



E 236 undervoltage monitoring relays

Function

The green LED is lit when the supply voltage is applied. If each phase voltage exceeds 195 V (US1) or exceeds the preset threshold value (US2) with respect to the neutral including the hysteresis when switching the device on, the relay switches immediately into the working position. The yellow LED is lit. If at least one phase voltage falls below the threshold value, the relay goes back into its normal position and the yellow LED goes out.

If also phase 2 fails, the green LED goes out, too.

It is indispensable to connect the neutral conductor!

Application - devices with 2CO contacts

For the control of three-phase undervoltage (each phase to neutral) of switchgear, also for installations according to DIN VDE 0100-718 (power installations in hospitals and rooms used for medical purposes outside of hospitals) and DIN VDE 0108-100 (power installations and safety supply in buildings where many people gather).

US 1: 3 phases to neutral with fixed threshold at 195 V; hysteresis fixed 5 %

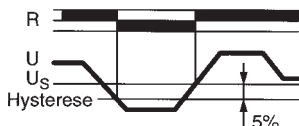
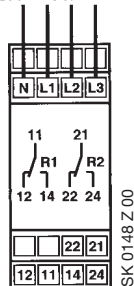
US 2: 3 phases to neutral with fixed threshold at 160 – 240 V; hysteresis fixed 5 %

Contact	Order details	Bbn	Price	Price	Weight	Pack
	Type code	4016779	1 piece	group	1 piece	unit
		EAN			kg	pc.
2CO	E 236-US 1	2CDE165000R2001	511087		0.095	5
2CO	E 236-US 2	2CDE165010R2001	511094		0.095	5

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E 236 US 1
E 236 US 2

3 x 230V + N
3N - 230/400V



Technical features

US 1 US 2

Rated voltage	250 V a.c.
Frequency	48-63 Hz
Measuring range:	supply voltage 3N 400/230 V a.c. (terminals N-L1-L2-L3) overload capacity 3N 459/265 V a.c.
Switching capacity	device in series (distance < 5 mm): 750 VA (3 A/250 V a.c.); device not in series (distance > 5 mm): 1250 VA (5 A/250 V a.c.)
Rated insulation voltage	250 V a.c. (corresponds with IEC 664-1)
Rated surge voltage	4 kV
Tripping delay	ca. 100 ms
Clearance and creepage distance	> 6 mm (between contact and electronics)
Mechanical service life	20 x 10 ⁶ operations
Electrical service life at 10000 VA	2 x 10 ⁵ operations
Max. switching rate	max. 6/min (1000 VA Ohmic load); max. 60/min (100 VA Ohmic load)
Ambient temperature	-25 °C/-13 °F to +55 °C/131 °F
Overvoltage category	III
Accuracy in non-changing environment:	setting tolerance (US 2) ≤ 5 % repeat accuracy ±1 % temperature effect ≤ 0.1 %/°C
Terminals	up to 4 mm ²
Specifications	VDE 0110 and VDE 0435
EMC tests	EM 50081-1 and EN 50082-2
Displays	LED green= supply voltage applied; LED yellow= relay status
Power loss	1.7 W



Devices for panel installation onto mounting rails (35 mm) according to DIN EN 60715
 mounting depth: 68 mm
 mounting width: 17.5 mm = 1 module
 color: gray, RAL 7035

Application - devices with 1CO contact

For three-phase undervoltage monitoring (each phase connected to a neutral conductor) of switch-gear. Devices with fixed threshold value (US 1.x and US 1.1 D) also for installations according to DIN VDE 0100-718 (for medical purposes) and DIN VDE 0108-100 (power installations and safety supply in installations for gathering of people).

US 1.1: 3 phases to neutral conductor with fixed threshold value at 195 V; hysteresis fixed at 5 %

US 2.1: 3 phases to neutral conductor with threshold value range of 160 – 240 V; hysteresis fixed at 5 %

US 1.1D: 3 phases to neutral conductor with fixed threshold value at 195 V; hysteresis fixed at 5 %, but with switch-on delay of 0.1 (6 sec.) to 10 min

Technical features	US 1.1	US 2.1	US 1.1D
Supply circuit			
Supply voltage (= measured voltage):	3N~ 400/230 V AC (terminals N-C1-C2-C3)		
Overvoltage permanent:	3N~ 459/265 V AC		
Frequency:	48 – 63 Hz (AC sinus)		
Rated surge voltage:	4 kV		
Overvoltage category:	III		
Output circuit (isolated two-way-switch)			
Rated voltage:	250 V AC		
Switching capacity:	1250 VA (5 A/250 V AC)		
Continuous current:	1250 VA (5 A/250 V AC)		
Fuse protection:	5 A flink		
Serviceable life, mechanical:	15x10 ⁸ switchover cycles		
Serviceable life, electric:	2x10 ⁵ switchover cycles at 1,000 VA resistive load		
Max. switching rate:	max. 6/min at 1,000 VA resistive load max. 60/min at 100 VA resistive load		
Trip delay:	ca. 200 ms		
Pick-up delay (US 1.1D)	0.1 – 10 min		
Accuracy under constant conditions			
– setting accuracy (US 2.1/1.1D):	≤ 5 % of full scale value		
– repeat accuracy:	≤ 2 %		
– temperature effect:	≤ 1 %		
Ambient temperature:	– 25° to + 55 °C		
Terminals:	1 x 0.5 to 2.5 mm ² with/without connector sleeve 1 x 4 mm ² without connector sleeve 2 x 0.5 to 1.5 mm ² with/without connector sleeve 2 x 2.5 mm ² without connector sleeve		
Pick-up torque:	max. 1 Nm		
Mounting position:	optional		
Vibration resistance:	10 to 55 Hz 0.35 mm (IEC 68-2-6)		
Shock resistance:	15 g 11 ms (IEC 68-2-27)		
Standards:	VDE 0110 und VDE 0435		
EMC tests:	EN 61000-6-2 and EN 61000-6-4		
Back-up fuse	≤ 16 A		
Displays:	green LED U/t ON	all 3 voltages ok	
	green LED U/t flashes	time-out indication	
	yellow LED ON/OFF	position of output relay	

