DTE Power via MDI
Minimum current necessary to keep on power via MDI

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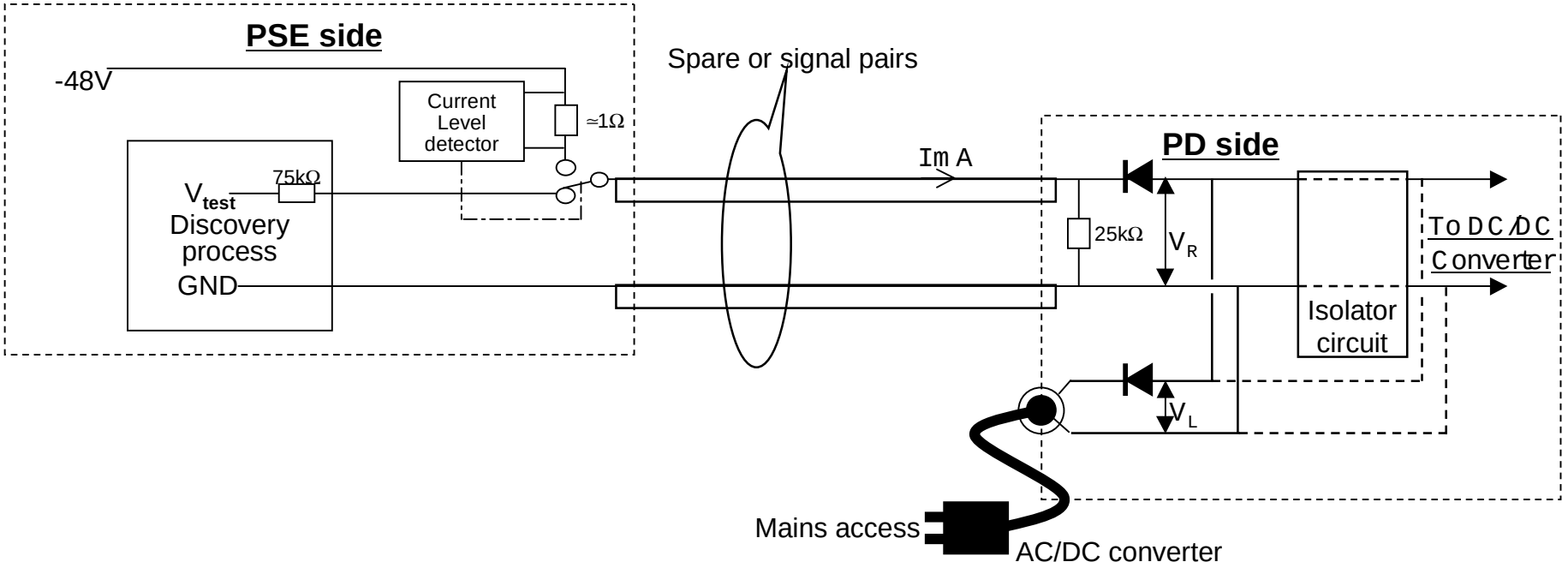
Potential problem

