

# OMNI-BEAM™ DC Power Blocks

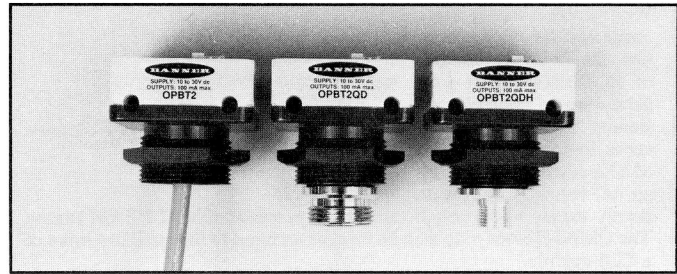


Featuring Banner's exclusive **Bi-Modal™** output  
(patent pending)

OMNI-BEAM dc power blocks provide regulated low voltage dc power to the sensor head and logic module (if one is used), with input of 10 to 30V dc. There are two infinite-life outputs, one for the load and the other for the alarm of the D.A.T.A. early-warning self-diagnostic system.

All models, except emitter-only types, have the unique **Bi-Modal™** output design that offers either sinking (NPN) or sourcing (PNP) outputs, depending upon the polarity with which the two dc supply leads are connected. Outputs are protected from overload, shorted load, or low voltage conditions. Outputs automatically reset when the cause of the problem is cleared. Problems are identified by the D.A.T.A. light system.

All OMNI-BEAM power blocks are epoxy-encapsulated and rated for -40 to +70°C (-40 to +158°F). They feature limit switch style cross-hole design for front, back, or side mounting, plus a 30mm threaded hub for swivel bracket or through-hole mounting. Models include prewired cable or either style of quick-disconnect (QD) fitting.



## Specifications, dc Power Blocks:

**Input:** 10 to 30V dc at less than 80mA (exclusive of loads), 10% maximum ripple.

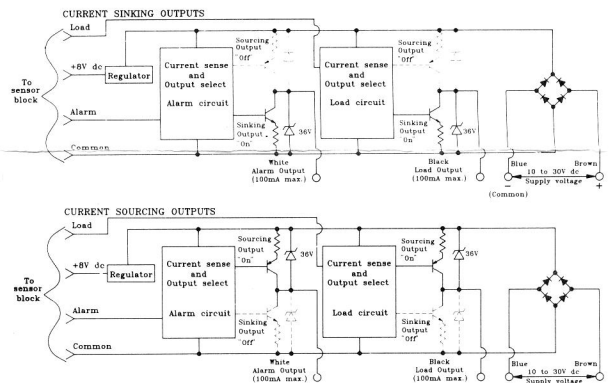
**Output:** two identical open-collector transistors, one for load and one for alarm. Both are configured to either sink (NPN) or source (PNP), depending upon the polarity of the power supply leads (see hookup drawings). 100mA maximum continuous, overload and short circuit protected (both outputs). Off-state leakage current less than 100 microamps. NOTE: interface to TTL logic is not direct (contact factory). NOTE: when the load and the OMNI-BEAM *do not* share a common power supply, load voltage *must* be  $\leq$  the sensor supply voltage.

### On-state Voltage Drop:

NPN outputs: <1.0V @10mA load, and <1.5V @100mA load.  
PNP outputs: <1.0V @10mA load, and <1.5V @100mA load.

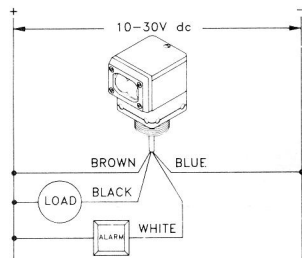
Models	Cable or Connector
OPBT2	Prewired 6-foot PVC-jacketed 4-conductor cable.
OPBT2QD	Integral standard 4-conductor quick-disconnect cable fitting. Requires cable model MBCC-412, sold separately.
OPBT2QDH*	Integral 12mm micro 4-conductor quick-disconnect cable fitting. Requires micro cable model MQDC-415, sold separately.
<i>The following three power blocks are for use with emitters only (model OSBE). They contain no output circuitry.</i>	
OPBTE	Prewired 6-foot PVC-jacketed 2-conductor cable.
OPBTEQD	Integral standard 4-conductor quick-disconnect cable fitting. Requires cable model MBCC-412, sold separately.
OPBTEQDH*	Integral 12mm micro 4-conductor quick-disconnect cable fitting. Requires micro cable model MQDC-415, sold separately.