All measured inputs have to be connected to one phase each. If no three-phase measurement should be carried out, measured inputs have to be connected to one phase to apply the required voltage to all measured inputs. If a load causes inverse voltage exceeding the threshold value U_s , phase failures cannot be identified.

A neutral conductor must be connected in any case!



E236-US 1.1

2CDC 051 234 F0005



E236-US 2.1

2CDC 051 235 F0005



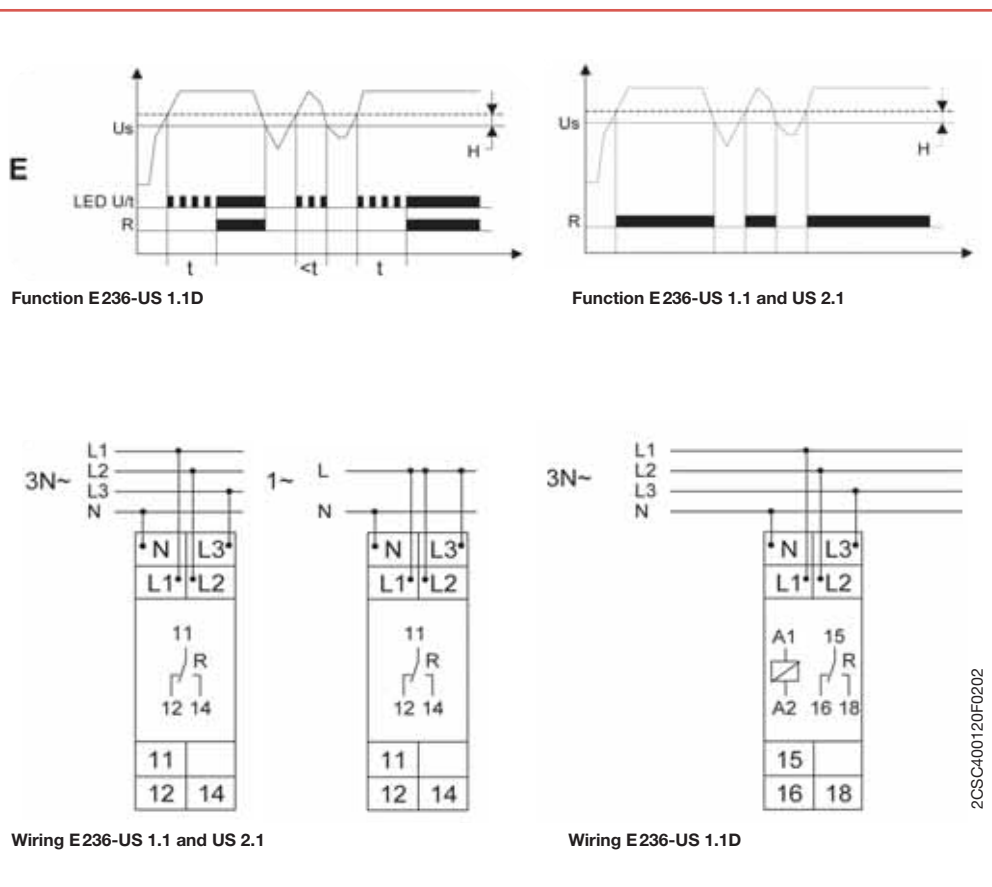
E236-US 1.1D

2CDC 051 236 F0005

Undervoltage monitoring device with pick-up delay E236-US 1.1D

If the measurement of the voltage of all phases connected exceeds the switching threshold U_s , including the hysteresis, the time delay (t) starts to run and the (green LED U/t) flashes. Upon expiry of the time delay (t), the output relay R picks up (yellow LED on, green LED U/t flashes). If the measured voltage of one of the connected phases falls below the switching threshold U_s , the output relay de-energizes (yellow LED is off, green LED U/t is off).

Contact	Order details		Bbn	Price	Price	Weight	Pack
	Type code	Order code	4016779	1 piece	group	1 piece	unit
			EAN			kg	pc.
1 two-way switch	E 236-US 1.1	2CDE165001R2001	651776			0.05	10
1 two-way switch	E 236-US 2.1	2CDE165011R2001	651783			0.05	10
1 two-way switch	E 236-US 1.1D	2CDE165001R2011	651790			0.05	10



2CSC400120F0202