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# International Standard



# 4082

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## Road vehicles — Motor vehicles — Flasher units

*Véhicules routiers — Automobiles — Centrales clignotantes*

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4082 was developed by Technical Committee ISO/TC 22, *Road vehicles*, and was circulated to the member bodies in July 1979.

It has been approved by the member bodies of the following countries :

|               |                        |                |
|---------------|------------------------|----------------|
| Australia     | Japan                  | Spain          |
| Austria       | Korea, Dem. P. Rep. of | Sweden         |
| Belgium       | Korea, Rep. of         | Switzerland    |
| France        | Netherlands            | United Kingdom |
| Germany, F.R. | Romania                |                |
| Italy         | South Africa, Rep. of  |                |

The member bodies of the following countries expressed disapproval of the document on technical grounds :

Canada  
Czechoslovakia

# Road vehicles — Motor vehicles — Flasher units

## 1 Scope

This International Standard defines the electrical characteristics with which flasher units for motor vehicles shall comply when submitted for acceptance.

## 2 Field of application

This International Standard applies to flashers intended for use on motor vehicles (term 3.1 of ISO 3833) with 12 V or 24 V systems, which may or may not be equipped for a towed vehicle (term 3.2 of ISO 3833).

It can be applied to motorcycles.

It is not applicable to two-level luminous intensity devices.

There are two classes for both 12 V and 24 V systems :

- **Class A** : Standard applications;
- **Class B** : Heavy duty applications.

## 3 References

ISO 303, *Road vehicles — Installation of lighting and light signalling devices*.<sup>1)</sup>

ISO 3833, *Road vehicles — Types — Terms and definitions*.

## 4 General

### 4.1 Inscriptions

Each flasher shall bear, clearly legibly and indelibly, the trade name or mark of the manufacturer, the rated voltage, and the identification numbers of the terminals provided according to table 1, and also the wattages of the lamps for which the flasher is designed.

Table 1 — Identification of the flasher unit terminal

| Identification number of the terminals <sup>1)</sup> | Allocation                                                                                        |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| 1                                                    | Current supply                                                                                    |
| 2                                                    | To the turn signal switch                                                                         |
| 3                                                    | To the pilot lamp 2                                                                               |
| 4                                                    | Common return                                                                                     |
| 5                                                    | To the pilot lamp 1                                                                               |
| 6                                                    | To the pilot lamp 3                                                                               |
| 7                                                    | “Off” circuit of the operational tell-tale                                                        |
| 8                                                    | Return from the turn signal switch, left side                                                     |
| 9                                                    | Return from the turn signal switch, right side                                                    |
| 10 <sup>2)</sup>                                     | To the left direction indicator lights (motor vehicle)                                            |
| 11 <sup>2)</sup>                                     | To the right direction indicator lights (motor vehicle)                                           |
| 12                                                   | To the left direction indicator lights (towed vehicle)                                            |
| 13                                                   | To the right direction indicator lights (towed vehicle)                                           |
| 14                                                   | To the left supplementary side direction indicators on the motor vehicle and/or the towed vehicle |
| 15                                                   | To the right supplementary side direction indicators on the motor vehicle and/or towed vehicle    |
| 16                                                   | To the turn signal switch, auxiliary circuit for the towed vehicle                                |

1) Other terminal identifications are allowed.

2) When front and rear direction indicator lights of a motor vehicle are individually connected to the flasher, the corresponding terminals shall each have the same identification number.

1) At present at the stage of draft. (Revision of ISO/R 303-1963.)

## 4.2 Functions

The functions of the flashers may be the following :

#### 4.2.1 Flasher exclusively for direction indicator lights.

#### 4.2.2 Flasher exclusively for hazard warning signalling.

#### 4.2.3 Combined flasher for direction indicator lights and for hazard warning signalling.

### 4.3 Conditions of application

The conditions of application may be the following :

#### 4.3.1 Motor vehicle not equipped with devices to draw towed vehicles.

**4.3.2** Motor vehicle equipped with devices for drawing one towed vehicle only.

**4.3.3 Motor vehicle equipped with devices for drawing two towed vehicles.**

**4.3.4** Motor vehicle equipped with devices for drawing only one towed vehicle, with two-circuit flasher.

**4.3.5** Motor vehicle equipped with devices for drawing two towed vehicles, with two-circuit flasher.

## 5 Electrical characteristics

### 5.1 Working voltage

The working voltage is the voltage existing between points D and E of the test circuit according to 5.3, the flasher being short-circuited.

