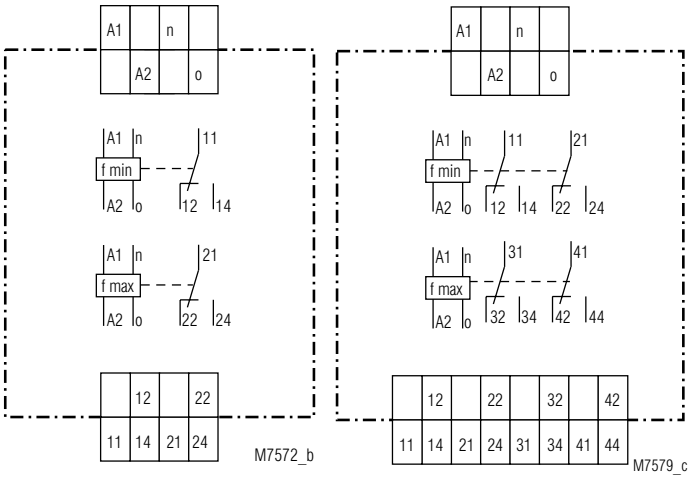
Over- and Underfrequency relay IP 9141, IR 9141 varimeter

0224438

- According to IEC 255, EN 60 255, VDE 0435 part 303
- Measuring ranges from 0,5 to 1000 Hz
- Separate settable response value for f_{min} and f_{max}
- Optionally fixed response value for f_{min} and f_{max}
- Fixed hysteresis
- Optionally settable hysteresis
- Settable functions:
  - Position 1: open circuit operation / automatic reset
  - Position 2: open circuit operation / manual reset
  - Position 3: closed circuit operation / automatic reset
  - Position 4: closed circuit operation / manual reset
- Optionally without settable functions
- Optionally start up delay 0 ... 10 s
- LED indicators for auxiliary supply, f_{min} and f_{max}
- 1 or 2 changeover contacts for f_{min} and f_{max}
- Width IP 9141: 70 mm
  Width IR 9141: 105 mm

Circuit diagrams



Approvals and marking

CE

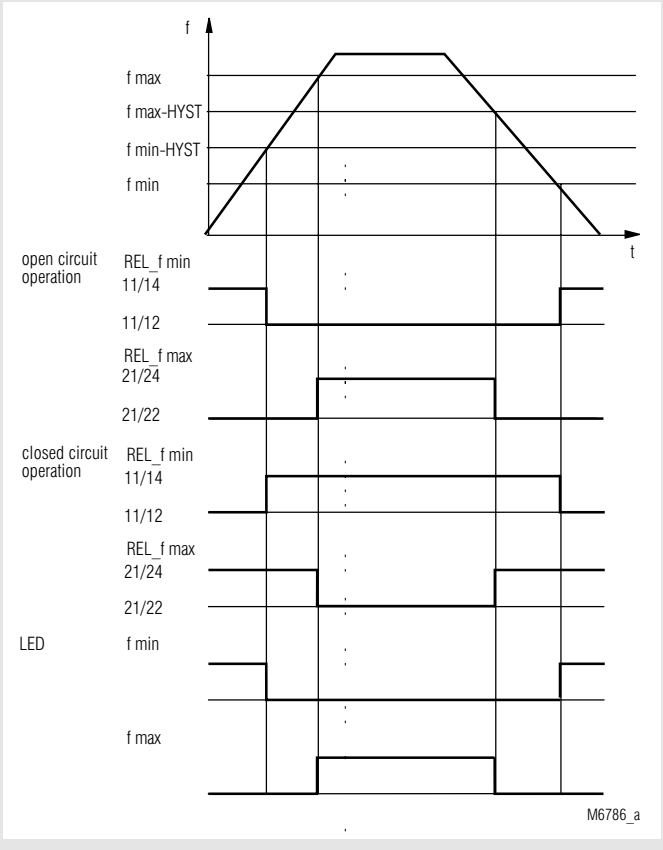
Applications

Monitors over- and underfrequency in generator systems.

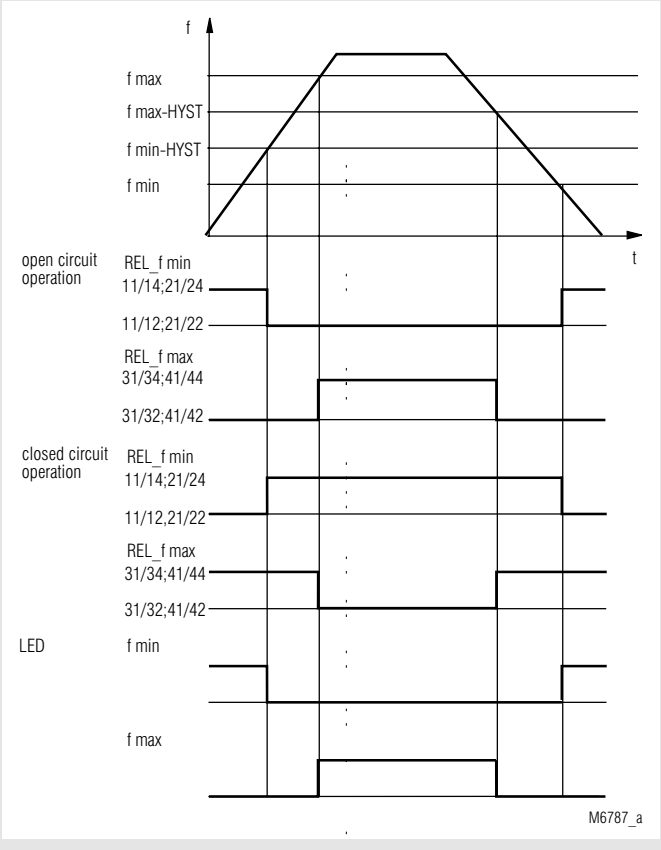
Indicators

LED f_{min}:	underfrequency
LED f_{max}:	overfrequency
LED A1/A2:	auxiliary supply

