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Datei: SSU34-60HZ_DB_E.DOC

Gez.	Entw.	Gepr.	Reg.	Datum	Ae M	Ausz.	Blatt: 1	Data sheet SSU34/AC... V / 60Hz 3-Phase monitor 55014 - 02 - 57 - 40B
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1 INTRODUCTION

The 3-phase network monitor SSU34/AC...V is an economical and versatile monitoring relay for 3-phase networks. It can reliably monitor both networks with a neutral conductor and those without a neutral conductor. The unit monitors the conductor voltages, the frequency, the symmetry and the direction of rotation. For example, feedback-proof monitoring in the case of motor loads is also ensured.

The undervoltage and overvoltage thresholds can each be set using a dial. The other monitoring criteria are internally linked and their sensitivity can also be set using a dial.

An additional dial is used for setting the alarm delay.

In the case of a 3 phase rotation failure the output will be deactivated without the set time delay.

If the mains voltage is within the tolerances, the green LED lights up and the output relay is activated.

In case of a fault, the red LED lights up, the output relay drops out after the set time delay and the green LED goes out (alarm).

As an output a power changeover contact and a normally closed contact are available.

The unit is available for 69/120V, 120/208V, 138/240V, . 265/460, 277/480V supply.

The housing has pluggable screw terminals. Mounting on support rail 35 or screw fixing is possible, installation width 50 mm.

Availability and specifications subject to change without notice

2 ORDER DESIGNATION

ComatReleco 3-phase monitor	SSU34/AC120V/60Hz SSU34/AC208V/60Hz SSU34/AC240V/60Hz SSU34/AC460V/60Hz SSU34/AC480V/60Hz)
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3 FUNCTION

3.1 Parameters

The three phases of the alternating current supply are monitored according to the following criteria:

- Phase sequence
- Undervoltage
- Overvoltage
- Phase failure
- Phase angle
- Frequency
- Asymmetric phase position/voltage position

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3.2 Possible settings

- Dial "<":(undervoltage)
The switching threshold for symmetric undervoltage
For setting range, see Section 5.2.2
- Dial ">":(overvoltage)
The switching threshold for symmetric overvoltage
For setting range, see Section 5.2.2.
- Dial "Δ" The following parameters are combined on the delta "Δ" dial:
 - Phase angle
 - Frequency
 - Asymmetry
 - Phase failure

No distinction is made between the individual criteria, which can however be set altogether as sensitivity delta "Δ". For values, see Section 5.2.2.

The following parameter is recognized in every case:

- Phase sequence: If the direction of rotation is incorrect, no alarm delay runs.
The alarm is triggered immediately

- Dial "alarm delay"
The alarm delay is set with this dial, i.e. the time which is to elapse from the occurrence of the fault to triggering of the alarm relay.
The reset time t_R cannot be adjusted. For values, see Section 5.2.3.

3.3 Procedure

If a fault is detected, it is immediately indicated visually:

- The red LED "fail" lights up

The alarm delay time (t_{del}) also starts.

If the fault has not been eliminated when this time elapses, the alarm is triggered:

- The relay drops out
- The green LED goes out

If the measured values then drift back into the ideal range, the visual fault display disappears:

- The red LED goes out

and after about 250 ms the normal state is restored:

- The relay operates
- The green LED lights up

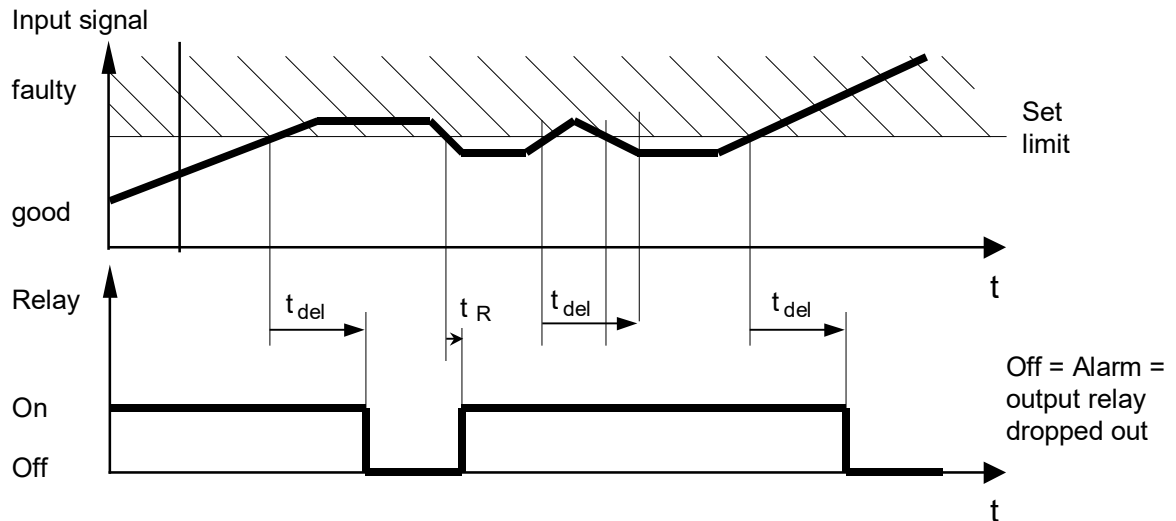
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ComatReleco								55014 - 02 - 57 - 40B	

