7.4.4 Separated or Safety Extra-Low Voltage (SELV)

IEC defines a SELV system as 'an electrical system in which the voltage cannot exceed ELV under normal conditions, and under single-fault conditions, including earth faults in other circuits'.

There exists some confusion regarding the origin of the acronym: 'SELV' stands for 'separated extra-low voltage' in installation standards (e.g., BS 7671) and for 'safety extra-low voltage' in appliance standards (e.g., BS EN 60335).

A SELV circuit must have:
Protective-separation (i.e., double insulation, reinforced insulation or protective screening) from all circuits other than SELV and PELV (i.e., all circuits that might carry higher voltages), simple separation from other SELV systems, from PELV systems and from earth (ground).

The safety of a SELV circuit is provided by

- The extra-low voltage.
- The low risk of accidental contact with a higher voltage.
- The lack of a return path through earth (ground) that electric current could take in case of contact with a human body.

The design of a SELV circuit typically involves an isolating transformer, guaranteed minimum distances between conductors and electrical insulation barriers. The electrical connectors of SELV circuits should be designed such that they do not mate with connectors commonly used for non-SELV circuits.

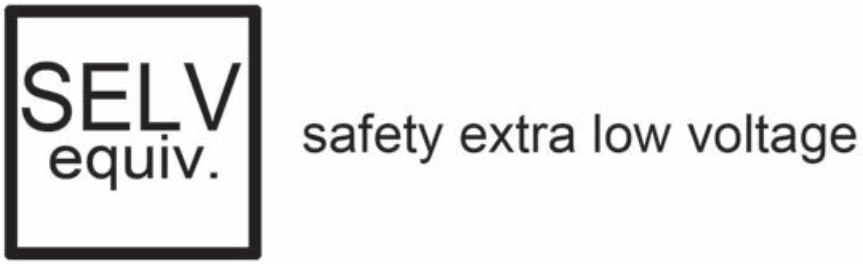

Figure 107
SELV Logo