METAL CONDUIT AND SWA AS THE CPC

CAN THE CONDUIT BE THE CPC?

METAL CONDUIT AS THE CPC

In a lot of metal installations the **actual** cpc is the **metal conduit** — and this is something you may well meet in your practical assessment.

HOW THE EARTH PATH RUNS

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Metal conduit, earthed at each end of the run
  → into the metal back box (also earthed)
  → fly lead from the back box to the front plate
  → and the cpc of the twin and earth cable back to the MET
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You have three legitimate options.

Use the metal conduit **as** the cpc; run a separate cpc **inside** it; or do both. Both is not required — it is belt and braces — but some people do it.

Either way the conduit gets earthed.

It is an **exposed conductive part**, so it is earthed back to the MET: a fault to it then makes the protective device operate. Terminated with a brass bush or earthing ring and a lock nut.

Types, and a word on names.

Black enamel, stainless steel and galvanised steel conduit, alongside PVC. **"EMT" is an American term** — here it is just metal conduit. And earthing buried conduit matters more because of where it sits: back to your installation reference methods.

SWA, AND CIRCUITS WITH NO NEUTRAL

The **armour** of steel wire armoured cable can be used as the cpc.

A three-phase circuit may have no neutral at all.

With **balanced** loads you do not need one — the primary side of a transformer carries only the three line conductors, and so can a balanced motor. The neutral comes from the star point on the **secondary** side.

USING THREE-CORE SWA FOR A SINGLE-PHASE CIRCUIT

You sleeve the cores to identify them.

Which colour you use for which does not matter —
what matters is that both ends match.
The conductor that is a neutral at the accessory must land in the neutral bar at the consumer unit.

> **The same discipline as two-way switching.**
> The two ends have to marry up. One convention is blue on the grey and green-and-yellow on the black — but it is only a convention. Others may do it differently, and that is fine — as long as both ends match.

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