3.4

Function Diagram



t_{del} : Set delay time

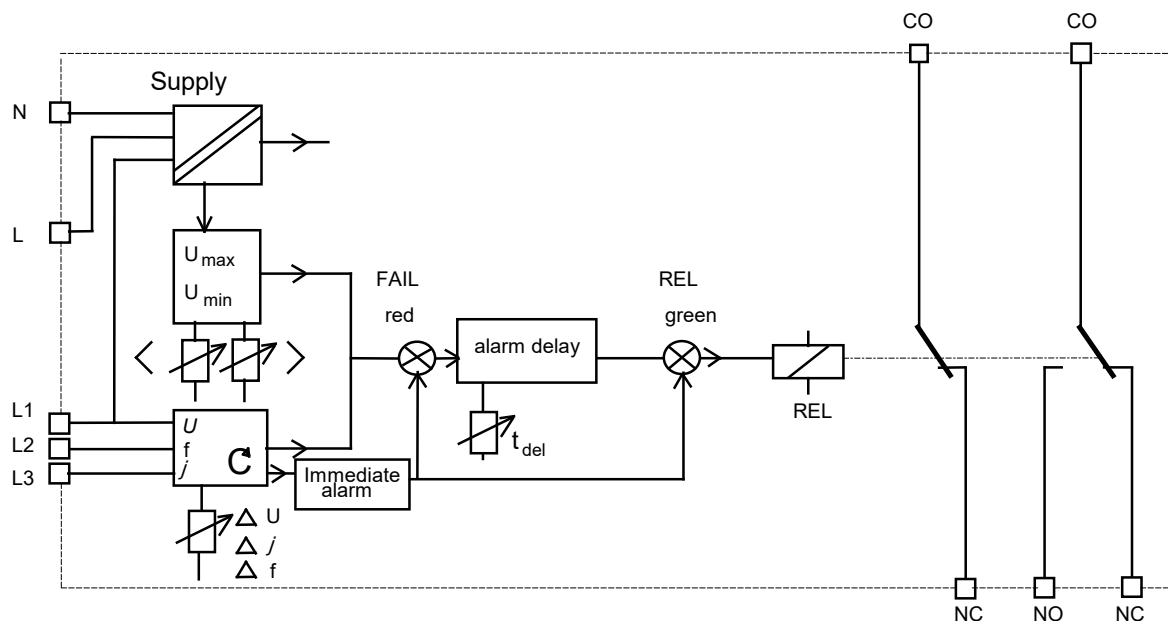
t_R : Reset time

4

CIRCUIT

4.1

Block diagram



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Data sheet

SSU34/AC... V / 60Hz

3-Phase monitor

55014 - 02 - 57 - 40B

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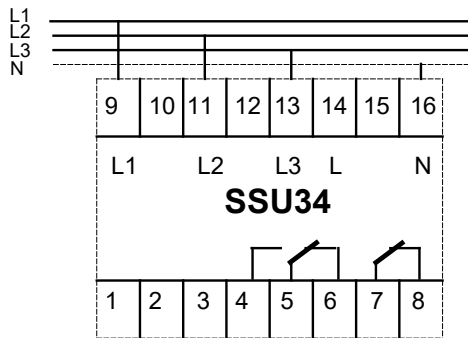
4.2 Pin assignment

1: no connection	9: L1
2: no connection	10: no connection
3: no connection	11: L2
4: NOC	12: no connection
5: COC changeover contact	13: L3
6: NCC	14: L
7: COC normally closed contact	15: no connection
8: NCC	16: N

4.3 Wiring

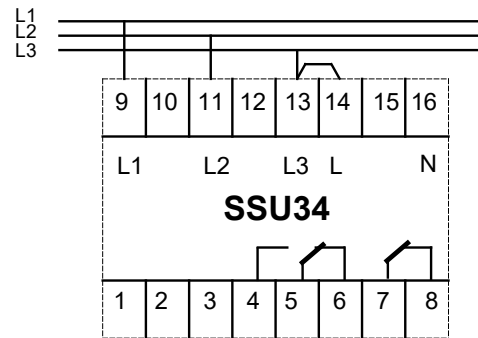
The unit is wired differently for monitoring networks with and without a neutral conductor:

1. Network with neutral conductor



Do not connect L

2. Network without neutral conductor



Do not connect N

Important: The simultaneous connection of L and N or a bridge between L and N may cause damage to the unit!

Not designated terminals should not be connected.

