BLAKLEY ELECTRICS

TRANSFORMER
DATA SHEET

Eco-Tx series Transformers for Zero Off-load Losses

Many fixed transformers are installed in Plant Rooms to provide a Reduced Low Voltage supply to feed 110V power tools and temporary lighting. The transformers are sometimes only used occasionally but when a transformer is connected to a mains supply it consumes electricity and emits heat 24/7, even when no equipment is being powered. The consumption and heat are caused by off-load losses, which result from the transformer core being magnetised. Although off-load losses are comparatively modest, they do generate heat, they incur cost, they add to the carbon footprint but serve no useful purpose.

The Eco-Tx range of fixed transformers addresses this issue as they can only consume power (a) when a plug is inserted into the socket on the transformer and (b) when the socket switch is moved to the ON position. To ensure the system is as robust as possible, the switch on the socket can only be rotated to the ON position when a plug is inserted into the socket. In addition, the plug can only be withdrawn from the socket when the switch is turned to the OFF position. With this solution, off-load losses are eliminated unless a plug is inserted in to a socket and the socket switch is in the ON position.

Transformers in the Eco-Tx range are supplied in wall mounting, IP44 enclosures and incorporate windings rated at 1 kVA or 2 kVA with a voltage ratio of 230:110CTE. They provide a Reduced Low Voltage (RLV) supply and are fitted with one or two 16A 110V 2P+E sockets to BS EN 60309-2. Transformers incorporate double-pole MCB protection with optional 110V RCD protection. See below for part numbers of the standard range. Versions can also be supplied rated at IP55 or in GRP enclosures.

The 1 kVA transformer has off-load losses of 27W which, if left on 24/7, would consume 236kWHr per annum. The 2 kVA has off-load losses of 43W, which would consume 376kWhr per annum (24/7). The cost of electricity is dependent on the tariff but is likely to be in the region of £0.20 per kWHr (and is likely to increase in future). Therefore the off-load losses of a single 2kVA transformer could incur a cost of £75 per annum even if the transformer is never used. The off-load carbon emissions for a single 1kVA would be 60kg per annum and 96kg per annum for a single 2kVA transformer (if off-load 24/7). The elimination of unnecessary heat also reduces consumption and emissions associated with cooling.

The switch on the socket cannot be turned to the ON position unless a plug is inserted

Only when a plug is inserted can the switch on the socket be turned to the ON position, which energises the transformer core.

The plug can only be removed from the socket when the switch is in the OFF position i.e. once the transformer is de-energised.

Part Number	Type Number	Description	Dimensions, W x D x H mm	Wt
S210382	Eco-Tx/1/C1/Si1-16/IP44	1 kVA continuous rating (1500VA intermittent), 1 x 16A 110V socket protected by a 10A DP MCB.	260 x 290 x 284	15kg
S210383	Eco-Tx/1/C1-RCD/Si1-16/IP44	1 kVA continuous rating (1500VA intermittent), 1 x 16A 110V socket protected by a 10A DP MCB and 30mA 110V RCD.	260 x 290 x 284	15kg
S210384	Eco-Tx/2/C1/Si1-16/IP44	2 kVA continuous rating (3300VA intermittent), 1 x 16A 110V socket protected by a 16A DP MCB.	378 x 368 x 333	28kg
S210385	Eco-Tx/2/C1-RCD/Si1-16/IP44	2 kVA continuous rating (3300VA intermittent), 1 x 16A 110V socket protected by a 16A DP MCB and 30mA 110V RCD.	378 x 368 x 333	28kg
S210386	Eco-Tx/2/C1/S2-16/IP44	2 kVA continuous rating (3300VA intermittent), 2 x 16A 110V sockets protected by a 16A DP MCB.	378 x 368 x 333	28kg
S210387	Eco-Tx/2/C1-RCD/S2-16/IP44	2 kVA continuous rating (3300VA intermittent), 2 x 16A 110V sockets protected by a 16A DP MCB and 30mA 110V RCD.	378 x 363 x 333	28kg

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