DISCONNECTION TIMES: TABLE 41.1

DOES EVERY SOCKET IN A HOUSE NEED AN RCD?

411.3.2 sends you to **Table 41.1**, which gives the **maximum disconnection times for final circuits**. Its scope is **411.3.2.2** (p.71): final circuits not exceeding **63 A** with one or more socket-outlets, and not exceeding **32 A** supplying only fixed equipment. Read the column headings carefully — there are two halves and people pick the wrong one.

SYSTEM	50 V < U_0 ≤ 120 V	120 V < U_0 ≤ 230 V
TN (AC)	0.8 s	0.4 s
TT (AC)	0.3 s	0.2 s

✋ The heading uses the **≤** symbol — "less than or equal to". The UK's nominal U_0 is **230 V**, which sits at the top of the **120 V < U_0 ≤ 230 V** band, not in the one above it. Also check whether the question says **AC or DC**: the table has separate rows and the DC times are longer.

The table is for **final circuits** within 411.3.2.2. Distribution circuits, and final circuits outside 411.3.2.2, are handled by the regulations printed **underneath** the table:

CIRCUIT	TN	TT
Final, within 411.3.2.2 (230 V AC)	0.4 s	0.2 s
Distribution, or a final circuit over 63 A with sockets / over 32 A fixed equipment	5 s	1 s

! Highlight the words **"final circuits"** in the regulation above the table, and the two distribution-circuit regulations below it. That pair of highlights answers a lot of questions on its own.

411.3.3 — SOCKET OUTLETS AND ADDITIONAL PROTECTION

Sitting just below: **411.3.3**, additional requirements for socket outlets and for mobile equipment used outdoors. Socket-outlets with a rated current not exceeding **32 A**, and mobile equipment not exceeding 32 A used outdoors, require **additional protection** by a 30 mA RCD. It is **not** limited to homes: it covers sockets liable to be used by ordinary persons, sockets in other locations, and mobile equipment outdoors. The only exception is for sockets in other locations, and it needs a documented risk assessment by a skilled person. The regulation that is limited to domestic (household) premises is **411.3.4**, for circuits supplying luminaires.

✋ **Read the exception carefully.** It applies only to socket-outlets in other locations, and only with a documented risk assessment by a skilled person. Socket-outlets up to 32 A liable to be used by ordinary persons have no exception.

Why that matters on site.

An example: a workshop where test bays were wired through a single RCD, so every insulation-resistance test killed the power to the whole room and someone had to reset the RCD. The fix that meets the regulation without the nuisance: fit **RCD socket outlets** at the points that need them, rather than putting the whole circuit behind one RCD. Good selectivity is a design decision.

- **Table 41.1** · maximum disconnection times, final circuits
- **411.3.2.2** · p.71 · Table 41.1 scope: ≤ 63 A with sockets, ≤ 32 A fixed equipment
- **411.3.2.3** · p.72 · distribution circuits 5 s (TN)
- **411.3.2.4** · distribution circuits 1 s (TT)
- **411.3.3** · p.72 · socket outlets and outdoor mobile equipment ≤ 32 A, 30 mA additional protection

Table 41.1 — maximum disconnection times, FINAL circuits

	$50\ V < U_0 \leq 120\ V$	$120\ V < U_0 \leq 230\ V$
TN (AC)	0.8 s	0.4 s
TT (AC)	0.3 s	0.2 s

✋ The heading says **≤** — less than or **equal to**. The UK's 230 V sits at the top of the second band, not in the first.

Two halves, and people pick the wrong one. Read the column heading before you read the number.

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