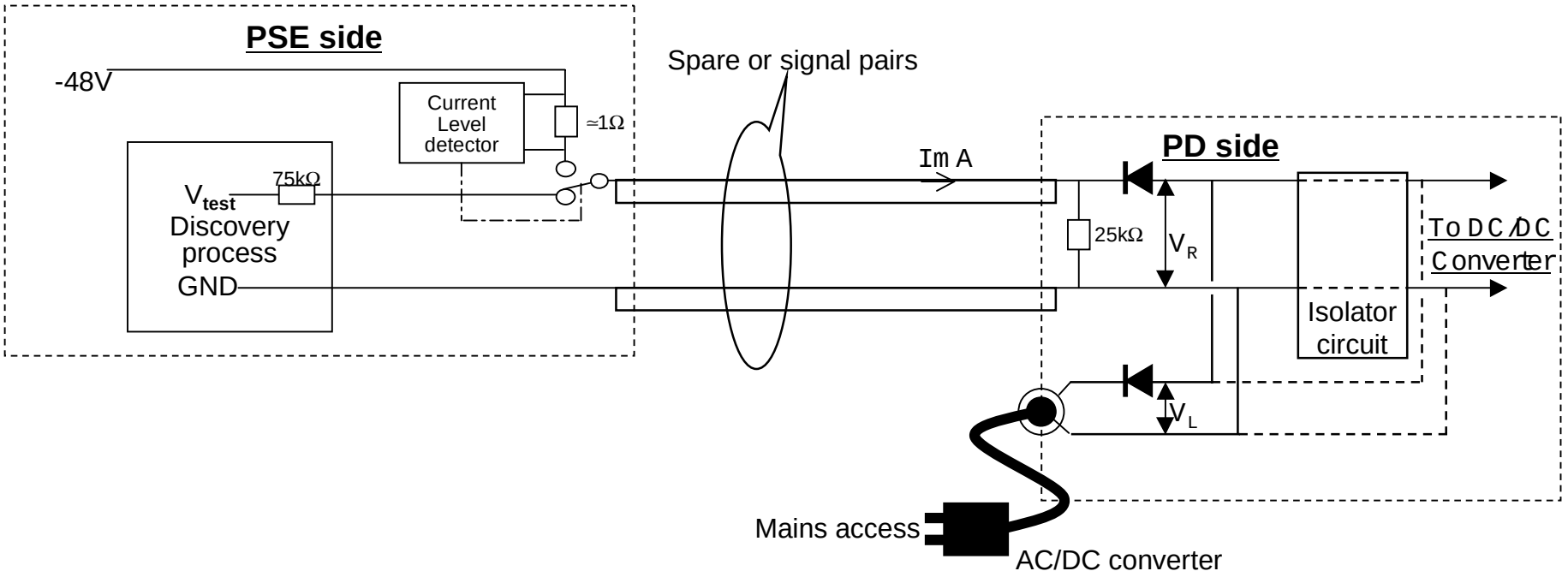
- **Principle of power transmission is as follow :**



- **A potential problem could be raised when PD is powered both by a local power source and by a PSE. Problem comes when $V_L > V_R$.**
- **When could such a case occur :**
  - **Customer, having already IP terminal and wanting to adopt power via MDI**
  - **Error of IP terminal end-user installation**
  - **And other cases I didn't think about...**

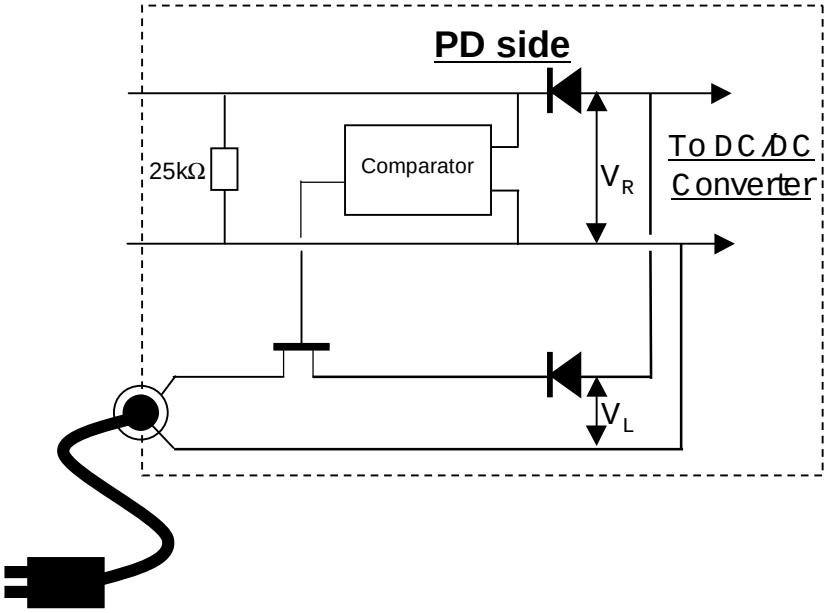
10mA as minimum current : is it the right value?