## Functional Schematic, dc Power Blocks



### Hookup to a Simple Load, Sinking Outputs

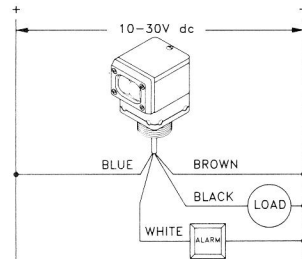
The Bi-Modal output of OMNI-BEAM dc power blocks is configured for current sinking (NPN) by connecting the BROWN supply wire to +V dc, and the BLUE wire to dc common.



Outputs sink 100mA, maximum.

### Hookup to a Simple Load, Sourcing Outputs

The Bi-Modal output of OMNI-BEAM dc power blocks is configured for current sourcing (PNP) by connecting the BLUE supply wire to +V dc, and the BROWN wire to dc common.

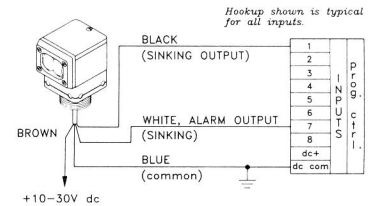


Each output sources up to 100mA.

### Hookup to PLC

OMNI-BEAM dc power blocks interface directly to any type of programmable logic controller or computer dc input.

The current sinking configuration (NPN) is shown here. For the current sourcing configuration, simply reverse the polarity to the BROWN and BLUE power supply wires.

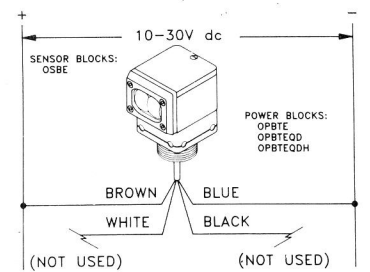


NOTE: "dc+" supply voltage to PLC input must be less than or equal to the OMNI-BEAM's supply voltage

### Hookup of Emitter

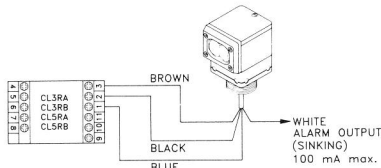
OMNI-BEAM emitter sensor blocks (model OSBE) simply require supply voltage to operate.

Power blocks *without* output circuitry are available for powering emitters. However, power blocks *with* output circuitry may also be used to power emitters (output circuitry will go unused).



## HOOKUP TO MAXI-AMP LOGIC

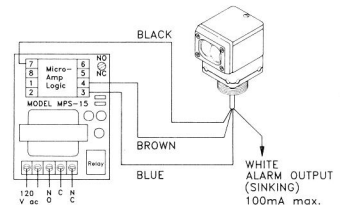
With its power supply wires connected for NPN operation, the Bi-Modal output of an OMNI-BEAM connects directly to the input of Banner MAXI-AMP CL-series logic modules. The MAXI-AMP, powered by an AC voltage, offers a dc supply supply with enough capacity to power an OMNI-BEAM sensor. The OMNI-BEAM may also be used as an input to the auxiliary input of a CL5 module.



