EnOcean

PTM 2XY SWITCHES CONTINUOUSLY PRESSED
Avoiding potential malfunction of the contact nipples

31 July 2026

Observe precautions! Electrostatic sensitive devices!

Patent protected:
WO98/36395, DE 100 25 561, DE 101 50 128,
WO 2004/051591, DE 103 01 678 A1, DE 10309334,
WO 04/109236, WO 05/096482, WO 02/095707,
US 6,747,573, US 7,019,241

AN312 – PTM 2XY SWITCHES CONTINUOUSLY PRESSED

REVISION HISTORY

The following major modifications and improvements have been made to this document:

Version	Author	Reviewer	Date	Major Changes
1.0	AA		2010	Original version
1.1	AA		2020	Light copy-edit of the original version
2.0	AZ	JB	2026	Document maintenance

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Components of the modules are considered and should be disposed of as hazardous waste. Local government regulations are to be observed.
Packing: Please use the recycling operators known to you.

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LIST OF FIGURES

1 Introduction

PTM 2xy switches (formerly marketed as PTM 200) are electrodynamically self-powered wireless switch modules designed for rockers or single pushbuttons. This application note describes a potential malfunction that can occur when a PTM 2xy module is pressed continuously for an extended period, and it provides mechanical and system-level workarounds to prevent it.
Under normal use, PTM 2xy switches are not intended to be pressed continuously. The rocker remains in its neutral (medial) position with the pushbutton released for the majority of the product's operating life, so the internal contact nipples are only pressed briefly and infrequently. Figure 1 shows the internal components of a PTM 200 module, representative of the PTM 2xy product family.

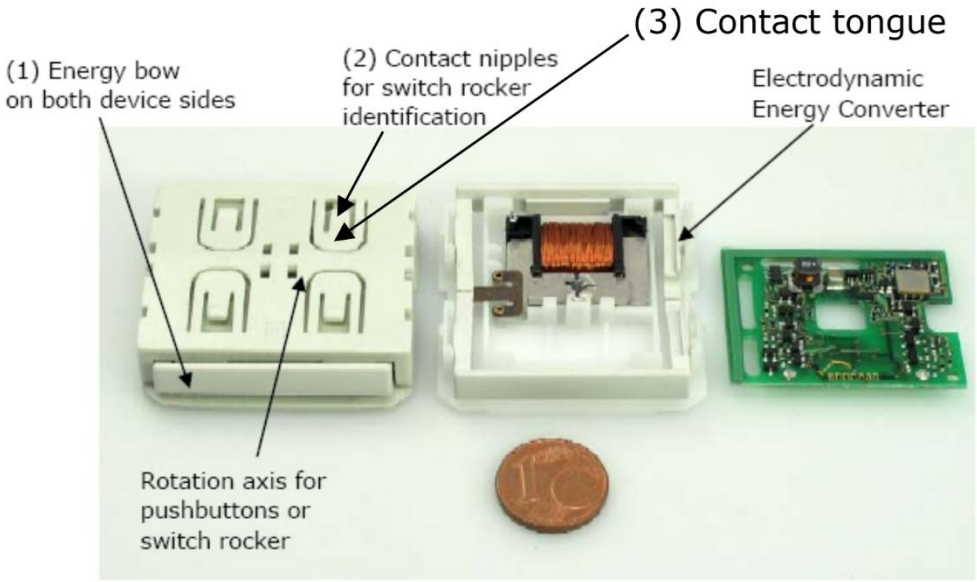

Figure 1: Electro-dynamic powered radio transmitter device PTM 2xy

2 Possible Malfunction After Extended Pressing

In certain special applications, the contact nipples of a PTM 2xy module may be pressed for extended periods – for example, most of the time, or continuously for hours or even days. In such cases, the plastic contact tongue (3) can gradually deform. Depending on ambient temperature, pressing duration, and manufacturing tolerances, this lasting deformation may eventually cause the rocker identification mechanism to malfunction.
Note: No malfunction of the energy bow or the energy generator has been observed, even after extended periods of continuous pressing. Even if the switch is operated again after weeks or months of continuous pressing, a valid PTM radio telegram will always be sent – however, it may contain incorrect rocker identification data.

3 Workarounds

3.1 Workaround 1: Mechanical Tuning of the Rocker/Module Interface

One mechanical solution is to precisely tune the fit between the rocker and the module housing. Note that this approach cannot fully guarantee correct rocker identification over the long term.

3.2 Workaround 2: Ignore Rocker Identification

Another option is to design the receiving system so that it reacts as intended without interpreting the specific rocker identification at all. In this case, only the "pressed" and "released" states are evaluated, and the rocker identification value is ignored.

3.3 Workaround 3: Alternative Actuation Point on the Contact Tongue

If rocker-specific identification is required, another mechanical solution is available. Instead of actuating the contact tongue at the defined contact nipple (label "2" in Figure 1), as described in the PTM user manual, actuate it in the middle of the tongue (label "3" in Figure 1), directly above the rubber contact mat.
Attention: This removes the mechanical protection normally provided by the contact tongue. On one hand, the tongue ensures a minimum contact-mat pressure during switch-over of the energy bow; on the other hand, it prevents excessive pressure on the rubber mat, which could otherwise damage the PCB or the contact itself. The position of the contact nipples also helps compensate for tolerances and any pressing-related deformation of the rocker.
To implement this workaround, a suitably elastic contact tongue must be designed for the specific mechanical application. Both the design of the mechanical interface and the choice of material are important to avoid lasting deformation and to replicate the elastic function of the contact tongue.

4 Product Endurance Testing

For all scenarios described in this document, we strongly recommend performing suitable endurance tests on the final product, using empirically reasonable sample sizes, to confirm long-term functional reliability.

DISCLAIMER

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