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A ROTARY PHOTO-COUPLER FOR CONTINUOUSLY ROTATING POSITRON CT GANTRY.

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In our proto-type Positron CT system for head, detectors and coincidence electronics are rotating around an object continuously, whereas memory and processing electronics are on the stationary side.

A 16 bit rotary photo-coupler has been developed to read out address signals on the coincidence events. It has a circular ring of 16 light emitting diodes (LEDs) on the rotating side, and a circular ring of 32 silicon photo-diodes (PDs) is placed on the stationary side against the LED ring.

When coincidence is detected, light pulses are emitted according to a logical bit pattern. The nearest PD is selected for each LED using an angle encoder. The logic signal is obtained from judging if the PD output signal pulseheight exceeds the threshold level.

Thus, data which pulse width is over 100 ns are transfered without mechanical contact.