

## Packet Definition for the Breaker Panel

The new breaker panel packet contains 7 bytes of data. The 1st two bytes are the sync bytes (0xC9 and 0x18). The next 4 bytes (XX) are bit indicators for specific breakers. When a specific bit is set, the breaker is tripped. When a specific bit is clear, the breaker is active or has been reset. The last byte (CS) is the checksum.

The **RC** receives these bytes and stuffs bytes 3-4 into the TX record using user bytes 3-4 respectively (see ifi\_default.h for details). User bytes 3-4 are sent to the **OI** via **data frame 2** (see the Dashboard Spec. for details). Each packet gets transmitted every 50ms at 115K baud in the following order (from left to right):

**C9 18 XX XX XX XX CS**

The following are the byte definitions for each packet transmitted.

Byte 1 = 0xC9	(Used for syncing to begin of byte stream)
Byte 2 = 0x18	(Older Models with 0x17 contain no checksum)
Byte 3 = Breaker Tripped bit, Breaker bits 25-28	
bit0 = Breaker 25	0 = Active, 1 = Tripped
bit1 = Breaker 26	0 = Active, 1 = Tripped
bit2 = Breaker 27	0 = Active, 1 = Tripped
bit3 = Breaker 28	0 = Active, 1 = Tripped
bit4 = Null (Unused)	0
bit5 = Null (Unused)	0
bit6 = Null (Unused)	0
bit7 = A trip has occurred	0 = No breakers tripped, 1 = One or more breakers have been tripped
Byte 4 = Breaker bits 17-24	
bit0 = Breaker 17	0 = Active, 1 = Tripped
bit1 = Breaker 18	0 = Active, 1 = Tripped
bit2 = Breaker 19	0 = Active, 1 = Tripped
bit3 = Breaker 20	0 = Active, 1 = Tripped
bit4 = Breaker 21	0 = Active, 1 = Tripped
bit5 = Breaker 22	0 = Active, 1 = Tripped
bit6 = Breaker 23	0 = Active, 1 = Tripped
bit7 = Breaker 24	0 = Active, 1 = Tripped
Byte 5 = Breaker bits 9-16	
bit0 = Breaker 9	0 = Active, 1 = Tripped
bit1 = Breaker 10	0 = Active, 1 = Tripped
bit2 = Breaker 11	0 = Active, 1 = Tripped
bit3 = Breaker 12	0 = Active, 1 = Tripped
bit4 = Breaker 13	0 = Active, 1 = Tripped
bit5 = Breaker 14	0 = Active, 1 = Tripped
bit6 = Breaker 15	0 = Active, 1 = Tripped
bit7 = Breaker 16	0 = Active, 1 = Tripped
Byte 6 = Breaker bits 1-8	
bit0 = Breaker 1	0 = Active, 1 = Tripped
bit1 = Breaker 2	0 = Active, 1 = Tripped
bit2 = Breaker 3	0 = Active, 1 = Tripped
bit3 = Breaker 4	0 = Active, 1 = Tripped
bit4 = Breaker 5	0 = Active, 1 = Tripped
bit5 = Breaker 6	0 = Active, 1 = Tripped
bit6 = Breaker 7	0 = Active, 1 = Tripped
bit7 = Breaker 8	0 = Active, 1 = Tripped

The following example is an explanation of a packet received: (All values are in Hex).

**C9 17 00 00 00 00 CS** no breakers have been tripped

**C9 17 80 00 00 01 CS** (CS = 0x7e)

breaker 1 is tripped  
a trip has occurred.

**C9 17 80 04 01 80 CS** (CS = 0xf9)

breaker 8 is tripped  
breaker 9 is tripped  
breaker 19 is tripped  
a trip has occurred.

**C9 17 80 0F 00 FF CS** (CS = 0x71)

breakers 1-8 are tripped  
breakers 17-20 are tripped  
a trip has occurred.

**C9 17 82 03 10 00 CS** (CS = 0x6a)

breaker 13 is tripped  
breaker 17 is tripped  
breaker 18 is tripped  
breaker 26 is tripped  
a trip has occurred.

**C9 17 80 00 00 00 CS** (CS = 0x7f)

a trip has occurred  
(stays set till a hardware reset occurs)

CS is calculated using the following :  $CS = \sim(xx1 + xx2 + xx3 + xx4)$