



DNT900 APP FACTS

The earliest railroads had no crossing signal systems. Employees used hand gestures to train engineers indicating whether to stop or proceed through various crossings. Today, sophisticated automatic railroad crossing systems employ the use of RF technology throughout millions of miles of railroads to improve safety and keep trains running optimally.

Transportation - Railroads: *Sensor Monitoring, Actuation and Control*



OTHER TOP DNT900 APPLICATIONS

Irrigation control

SCADA for monitoring and control

Scoreboards and electronic signs

Industrial remote control

Energy management

APPLICATION OVERVIEW

A large railway company was looking to implement a backup system for a railway crossing that would actuate the closing of the gates if the main system failed.

The system had to detect the presence of the train a few kilometers away from the railway crossing and then relay this information to the gate actuator at the base controller. The stringent requirements for a very fast link-up time and long range narrowed down the choice of radios to the DNT900.

A DNT900 radio was integrated with the sensor circuitry that was used to detect the presence of a passing train. This information was then relayed back to another DNT radio embedded into the main gate controller circuit located a few kilometers away. Having received the information of an oncoming train, the gate controller circuit now had information to close the gate in case of failure of the main system.

APPLICABLE PRODUCT FEATURES

The DNT900's fast link-up times, high-power, ability to transmit reliability over long distances and API designed for easy system integration put this railroad application on the right track.

900 MHz FHSS
ensures reliable RF
communications
over long
distances for
railroad
applications

HOW IT WORKS



Very small footprint, the DNT900 module is slightly larger than a quarter



SPECIFICATIONS

The DNT2400 has the same form factor and pin out as the DNT900 and can be used for this application in the 2.4 GHz band

Radio Characteristics:	FHSS (Frequency Hopping Spread Spectrum)
Frequency:	902.75 - 927.25 MHz
Transmit Power:	up to 1 W selectable
RF Data Rates:	38.4, 115.2, 200, 500 kb/s
Receiver Sensitivity:	-108 dBm 10-5 BER at 38.4 kb/s -94 dBm 10-5 BER at 500 kb/s
Data Encryptions:	AES-128
Network:	Point-to-Point, Point-to-Multipoint, Peer-to-Peer, Tree Routing
Environmental:	-40 °C to + 85 °C 10 - 90% humidity, non-condensing
Power Supply:	3.3 to 5 VDC
Dimensions:	2.01 X 1.26 inches (52.07 X 32.00 mm) for DNT900C 2.05 X 1.36 inches (52.07 X 34.54 mm) for DNT900P
Mounting Option:	Pinned and Surface Mount Versions
RF Connection:	U.FL Coaxial Connector
Input / Outputs:	6 GPIO, 3 ADC and 2 DAC outputs
Interface:	UART, SPI
Certification:	FCC and Canadian IC certified

PART NUMBERS

Part Number	Description
DNT900P	DNT900 FHSS Module - Pinned Version
DNT900C	DNT900 FHSS Module - Surface Mount Version
DNT900DK	DNT900P FHSS Module Developer Kit

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