Number of vertices $n = 12$.
Adjacencies of Graph

1. vertex 1 adjacent to 2 3 4 5

2. vertex 2 adjacent to 1 3 6 7

3. vertex 3 adjacent to 1 2 8 9

4. vertex 4 adjacent to 1 5 9 10

5. vertex 5 adjacent to 1 4 6 11

6. vertex 6 adjacent to 2 5 7 11

7. vertex 7 adjacent to 2 6 8 12

8. vertex 8 adjacent to 3 7 9 12

9. vertex 9 adjacent to 3 4 8 10

10. vertex 10 adjacent to 4 9 11 12

11. vertex 11 adjacent to 5 6 10 12

12. vertex 12 adjacent to 7 8 10 11

Size of automorphism group of the graph=48
Full group: $|Aut(polytope)| = 98304$
Restricted group: $|Aut(G) \times switch| = 98304$
Number of orbits for the full group : 5
List of orbits of facets for the full group: Total number of orbits $= 5$ Total number of facets $= 1360$

1. Inequality 1 with incidence 1536 and stabilizer of size 3072. Orbit size is 32 nature: 3-cycle inequality, C=[6, 7, 2] F=[6, 7]

(1,2) : 0	(1,3) : 0	(1,4) : 0	(1,5) : 0	(2,3) : 0	(2,6) : 1
(2,7) : 1	(3,8) : 0	(3,9) : 0	(4,5) : 0	(4,9) : 0	(4,10) : 0
(5,6) : 0	(5,11) : 0	(6,7) : -1	(6,11) : 0	(7,8) : 0	(7,12) : 0
(8,9) : 0	(8,12) : 0	(9,10) : 0	(10,11) : 0	(10,12) : 0	(11,12) : 0

2. Inequality 2 with incidence 1024 and stabilizer of size 2048. Orbit size is 48 nature: 4-cycle inequality, C=[8, 12, 10, 9] F=[8, 12]

(1,2) : 0	(1,3) : 0	(1,4) : 0	(1,5) : 0	(2,3) : 0	(2,6) : 0
(2,7) : 0	(3,8) : 0	(3,9) : 0	(4,5) : 0	(4,9) : 0	(4,10) : 0
(5,6) : 0	(5,11) : 0	(6,7) : 0	(6,11) : 0	(7,8) : 0	(7,12) : 0
(8,9) : 1	(8,12) : -1	(9,10) : 1	(10,11) : 0	(10,12) : 1	(11,12) : 0

3. Inequality 3 with incidence 384 and stabilizer of size 256. Orbit size is 384 nature: 6-cycle inequality, C=[7, 12, 10, 9, 3, 2] F=[7, 12]

(1,2) : 0	(1,3) : 0	(1,4) : 0	(1,5) : 0	(2,3) : 1	(2,6) : 0
(2,7) : 1	(3,8) : 0	(3,9) : 1	(4,5) : 0	(4,9) : 0	(4,10) : 0
(5,6) : 0	(5,11) : 0	(6,7) : 0	(6,11) : 0	(7,8) : 0	(7,12) : -1
(8,9) : 0	(8,12) : 0	(9,10) : 1	(10,11) : 0	(10,12) : 1	(11,12) : 0

4. Inequality 4 with incidence 384 and stabilizer of size 768. Orbit size is 128 nature: 6-cycle inequality, C=[10, 12, 7, 2, 1, 4] F=[10, 12]

(1,2) : 1	(1,3) : 0	(1,4) : 1	(1,5) : 0	(2,3) : 0	(2,6) : 0
(2,7) : 1	(3,8) : 0	(3,9) : 0	(4,5) : 0	(4,9) : 0	(4,10) : 1
(5,6) : 0	(5,11) : 0	(6,7) : 0	(6,11) : 0	(7,8) : 0	(7,12) : 1
(8,9) : 0	(8,12) : 0	(9,10) : 0	(10,11) : 0	(10,12) : -1	(11,12) : 0

5. Inequality 5 with incidence 128 and stabilizer of size 128. Orbit size is 768 nature: 8-cycle inequality, C=[7, 12, 10, 9, 3, 1, 5, 6] F=[7, 12]

(1,2) : 0	(1,3) : 1	(1,4) : 0	(1,5) : 1	(2,3) : 0	(2,6) : 0
(2,7) : 0	(3,8) : 0	(3,9) : 1	(4,5) : 0	(4,9) : 0	(4,10) : 0
(5,6) : 1	(5,11) : 0	(6,7) : 1	(6,11) : 0	(7,8) : 0	(7,12) : -1
(8,9) : 0	(8,12) : 0	(9,10) : 1	(10,11) : 0	(10,12) : 1	(11,12) : 0