5 TECHNICAL DATA

5.1 General Data

5.1.1 Mechanical data

Case	W50 x H75 x D110 (Mounting pitch according to DIN EN 50022)
Fixing	Mounted on support rail 35 DIN 46 277 or screw fixing
Protection type	Case IP40; connections IP20
Shock resistance	TW80 (20g min)
Vibration resistance	IEC 571
Case material	Noryl SE1 UL94V-1
Weight	about 350g
Connections	Disconnectable screw terminals (unit can be changed without removing wiring; 1 x 2,5mm ² or 2 x 1,5mm ²)

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5.2 Environmental conditions

Storage temperature range	-40°C ... +85°C
Operating temperature range	-10°C ... +60°C
Relative humidity	10% ... 95%, non condensing
Transient voltage protection	IEC 255-4, Appendix E Class III

5.2.1 Working life

Expected working life	>> 75'000h
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5.3 Electrical data

5.3.1 Inputs

Version		AC120V	AC208V	AC240V	AC460V	AC480V
U _{rated} (L1/N) (L1/L2)	∧	69V	120V	138,5V	265,5V	277V
	△	120V	208V	240V	460V	480V
U _{Operation}	∧	42 ÷ 86V	75 ÷ 150V	84 ÷ 173V	160 ÷ 331V	170 ÷ 346V
	△	72 ÷ 150V	130 ÷ 260V	144 ÷ 300V	277 ÷ 575V	288 ÷ 600V
U _{max}	∧	86V	150V	173V	331V	346V
	△	150V	260V	300V	375V	600V
Input current at test inputs				1,5mA		
Input current at supply inputs		140mA	70mA	70mA	25mA	25mA
Power loss		< 5VA	< 5VA	< 5VA	< 5VA	< 5VA

Jumping supply failure, see 5.2.2

5.3.2 Measurement criteria

- Undervoltage threshold (70% ÷ 95%)	∧	48 ÷ 66V	85 ÷ 115V	97 ÷ 133V	186 ÷ 260V	194 ÷ 270V
	△	84 ÷ 114V	148 ÷ 200V	168 ÷ 230V	322 ÷ 450V	336 ÷ 470V
Adjustable on dial "<" Hysteresis 1 ÷						
- Overvoltage threshold (105% ÷ 120%)	∧	72 ÷ 83V	125 ÷ 145V	143 ÷ 166V	270 ÷ 318V	284 ÷ 332V
	△	126 ÷ 144V	216 ÷ 250V	250 ÷ 288V	470 ÷ 550V	490 ÷ 575V
Adjustable on dial ">" Hysteresis 1 ÷ 25V						

- Phase angle, frequency,
asymmetric phase position:

The fault signals are summed.

If the fault sum exceeds a certain value (settable with the sensitivity setting delta D), an alarm is triggered (fault). The specified scale values are applicable for individual faults.

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- Values:

Version	AC120V	AC208V	AC240V	AC460V	AC480V
ΔU :(based on U_{L1-N})	5 ÷ 25V	10 ÷ 50V	10 ÷ 50V	20 ÷ 100V	20 ÷ 100V
(based on U_{L1-L2})	9 ÷ 43V	17 ÷ 87V	17 ÷ 87V	35 ÷ 173V	35 ÷ 173V
$\Delta\phi$:	5 ÷ 24°	5 ÷ 24°	5 ÷ 24°	4 ÷ 21°	4 ÷ 21°
Δf :	3 ÷ 22Hz	3 ÷ 22Hz	3 ÷ 22Hz	3 ÷ 19Hz	3 ÷ 19Hz

- Sequence: L1, L2, L3; If two phases are interchanged, an alarm is triggered immediately without any alarm delay (relay time ≤ 50 ms).

- Phase failure: If one or more phases fail, an alarm is triggered (fault).
(If this is a phase which is also used for the supply, the alarm is triggered immediately $t \approx 200$ ms.)

Jumping supply failure (supply phase)

$t \leq 100 \text{ ms}/V_{\text{RATED}} = 10$ half-waves

5.3.3 Time characteristics

Alarm delay t_{del}	200ms ^(+0%,-25%) ÷ 5s ^(+25%,-0%)	(Rel off)
	Settable on dial t_{del}	
Alarm reset time t_{R}	100ms ÷ 400ms	(Rel on)
Minimum alarm signal	100ms ÷ 200ms	(Rel dropped out)
Minimum fault signal	50ms ÷ 200ms	
Phase failure reaction time	≤ 50 ms	

5.3.4 Outputs

Contacts	1 changeover contact Ag alloy 1 normally closed contact Ag alloy
Switching voltage range	(12) - 250V
Switching current	5A (15A, 20ms)
Switching capacity	1250VA / 150W
Working life	$5 \cdot 10^6$ (mechanical cycles) $\geq 10^5$ at 5A, 250V

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6 OPERATION

Four dials are available for the operator (<; >; Δ; alarm delay).

<	:	Undervoltage threshold
>	:	Overvoltage threshold
Δ	:	Sensitivity (U, f, φ)
alarm delay	:	Alarm delay time

The red LED "fail" indicates a faulty input signal.

The green LED shows the relay state.

This LED is switched off in the case of an alarm, when the relay has dropped out.

If only the green LED lights on, the supply voltage is between the preestablished range.

7 STANDARDS, APPROVALS

Vibration resistance	IEC 571 ; 68-2-6-FC
Shock resistance	TW80 (20g)
Immunity to interferences	IEC 255-4 Appendix Class III, IEC 801-4
Conformity, Standards	CE, SEV, UL, CSA

8 CASE, DIMENSIONS

Case N

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