abstract The $\pi\omega\rho$ coupling constant is calculated in a relativistic hadronic framework incorporating nucleons and $\Delta(1232)$ isobars. Medium modifications are included. The vertex is analyzed in context of the $\omega \rightarrow \pi^0 e^+ e^-$ and $\rho^a \rightarrow \pi^a e^+ e^-$ Dalitz decays in nuclear matter. A sizeable increase of the widths for these decays is found for invariant mass of dileptons in the range $0.2 - 0.6$ GeV. This increase may help, among other medium effects, to explain the problem of the low-mass dilepton enhancement seen in relativistic heavy-ion collisions.