$$4\left(-\overline{g}^{ag}\left(2\,\overline{q}^{2}+a^{2}\right)\overline{g}^{bd}+\overline{g}^{ad}\left(\left(2\,\overline{q}^{2}+a^{2}\right)\overline{g}^{bg}-2\,\overline{q}^{b}\,\overline{q}^{g}\right)+a^{2}\,\overline{g}^{dg}\,\overline{g}^{ab}-2\,\overline{q}^{a}\,\overline{q}^{b}\,\overline{g}^{dg}-2\,\overline{q}^{a}\,\overline{g}^{bg}\,\overline{q}^{d}-2\,\overline{q}^{d}\,\overline{q}^{g}\,\overline{g}^{ab}+2\,\overline{q}^{2}\,\overline{g}^{dg}\,\overline{g}^{ab}\right)$$