Number of vertices $n = 8$.
Adjacencies of Graph

1. vertex 1 adjacent to 2 3 8
2. vertex 2 adjacent to 1 4 7
3. vertex 3 adjacent to 1 4 5
4. vertex 4 adjacent to 2 3 6
5. vertex 5 adjacent to 3 6 7
6. vertex 6 adjacent to 4 5 8
7. vertex 7 adjacent to 2 5 8
8. vertex 8 adjacent to 1 6 7

Size of automorphism group of the graph=16
Full group: $|Aut(polytope)| = 2048$
Restricted group: $|Aut(G) \times switch| = 2048$
Number of orbits for the full group : 4
List of orbits of facets for the full group: Total number of orbits = 4 Total number of facets = 184

1. Inequality 1 with incidence 64 and stabilizer of size 64. Orbit size is 32 nature: 4-cycle inequality, C=[1, 8, 7, 2] F=[1, 8]

(1,2) : 1	(1,3) : 0	(1,8) : -1	(2,4) : 0	(2,7) : 1	(3,4) : 0
(3,5) : 0	(4,6) : 0	(5,6) : 0	(5,7) : 0	(6,8) : 0	(7,8) : 1

2. Inequality 2 with incidence 64 and stabilizer of size 128. Orbit size is 16 nature: edge inequality e=[1, 8]

(1,2) : 0	(1,3) : 0	(1,8) : 1	(2,4) : 0	(2,7) : 0	(3,4) : 0
(3,5) : 0	(4,6) : 0	(5,6) : 0	(5,7) : 0	(6,8) : 0	(7,8) : 0

3. Inequality 3 with incidence 64 and stabilizer of size 256. Orbit size is 8 nature: edge inequality e=[1, 2]

(1,2) : 1	(1,3) : 0	(1,8) : 0	(2,4) : 0	(2,7) : 0	(3,4) : 0
(3,5) : 0	(4,6) : 0	(5,6) : 0	(5,7) : 0	(6,8) : 0	(7,8) : 0

4. Inequality 4 with incidence 40 and stabilizer of size 16. Orbit size is 128 nature: 5-cycle inequality, C=[1, 8, 6, 4, 2] F=[1, 8]

(1,2) : 1	(1,3) : 0	(1,8) : -1	(2,4) : 1	(2,7) : 0	(3,4) : 0
(3,5) : 0	(4,6) : 1	(5,6) : 0	(5,7) : 0	(6,8) : 1	(7,8) : 0