is ready for a new cycle.

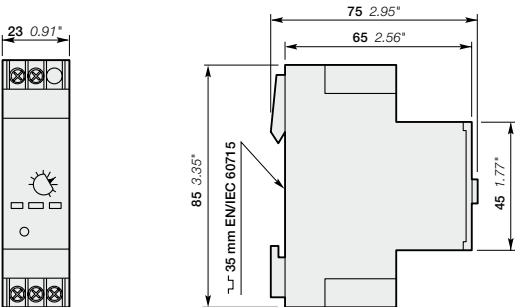
Mounting

On 35 x 7.5 mm or 35 x 15 mm mounting rail according to IEC/EN 60715.

Ordering details

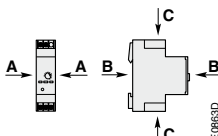
For contactors	Rated control circuit voltage		Type	Order code	Pkg qty	Weight (1 pce)
	V 50/60 Hz	V DC				
A9 ... A300	24	24	TE5S-24	1SBN020010R1001	1	0.080
	110...120	-	TE5S-120	1SBN020010R1002	1	0.080
	220...240	-	TE5S-240	1SBN020010R1003	1	0.080
	380...440	-	TE5S-440	1SBN020010R1004	1	0.080

Main dimensions mm, inches



Electronic timer for star-delta starters

Technical data

Types	TE5S-24	TE5S-120	TE5S-240	TE5S-440
Utilization characteristics according to IEC				
Standards		IEC 60947-5-1 and EN 60947-5-1		
Rated insulation voltage Ui		440 V		
acc. to IEC 60947-5-1				
Rated operational voltage Ue max.		24 V DC		
		24...240 V AC		
		440 V AC		
Conventional free air thermal current Ith		10 A		
Ie / Rated operational current AC-15				
acc. to IEC 60947-5-1				
24-120 V 50/60 Hz		5 A		
220-240 V 50/60 Hz		4 A		
380-440 V 50/60 Hz		–		
		3 A		
Ie / Rated operational current DC-13				
acc. to IEC 60947-5-1				
24 V DC		4 A		
		–		
Short-circuit protection device - gG type fuse		10 A		
Control circuit voltage				
AC control voltage		Rated supply voltage Uc		
50/60 Hz		Average consumption		
DC control voltage		Rated supply voltage Uc		
		Average consumption		
Rated frequency limits		48...63 Hz		
Supply voltage range		0.85...1.1 x Uc		
Overvoltage protection		Built-in varistor		
Load factor		100 %		
Time delay range (t1) selected by switch		0.8...8 s and 6...60 s		
Temperature drift		-0.2 % per °C		
Mechanical setting accuracy		±15 % of the setting range		
On-load reiteration accuracy under constant conditions		±2 % after 1 million operating cycles		
Minimum time lapse (t2)		50 ms		
Minimum time lapse after 1 million of operating cycles		40 ms		
Resetting time (max.)		250 ms		
Front panel display		green indicator light		
		yellow indicator light		
Ambient air temperature				
Operation		-25...+60 °C		
Storage		-40...+85 °C		
Shock withstand				
acc. to IEC 60068-2-27 and EN 6006-2-27				
		Shock direction		
		A 20 g / 11 ms		
		B 15 g / 11 ms		
		C 20 g / 11 ms		
Vibration withstand		10 to 300 Hz in the 3 directions		
acc. to IEC 60068-2-6 and EN 60068-2-6		3 g		
Mechanical durability		5 millions operating cycles		
Electrical durability		1 million operating cycles		
On-load maximum switching frequency		720 cycles/h		
		600 cycles/h		
Fixing				
On rail according to IEC 60715, EN 60715		35 x 7.5 mm or 35 x 15 mm		

Connecting characteristics

Connection capacity (min. ... max.)			
	Rigid solid	1 x	1...2.5 mm²
	Flexible with ferrule	2 x	1...2.5 mm²
	Flexible with ferrule	1 x	0.75...2.5 mm²
	Flexible with ferrule	2 x	0.75...2.5 mm²
Tightening torque		Recommended	0.6 Nm
		Max.	0.8 Nm
Degree of protection		IP20	
acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529			
Screw terminals		Delivered in open position, screws of unused terminals must be tightened	
All terminals		M2.5	
Screwdriver type		Flat Ø 4 / Pozidriv 1	