

Title (en)

Switching arrangement for switching on and off major consumer power in an alternating current circuit with several spaced switches for switching-on power for preset periods determined by an electric circuit.

Title (de)

Schaltungsanordnung zur Ein- und Ausschaltung grösserer Verbraucherleistungen in einem Wechselstromnetz mit Einschaltstellen für eine durch einen Stromkreis definierbare Zeitdauer.

Title (fr)

Dispositif pour enclencher et déclencher de grandes puissances de consommation dans un réseau alternatif avec des postes d'enclenchement pour une durée réglable par un circuit de courant.

Publication

EP 0087675 A1 19830907 (DE)

Application

EP 83101448 A 19830216

Priority

DE 3207155 A 19820227

Abstract (en)

1. Circuit arrangement for the connection and disconnection of relatively heavy load powers in an a.c. network having a plurality of spatially separated loads switchable via glow-lamp buttons - i.e. push-buttons in parallel to a glow-lamp with an in-series resistor - as switch-on locations on and off for a time period definable by a circuit and for use with 3- and 4-wire installation, with and without capability of resetting, and having a remanence relay, and in the load circuit a working contact operable alternately for the state of operation "ON" or for the state of operation "Off" of the load circuit characterized in that (a) the energizing winding of the remanence relay (1) is connected to one pole (7, 8; 9) of the a.c. network directly and to its other pole (22, 26; 39) via two current paths connected in parallel to one another, one current path cooperating with the glow-lamp-button and a home contact (17) or an electronically controlled switch to provide energization in one direction, while the second current path, controlled by the timing circuit, provides energization in the opposite direction, and (a1) the timing circuit, functioning as a time-determining member for delaying release/prolonging the "on" condition of the load circuit, comprises a frequency divider controlled by a master oscillator to determine the elapse of time digitally, power being supplied to the timing circuit from the a.c. network via a rectifier arrangement, and (a2) the second current path comprises a thyristor (63) controlled by a release signal of the timing circuit and a diode (55) of the same conducting direction, if necessary with the interposition of the main contact (40), and b) the remanence relay (1) is reversible within periods of the oppositely directed half-waves of the a.c. which lie reversibly within the range of 135 degrees to 225 degrees and 315 degrees to 45 degrees electrically symmetrically in relation to the current crossover, while (b1) the energizing winding of the remanence relay (1) and its magnetic circuit are so dimensioned that the energization of the remanence relay (1) in one or the opposite direction requires a current which is greater than 0,75 times the peak current (b2) or alternatively the amplitude values of the mains voltage, together with their first time derivation values, are so connected in a logic component that at each of its two outputs a release signal is delivered which acts upon a circuit with energizing winding timing circuit when the push button switch is actuated to switch the loads on or off, voltages being used in a combinatorial circuit which are derived as follow : (b2.1) the voltage derived from the alternating voltage (113) and 0,75 times the value (inputs 114, 115) of the positive rectified peak value thereof, (b2.2) the voltages derived from the full-wave rectified first time derivation (108) and 0,5 times the value of the positive rectified peak value (120) thereof, (b2.3) and the voltage derived from the alternating voltage (113) and 0,75 times the value of the negative rectified peak value thereof (at the input 115).

Abstract (de)

Bei einem Schaltgerät für die Ein- und Ausschaltung größerer Verbraucherleistungen in einem Wechselstromnetz für eine definierbare Zeitdauer, insbesondere für wahlweisen Einsatz bei Dreileiter- oder Vierleiter-Installationen mit mehreren räumlich getrennten Verbrauchern wird das Gerät dadurch realisiert, daß die Erregungswicklung eines Remanenzrelais (1), das wechselweise schließbare Arbeits- 140 und Ruhekontakte (17) aufweist, an das Wechselstromnetz in Serie mit zwei parallel-geschalteten Strompfaden (64, 69) die durch eine Verzögerungs-Baugruppe in Verbindung mit einem Taster gesteuert werden, wechselweise anschließbar ist und dadurch die Betriebszustände des Remanenzrelais umschaltbar sind, und dass diese Verzögerungs-Baugruppe eine Einheit zur Erzeugung von Steuersignalen durch logische Verknüpfung der Wechselspannung und ihrer ersten zeitlichen Ableitung bei Sperrung von Phasenabschnitten der Wechselspannung und/oder durch einen Zeitkreis mit digitaler Bestimmung des Zeitablaufs durch einen von einem Master-Oszillator gesteuerten Frequenzteiler enthält.

IPC 1-7

H01H 9/56; H01H 47/22

IPC 8 full level

H01H 9/56 (2006.01); **H01H 47/22** (2006.01)

CPC (source: EP)

H01H 9/56 (2013.01)

Citation (search report)

- [A] DE 2816592 A1 19791025 - BBC BROWN BOVERI & CIE
- [A] DE 2740059 A1 19780524 - LANDIS & GYR GMBH
- [A] AT 330880 B 19760726 - HELIOWATT WERKE
- [A] DD 112546 A1 19750412

Designated contracting state (EPC)

BE CH DE FR GB IT LI SE

DOCDB simple family (publication)

EP 0087675 A1 19830907; EP 0087675 B1 19871007; DE 3207155 A1 19830915; DE 3207155 C2 19910725; DE 3374036 D1 19871112; ES 520114 A0 19831201; ES 8401277 A1 19831201

DOCDB simple family (application)

EP 83101448 A 19830216; DE 3207155 A 19820227; DE 3374036 T 19830216; ES 520114 A 19830225