## HOOKUP TO MICRO-AMP LOGIC

With its power supply wires connected for NPN operation, the Bi-Modal output of an OMNI-BEAM connects directly to the input of Banner MICRO-AMP logic-only modules. The following modules may be used:

- MA4-2 One-shot
- MA5 Delay
- MA4G 4-input "AND"
- MA4L Latch



## Quick-disconnect Cables for OMNI-BEAM DC Power Blocks

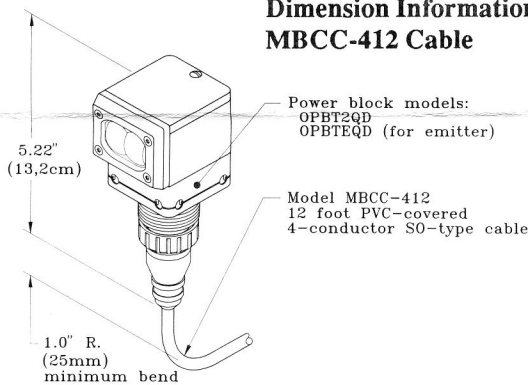
Quick-disconnect cables are available in two styles: standard SO-type and micro ST-style. They are ideal for use in situations where it is desirable to be able to substitute or replace the sensor and/or cabling.

OMNI-BEAM dc power blocks use 4-conductor cables.

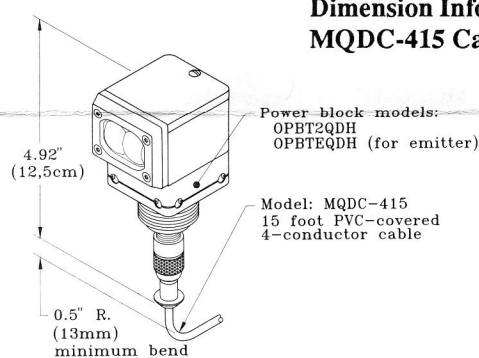
Standard-style cables are 12 feet long; micro-style cables are 15 feet long. All quick-disconnect cables have 22 AWG conductors. Dimensional information is given in the drawings below.

Power Block Model	Use Cable Model
OPBT2QD OPBTEQD	MBCC-412
OPBT2QDH OPBTEQDH	MQDC-415

### Dimension Information, MBCC-412 Cable

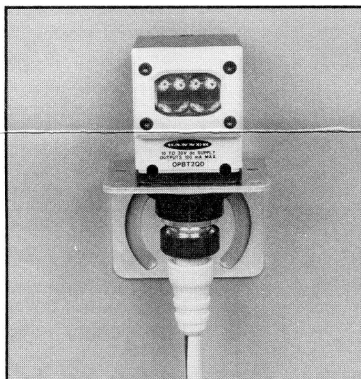


### Dimension Information, MQDC-415 Cable

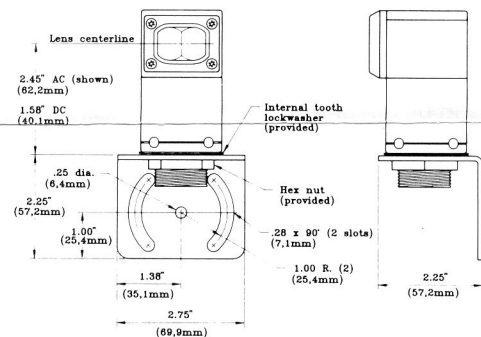


## SMB30MM Mounting Bracket

Accessory mounting bracket model SMB30MM has curved mounting slots for versatility in mounting and orientation. The OMNI-BEAM mounts to the bracket by its threaded base, using a jam nut and lockwasher (supplied). The curved mounting slots have clearance for 1/4-inch screws. Bracket material is 11-gauge stainless steel.



### SMB30MM Dimensions (ac sensor shown)



**WARRANTY:** Banner Engineering Corporation warrants its products to be free from defects for one year. Banner Engineering Corporation will repair or replace, free of charge, any product of its manufacture found to be defective at the time it is returned to the factory during the warranty period. This warranty does not cover damage or liability for the improper application of Banner products. This warranty is in lieu of any other warranty either expressed or implied.