

1 RWT30V2 OPERATIONAL DESCRIPTION

The NOVA communication link is a one-way RF link, which consists of the receiver, a set of detectors with integrated transmitters and push-button transmitters.

The RWT30V2 is a smoke detector, which provides alarm and supervisory codes transmission to a base station by RF link at 318 MHz. The integral antenna is a piece of metal wire. The device is powered by two internal 3V lithium batteries, connected in parallel.

Modulation type is OOK (on/off keying). Bit rate is 666 bps (each bit is 1.5msec). The frame consists of 39 bits. Frame length is 58.5msec. Bi-phase mark signaling is used.

The transmitters send events and status (every hour) messages only. In the rest of the time they are OFF (sleep or shutdown mode), in order to save battery life.

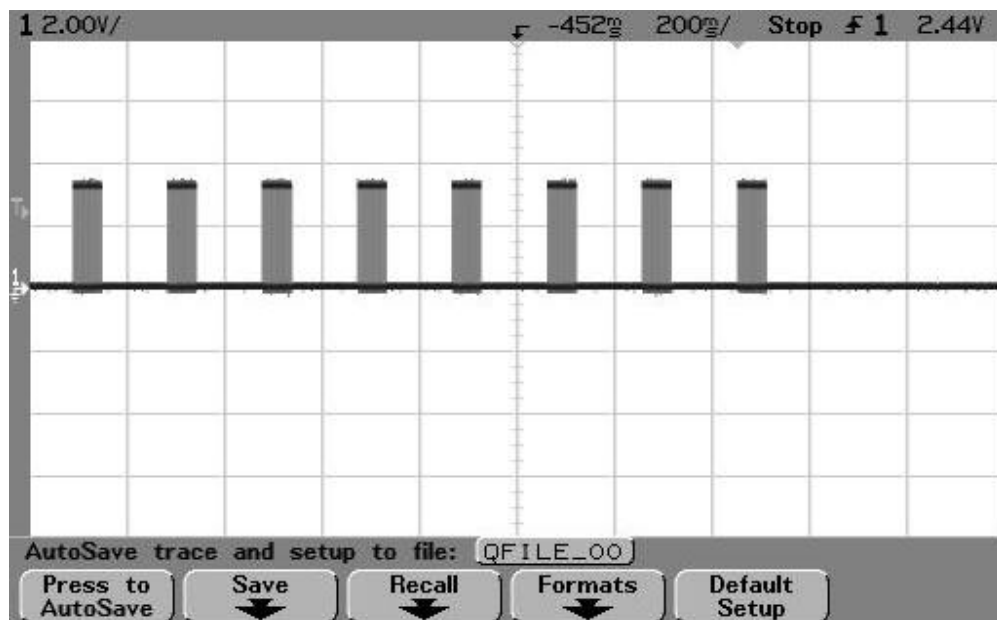
The receiver is always ON, waiting and listening for new messages. It works on power line and has backup batteries for power failure situation.

There are 2 kinds of messages: Learn (Write) mode and Normal mode. In Learn mode, the receiver "learns" about the transmitter, by getting the ID (or address code) and a set of bits, which specify the transmitter's functions. In Normal mode, the transmission consists of the transmitting transmitter ID code and a set of bits containing information about the transmitter status. Preamble & start bits are also sent with each transmission in both modes of operation.

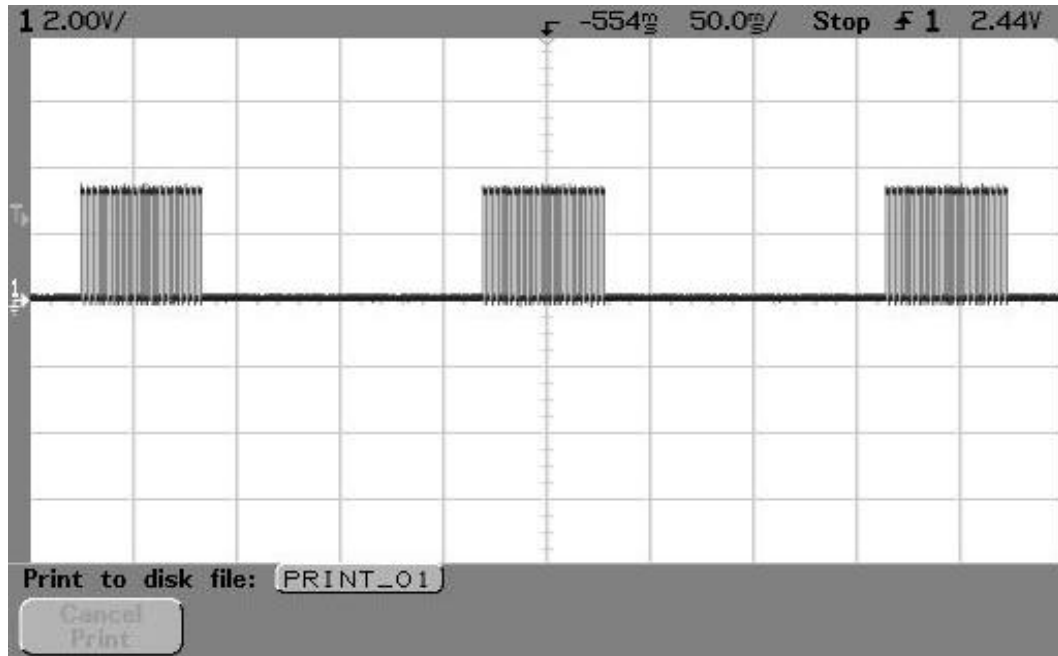
RWT30V2 sends Learn mode messages only about 10 sec after insertion of battery (power-up).

In any event report, RWT30V2 sends 8 identical Normal mode frames separated by 140 msec intervals. After 8 frames it automatically stops transmitting (it is fulfilled by the microcontroller, responsible for the transmitter operation).

Plot 1. Event report 8 frames



Plot 2. Interval between frames



2 NORMAL MODE MESSAGES

Normal Mode messages are sent every hour (indicating transmitter status) and whenever an event occurs. The hourly status reports will be changed to 4 frames only. The frames are separated by 140 msec intervals.

NAME	FIELD	DESCRIPTION	RANGE
Preamble	1-6	6 bits for synchronization	"000000"
Start	7	1 start bit	"1"
Address (ID)	8-31	24 address bits provide more than 16,000,000 possible different addresses. MSB bit first.	24 x "0" to 24 x "1"
Mode	32	1 bit for selecting Learn or Normal mode.	"0" for Normal mode
Status	33-39	field 33: alarm bit field 34: tamper bit field 35: low battery bit fields 36-39: not used	"1"=alarm,"0"=no alarm "1"=tamper,"0"=no tamper "1"=low bat,"0"=bat ok.

3 LEARN (WRITE) MODE MESSAGES

Learn Mode messages are sent about 10 sec after insertion of battery (power-up)

NAME	FIELD	DESCRIPTION	RANGE
Preamble	1-6	6 bits for synchronization	"000000"
Start	7	1 start bit	"1"
Address (ID)	8-31	24 address bits provide more than 16,000,000 possible different addresses. MSB bit first.	24 x "0" to 24 x "1"
Mode	32	1 bit for selecting Learn or Normal mode.	"1" for Learn mode
Definition of transmitter functionality	33-39	field 33: restore bit fields 34-39: not used	Only T30 and T71 send restore bit as "1".