- **What is the problem :**
  - **Discovery process will find the right signature, then power will be sent**
  - **But if $V_L > V_R$ the only current sink from PSE by terminal will be the one crossing the resistor signature, i.e. in worst case : ≈ 44V/25kΩ ≈ 1.76mA.**
  - **Then current will not be sufficient to keep on power via MDI and then power will be switch off and discovery start again to get the same conclusion... etc, etc...**



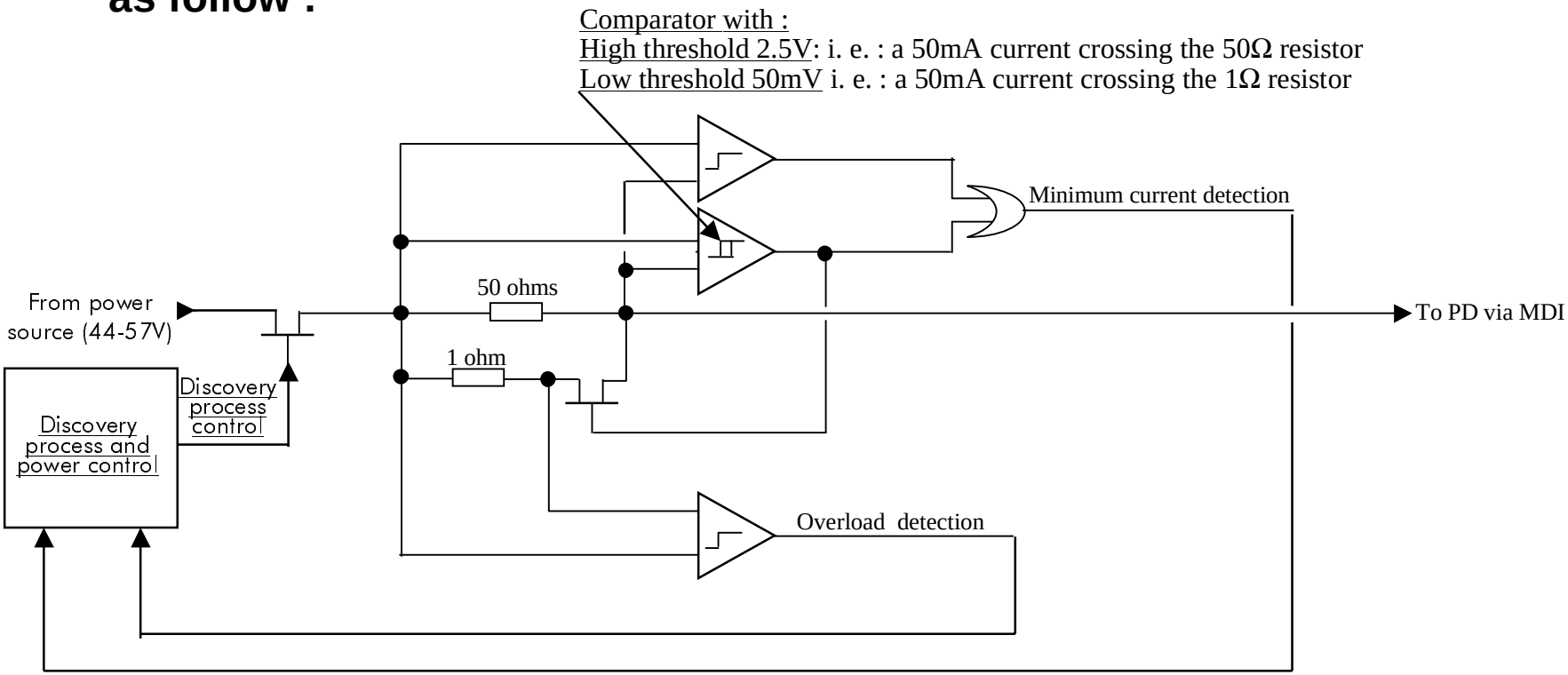
- **To avoid that, it should be necessary to specify the voltage level provided by local power supply; but it is not the purpose for this WG.**

- **Solution at PD side : this solutions are necessary to guaranty a sufficient current whatever the power configuration at PD side :**
  - **Solution consists in monitoring the voltage level of power coming from PSE and if it is, at least 30V, switching off local power.**



Solutions (cont'd)

- **Solutions at PSE side : another solution consists in making power source able to detect a very small current (At least 1.76mA). This implying to put resistance signature in front of reverse polarity protection.**
- **Solution is to built out a non-linear detection of the minimum current; as follow :**



Conclusion

- **At the question, 10mA as minimum current : is it the right value? The answer is :**
- **Yes, if we specify that PD has to sink at least 10mA whatever its power configuration**
- **No, if we don't specify that; in this case it is necessary to specify that PSE keeps power on as long as the current sink by the PD is higher than 1,76mA.**