## 5.2 General test conditions

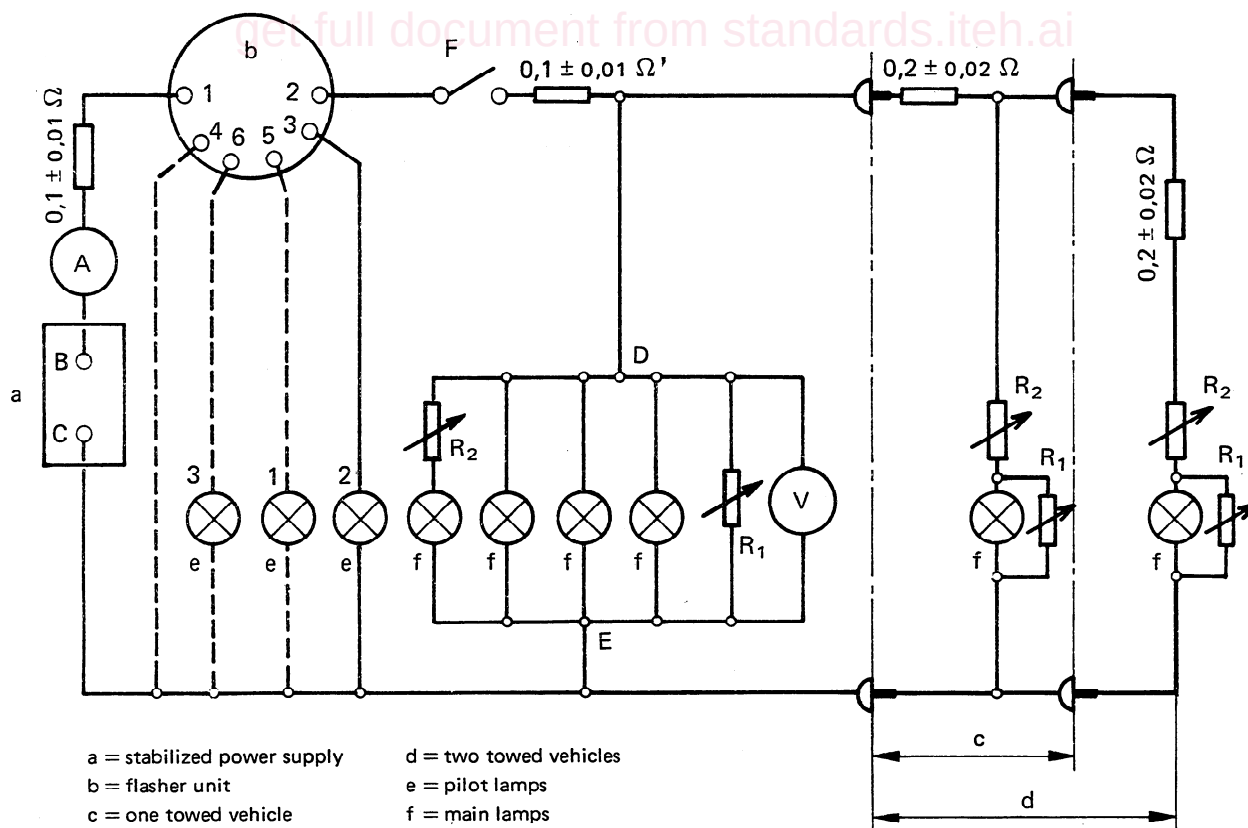
If not otherwise specified, the flasher shall be tested in a room having an ambient temperature of  $23 \pm 5$  °C, at a working voltage of 13 V or 26 V.

The flashers shall be tested in the position (or positions) indicated by the manufacturer.

### 5.3 Test circuitry and equipment

### 5.3.1 Wiring diagram

The resistances in the circuitry shall have the values indicated in the wiring diagram shown in figure 1. The resistances of the cables and the ammeter are included in the resistances indicated in the wiring diagram. To check these resistances, the flasher and the filament lamps shall be short-circuited by two shunts with a resistance not exceeding  $0,005 \Omega$  each.



