Finally, taking nucleon current matrix elements and using isotopic spin invariance

$$
\begin{aligned}
{}_p\langle p'|V^3_\alpha|p\rangle_p &= -\,{}_n\langle p'|V^3_\alpha|p\rangle_n \\
{}_p\langle p'|A^3_\alpha|p\rangle_p &= -\,{}_n\langle p'|A^3_\alpha|p\rangle_n \\
{}_p\langle p'|V^1_\alpha + iV^2_\alpha|p\rangle_n &= {}_p\langle p'|V^1_\alpha + iV^2_\alpha|p\rangle^*_n = 2\,{}_p\langle p'|V^3_\alpha|p\rangle_p \\
{}_p\langle p'|A^1_\alpha + iA^2_\alpha|p\rangle_n &= {}_p\langle p'|A^1_\alpha + iA^2_\alpha|p\rangle^*_n = 2\,{}_p\langle p'|A^3_\alpha|p\rangle_p\ , \\
{}_p\langle p'|V^{0,8,s}_\alpha|p\rangle_p &= {}_n\langle p'|V^{0,8,s}_\alpha|p\rangle_n \\
{}_p\langle p'|A^{0,8,s}_\alpha|p\rangle_p &= {}_n\langle p'|A^{0,8,s}_\alpha|p\rangle_n\ .
\end{aligned}
$$

we obtain for the weak formfactors [a]

$$
\begin{aligned}
\left(F^{NC}_{1,2}\right)_{p,n} &= \pm F^3_{1,2} - 2\sin^2\theta_W F^{p,n}_{1,2} - \frac{1}{2}F^s_{1,2}(Q^2) \\
G^{NC}_A(Q^2) &= \pm\frac{1}{2}G_A - \frac{1}{2}G^s_A(Q^2) \\
F^{CC}_{1,2}(Q^2) &= 2\,F^3_{1,2}(Q^2)\ ,
\end{aligned}
$$

with

$$
F^3_{1,2} = \frac{1}{2}\left(F^p_{1,2}(Q^2) - F^n_{1,2}(Q^2)\right)
$$

[a] Wa can also use Sachs form-factors

$$
\begin{aligned}
G_M &= F_1 + F_2 \\
G_E &= F_1 - \frac{|Q^2|}{4m^2_N}F_2
\end{aligned}
$$