

Mask control

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The eGauge PRM3 has 3 independently controlled relay contacts. When controlling polyphase loads such as single or three-phase loads, the multiple relay contacts used should be open and closed simultaneously to avoid damaging the equipment. Neutral conductors always remain connected and are not switched by a relay.

To control relay contact simultaneously, the PRM3 interface provides commands to be used with masks. The command used will vary based on the interface used.

Command	Description
Mask	Any relay bit set (1) will be CLOSED, any bit unset (0) will be OPENED
Set	Any relay bit set (1) will be CLOSED, any bit unset (0) will be UNAFFECTED
Clear	Any relay bit set (1) will be OPENED, any bit unset (0) will be UNAFFECTED

List of Masks

Mask (Decimal)	Mask (Binary)	Relays SET
0	000	None
1	001	1
2	010	2
4	100	3
3	011	1 and 2
5	101	1 and 3
6	110	2 and 3

7	111	1, 2, and 3
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Understanding the mask

The mask value is a set of 3 bits. The lowest bit (position 0) is for the lowest numbered relay (#1). The middle bit (position 1) is for the middle numbered relay (#2), and the highest bit (position 2) is for the highest numbered relay (#3).

The decimal value is simply the binary value, which can be determined by adding the set bits (1) values.

Depending on the command used, the set and unset bits will affect their respective relays differently.

- `MASK` is the binary mask value sent or received
- `RELAY` is the relay for the respective column values
- `VALUE` is the decimal value for that bit
- `BIT POS` is the bit position

MASK	0	0	0
RELAY	3	2	1
VALUE	4	2	1
BIT POS	2	1	0

Decimal Value: 0

MASK	0	0	1
RELAY	3	2	1
VALUE	4	2	1
BIT POS	2	1	0

Decimal Value: 1

MASK	0	1	0
RELAY	3	2	1
VALUE	4	2	1
BIT POS	2	1	0

Decimal Value: 2

MASK	1	0	0
RELAY	3	2	1
VALUE	4	2	1
BIT POS	2	1	0

Decimal Value: 4

MASK	0	1	1
RELAY	3	2	1
VALUE	4	2	1
BIT POS	2	1	0

Decimal Value: 3

MASK	1	0	1
RELAY	3	2	1
VALUE	4	2	1
BIT POS	2	1	0

Decimal Value: 5

MASK	1	1	0
RELAY	3	2	1
VALUE	4	2	1
BIT POS	2	1	0

Decimal Value: 6

MASK	1	1	1
RELAY	3	2	1
VALUE	4	2	1
BIT POS	2	1	0

Decimal Value: 7

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