Function diagram IP 9141



Function diagram IR 9141



Technical data

Measuring circuit

Nominal voltage U_N:	AC 127, 230, 400, 690 V
Voltage range:	0,65 ... 1,1 U_N
Response value:	45 ... 65 Hz settable for f_{min} and f_{max} or fixed 49 Hz for f_{min} and 51 Hz for f_{max} (others on request)
Hysteresis	
at IP 9141.38, IP 9141.38/0_ _ IP 9141.38/2_ _:	
f_{min}:	1,01 of response value
f_{max}:	0,99 of response value
at IP 9141.38/1_ _, IR 9141.39/1_ _:	
f_{min}:	1,0 ... 1,2 of response value
f_{max}:	0,8 ... 1,0 of response value
Galvanic separation of the measuring circuit to:	Auxiliary circuit and output
Influence of auxiliary supply:	< ± 0,1 % at 0,8 ... 1,1 U_N
Temperature influence:	< ± 0,1 % / K

Auxiliary circuit

Auxiliary voltage U_H:	AC/DC 24 ... 60 V galvanic separated AC 127, 230, 400, 690 V
Voltage range:	0,8 ... 1,1 U_H
Nominal consumption:	max. 2,2 W
Frequency range:	50 ... 60 Hz
Start up delay:	0 ... 10 sec activated by aux. supply
Max. buffer time at loss off aux. supply:	30 ms

Output

Contacts		
IP 9141.38:	1 changeover contact for f_{min} 1 changeover contact for f_{max}	
IR 9141.39:	2 changeover contact for f_{min} 2 changeover contact for f_{max}	
Thermal current I_{th}:	4 A	
Switching capacity		
to AC 15		
NO contact:	3 A / AC 230 V	EN 60 947-5-1
NC contact:	1 A / AC 230 V	EN 60 947-5-1
Electrical contact life:		EN 60 947-5-1
to AC 15 at 1 A, AC 230 V:	> 1,5 x 10^5 switching cycles	
Short circuit strength max. fuse rating:	4 A gL	EN 60 947-5-1
Mechanical life:	> 100 x 10^6 switching cycles	

General data

Operating mode:	Continuous operation	
Temperature range:	0 ... + 60°C	
Clearance and creepage distances		
overvoltage category / contamination level:		
Aux. supply, measuring circuit, contacts:	6 kV / 2	IEC 60 664-1
Contact, contact:	4 kV / 2	IEC 60 664-1
EMC		
Electrostatic discharge:	8 kV (Luftentladung)	EN 61 000-4-2
HF irradiation:	10 V / m	EN 61 000-4-3
Fast transients:	2 kV	EN 61 000-4-4
Surge voltages between		
wires for power supply:	1 kV	EN 61 000-4-5
between wire and ground:	2 kV	EN 61 000-4-5
Interference suppression:	Limit value class B	EN 55 011
Degree of protection:	Housing: IP 40	EN 60 529
	Terminals: IP 20	EN 60 529
Housing:	Thermoplastic with V0 behaviour according to UL subject 94	

Technical data

Vibration resistance:	Amplitude 0,35 mm frequency 10 ... 55 Hz	EN 60 068-2-6
Climate resistance:	0 / 060 / 04	EN 60 068-1
Terminal designation:	EN 50 005	
Wire connection:	2 x 2,5 mm² solid or 2 x 1,5 mm² stranded ferruled DIN 46 228-1/-2/-3	
Wire fixing:	Flat terminals with self-lifting clamping piece	EN 60 999
Mounting:	DIN rail	EN 50 022
Weight		
IP 9141:	290 g	
IR 9141:	360 g	

Dimensions

Width x height x depth	
IP 9141:	70 x 90 x 59 mm
IR 9141:	105 x 90 x 59 mm

Standard type

IP 9141.38 AC 230 V AC 230 V 45 ... 65 Hz

Article number:	0047813
• 1 changeover contact for f_{min} and f_{max}	
• Auxiliary voltage U_H:	AC 230 V
• Nominal voltage U_N:	AC 230 V
• Setting value:	45 ... 65 Hz, settable
• Fixed hysteresis	
• With selectable function and reset button	
• Width:	70 mm

Variants

IP 9141.38/ _ _ _

- 0 with function setting and reset button
  1 closed circuit operation fixed function no reset button
  2 open circuit operation fixed function no reset button
- 0 without start up delay
  1 with start up delay
- 0 settable response value / fixed hysteresis
  1 settable response value / settable hysteresis
  2 fixed response value / fixed hysteresis

IR 9141.39/101 functions see above

Ordering example for variants

IP 9141 .38 /_ _ _ AC 230 V AC 400 V 45 ... 65 Hz

- Measuring range
- Nominal voltage
- Auxiliary voltage
- Variant, if required
- Contact
- Type

Application example