**Figure 1 — Wiring diagram for the testing of flashers (example for a flasher with one pilot circuit)**

### 5.3.2 Filament lamps

Only filament lamps according a forthcoming IEC Publication shall be used. This does not apply to the pilot lamps when they are not connected in parallel to the main lamps.

### 5.3.3 Measuring equipment

The measuring equipment used to measure the flashing frequency, the "on"-time, the starting time, and the voltage drop in the flasher, shall not disturb the circuit.

### 5.3.4 Tests

The stabilized power supply used for the measurements shall comply with the following requirements :

#### 5.3.4.1 For all tests, except for the test conducted according to 5.16 :

- the stabilized power supply shall be capable of supplying the steady load current continuously and the inrush current, necessary for the tests;
- the voltage between B and C (see figure 1) shall not deviate by more than 1,0 V when the load is raised from 0 to the maximum value (inrush current included). The voltage variation shall not exceed 370 mV after 100  $\mu$ s;
- static regulation : the voltage between B and C (see figure 1) shall not deviate by more than 2 % with changes in static load from 0 to the maximum stabilized value (not including inrush current), or for static input line voltage variations;
- ripple voltage : maximum 75 mV, peak to peak.

#### 5.3.4.2 For the durability test (see 5.16) :

- voltage between B and C (see figure 1) 14 V or 28 V and 13 V or 26 V according to the mode of use of the flasher (see 5.16.1 and 5.16.2);
- the voltage between B and C (see figure 1) shall not deviate by more than 1,0 V when the load is raised from 0 to the maximum load (inrush current included); the voltage variation shall not exceed 370 mV after 10 ms;
- static regulation : the voltage between B and C (see figure 1) shall not deviate by more than 2 % with changes in static load from 0 to the maximum load (not including inrush current), or for static input line voltage variations;
- ripple voltage : maximum 300 mV, peak to peak.

### 5.4 Adjustments

The voltage at the terminals D and E of the filament lamps shall be adjusted to 13,5 V or 28,0 V after the flasher has been short-circuited by a shunt according to 5.3.1.

The lamps used for the tests shall be selected so that the sum of the wattages does not deviate by more than + 2 % and – 6 % from the sum of the corresponding mean wattage values at 13,5 V or 28 V.

The current to obtain the electrical load of the motor vehicle and, if applicable, of the towed vehicle (or towed vehicles) shall be adjusted to a precision of 0,5 % of the sum of the corresponding mean wattage values at test voltage according to the IEC Publication, by adjusting one of the trimmer resistors  $R_1$  or  $R_2$ , the other being neutralized. The filament lamps for the auxiliary side direction indicators, when applicable, shall be included. The filament lamps of the pilot indicators shall also be included when they are connected in parallel to the main lamps. The adjustments shall be made individually for each (simulated) vehicle.

For the tests, the power supply shall be so adjusted to obtain the voltages specified at the terminals D and E at the different test temperatures without re-adjustment of the trimming resistors  $R_1$  or  $R_2$ .

#### 5.4.1 The "operating" tell-tales shall be provided and connected in the test circuit as indicated by the manufacturer.

#### 5.4.2 In the case of functioning for hazard warning signals, an additional filament lamp shall be provided corresponding to the pilot lamp for the hazard warning signal according to the indications of the manufacturer.

### 5.5 Starting time

#### 5.5.1 By convention, the following terms apply :

- beginning of the current "on"-time is the moment when, starting from a voltage equal to or less than 3 V (or 6 V), the working voltage reaches 11 V (or 22 V).
- beginning of the current "off"-time is the moment when, starting from a voltage equal to or exceeding 11 V (or 22 V), the working voltage reaches 3 V (or 6 V).

#### 5.5.2 The beginning of the first current "on"-time shall be within not more than 1,0 s after having closed the switch F at a working voltage of 13 V or 26 V, adjusted before.

#### 5.5.3 The period of time for the first current "on"-time shall be at least 0,2 s.

#### 5.5.4 The beginning of the first current "off"-time shall be within not more than 1,5 s after having closed the switch F at a working voltage of 13 V or 26 V, previously adjusted.

#### 5.5.5 The requirements of 5.5.2, 5.5.3 and 5.5.4 shall be complied with on the basis of an average of three starts which shall be separated by a cooling interval of at least 5 min. The same requirement shall be complied with for one start only after 5 min continuous operation.