

VisiVolt™ Passive Voltage Indicator

First Passive Indicator of Voltage Presence for Indoor and Outdoor Use. Nominal voltage: 3 kV – 36 kV. ABB's VisiVolt™ is a compact and easily installable indicator of voltage presence applicable on outdoor and indoor medium voltage systems. This technical innovation is based on the liquid-crystal technology and neither employs any electronic circuit nor needs any power supply, what makes it a robust and durable device. VisiVolt™'s large reflective display provides good visibility in all lighting conditions – from dim indoor light to bright outdoor sunlight.



Key product features

- Applicable on any unshielded medium voltage system; for permanent installation
- For nominal system voltages from 3 kV to 36 kV
- Information on voltage presence status of the system available all the time
- Outdoor and indoor application
- Good visibility in all lighting conditions
- Economical solution
- Maintenance free; passive device – no power supply needed
- Easy to install
- Can be installed on:
 - busbars
 - conductors
 - unshielded, naked or insulated,
 - of any typical diameter or cross section

Functions

Check of voltage status

Without using any additional equipment, the personnel can check the status of voltage presence.

Easier fault finding

By immediate visual information on voltage status at every point of the system, application of VisiVolt™ makes fault finding easier and quicker.

Additional warning function

Contributes to a higher level of safety of operating and servicing the system. Provides additional and independent indication of presence of dangerous voltage and, by active warning the personnel, can prevent accidents and the related costs and other consequences.

Operation

VisiVolt™ indicates the presence of voltage by displaying a large, well visible lightning arrow sign on its LCD. VisiVolt™ indication is based on its sensitivity to the electric field around the live conductor, on which it is installed.

In 3-phase systems VisiVolt™ indicates the presence of both phase-phase and phase-ground voltages. In 1-phase systems VisiVolt™ indicates the presence of phase-ground voltage. VisiVolt™ indicates presence of voltage when it is greater or equal to 45% of nominal voltage value in 3-phase systems or 78% of nominal voltage value in 1-phase systems (voltage thresholds required by standards IEC-61958 and IEC-61243).

Two types, VV-A and VV-B are available for two ranges of nominal voltages.

VisiVolt™ indicator is a completely passive device (powered by the electric field surrounding the energized conductor, on which it is installed) and is entirely maintenance free.

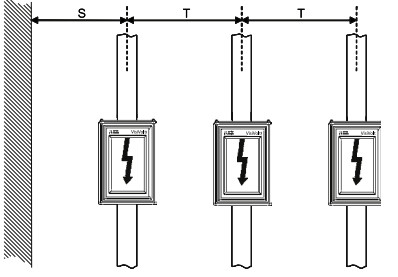
Specification & dimensions

VisiVolt™ type		VV-A	VV-B	
3-phase system	Nominal voltage (Un)	kV	3.0 ÷ 6.0 ¹⁾ 6.0 ÷ 15.0	13.8 ÷ 36.0
	Rated voltage, max.	kV	3.6 ÷ 17.5 ²⁾	17.5 ÷ 40.5 ²⁾
	Threshold voltage (p-g and p-p) ^{3) 4)}		> 0.6 kV < 45% Un	> 1.5 kV < 45% Un
1-phase line	Nominal voltage (Un p-g) ³⁾	kV	4.8 ÷ 8.0	8.0 ÷ 20.0
	Threshold voltage (p-g) ³⁾		> 1.0 kV < 78% Un	> 1.5 kV < 78% Un
Nominal frequency		Hz	50 – 60	
Response time		s	< 1 at temperature –20°C and above < 3 at temperature –30°C < 10 at temperature –40°C	
Short-time (symmetrical) withstand current (1s) ⁵⁾		kA	63	
Peak withstand current ⁵⁾		kA	164	
Operation temperature range		°C	–40 ÷ +85	
Physical dimensions		mm	H: 92 × W: 63 × D: 38	
Net weight		g	109	

- ¹⁾ On not insulated (bare) circular-section conductors and on bars of width up to 30mm
²⁾ Depending on pole distance (see recommended minimum clearances)
³⁾ p-g voltage = phase-ground voltage; p-p voltage = phase-phase voltage
⁴⁾ For pole distance ranges within limits given in installation and operation instructions
⁵⁾ Rated withstand currents given are valid to VisiVolt™ indicators only and do not supersede the specifications of the system the indicators are installed on.

Allowable pole distances

Nominal voltage Un (p-p)	Maximum allowed pole distance T max
kV	mm
3.0 ÷ 3.3	110
4.16 ÷ 4.8	135
6.0 ÷ 6.9	400
≥ 8.3	without limit



Allowable clearances

Rating		Power frequency withstand voltage 50Hz 1min *		Impulse withstand voltage 1,2/50µs *		Recommended minimum clearances *	
IEC	ANSI	IEC	ANSI	IEC	ANSI	T min	S min
		kV r.m.s. value		kV peak value		mm	
3.6		10		40			100
7.2	4.8	20	19	60			120
12.0	8.3	28		75			140
17.5		38		95			160
24.0	15.5	50		95	110		210
24.0	27.0	50	60	125			230
			70		150		320
36.0		70		145			290
				170			330
40.5	38.0	80		165	150		320
		80	95	190		360	400

* Minimum clearances and withstand voltages given are valid to VisiVolt™ indicators only and do not supersede the requirements and specifications for the system the indicators are installed on. Withstand voltages given correspond to the minimum recommended clearances; larger clearances will typically result in larger withstand voltages.



1. Pilot installation on ENION S.A. distribution station, Krakow, Poland |
 2. Status – voltage on | 3. Status – voltage off.

! Passive Voltage Indicator only shows voltage presence above a defined threshold value and any lack of indication of voltage presence does not prove voltage absence. To ensure that the system is de-energized and safe to touch, approved test means and safety measures required by the relevant standards and safety procedures must be used prior to any access or work on the device. Approval of VisiVolt™ application in power distribution systems has been certified by internationally recognized certification laboratory. The prototypes and pilot products of the device have been presented earlier under the names „PVI” and „PassVI”.

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