CLYDESDALE
Powering the Future

DATASHEET: CLY 300 2 XXXX Overhead Line Voltage Detector

CLY 300 2-xxxx. MK1 version for utility companies in Great Britain

Used for Checking whether an overhead power line is live or dead up to 69 kV, the voltage range is typically determined by a ratio of 1:3 (i.e. 11-33 kV). The TAG 200 operates on all the most common frequency levels although the specific frequency level has to be specified at the time of ordering (unless specified the UK specification of 50 Hz will be assumed).

If the presence of a live voltage is detected this is notified to the user by both a visual (red flashing LED) and an audible indication. If there is no live voltage (above a pre-programmed "threshold" value) then a constant green LED operates. In the interests of safety and good practice the built in "All-Check" test feature checks all of the electronic circuitry as well as the battery level (one 9v alkaline battery supplied with each unit) each and every time the unit is turned on. Upon completion of this self check process a continuous green LED is displayed.

The Robust poly-carbonate housing ensures protection of the electronic circuitry and the TAG 200 can be used in all weather conditions and in temperatures ranging from -25°C to +55°C. Lightweight and compact the TAG 200 has dimensions of length 188mm, diameter 49mm and a weight of just 380g. Supplied in its own steel carry case complete with a hook and a Y electrode there is also a storage position for a spare battery (not supplied).

Compliance with IEC 61243-1

The MK1 version of this device as approved by British utility companies was developed to be compliant with the French standard NFC 18311. This device has a long history of approved usage within GB utility companies.
Subsequently an international standard IEC 61243-1 was also developed. To ensure its market leading position in this field, FAMECA designed a detector that expands its performance to include this IEC standard. This MK2 device is also available to non-GB utilities (typically Northern and Southern Ireland) as well as by special request for contract customers etc..

MK1

MK2

Part Number	Voltage Range	Device type	Shell colour
CLY 300 2-1133	11-33kV	MK1 – Standard GB detector	Blue
CLY 300 2-1040	10-40kV	MK2 – Standard NIE / ESB detector	Yellow
CLY 300 2-0103	1-3kV	MK2	White
CLY 300 2-0311	3-11kV	MK2	White

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Use of Voltage Detectors

Voltage detectors are primarily used to check the absence of voltage before applying earthing to a circuit and beginning works. This device must therefore indicate whether or not voltage is present. Previous detectors with wide range detection or proximity detection required a sound knowledge of the network to determine the presence of nominal voltage or induction. Electronic voltage detectors use a capacitive, contact based measurement, a pre-set threshold voltage and provide a simple and safe “go” / “no go” indication.

How to choose a Voltage Range

Low disturbance area: A wide range voltage detector can be used.
The threshold value is selected as follows if following IEC 61243-1:

Ut = threshold voltage
U min = lowest voltage of the range
U max = highest voltage of the range

Threshold limits:	0.1 U max < Ut < 0.45 U
Example:	Working Voltage Range = 11 kV to 33 kV
Threshold limits:	3.3 kV < Ut < 4.95 kV

Threshold Ut ≅ 4.1 kV (typical for a GB device)

High disturbance area: i.e. on long double circuit overhead line. In some specific cases the induced voltage level and strong electrical interference require a higher threshold voltage. In this case the IEC standard allows a voltage detector with a narrow range or even single voltage, to improve the resolution:

Threshold limits:	0.15 Umax < Ut < 0.40 Umin
Example:	Working Voltage Range = 33 kV
Threshold limits:	4.95 kV < Ut < 13.2 kV

Threshold Ut ≅ 9 kV

Multi Range Voltage Detector TAG 2000

An electronic voltage detector (TAG 200 type) is only able to cover a limited voltage range and so linesmen are sometimes obliged to carry several detectors to cover the broad spread of voltages across their network. The multi-range voltage detector TAG2000 is designed to overcome this problem. Please ask for TAG 2000 data sheet for further details.