

# Mackay GUARDIAN™ X Series

# Mackay mechanism



## Mackay Guardian™ X, XL & XLE Models

### Advanced Electronic Mechanism

- The Mackay Guardian™ mechanism is the parking industry's most respected and foremost choice for single space parking meter solutions.
- The Mackay Guardian™ X Series is MacKay's neXt generation of electronic mechanisms. With three models to choose from, the X, XL and XLE utilize the proven Mackay Guardian™ pedigree of being *tough*, *reliable* and *accurate*.
- The Mackay Guardian™ X Series has been designed to meet the challenges, and demanding requirements of our customer's diverse single space parking needs.
- Designed for flexible enforcement, programming, battery use and ease of maintenance.
- Count Down Timer Accuracy and Real Time Clock Accuracy certified by an independent laboratory.
- Features include:
  - MacKay's patented SmartChute™ coin validation technology,
  - MacKay's patented SmartPower™ technology (XLE model),
  - Exceptional battery life performance (XLE model),
  - Automatically scheduled profile/rate changes,
  - LED back light for nighttime use (XL & XLE models),
  - Large easy to see, rear violation LCD.
- Manufactured under stringent ISO 9001:2000 certified quality processes.
- MacKay Meters backs its entire Mackay Guardian™ product line with a solid warranty based on the confidence, quality and lineage of its products.



<over for specifications>






[www.mackaymeters.com](http://www.mackaymeters.com)

# MacKay GUARDIAN™ X Series

# COMPARISON



	X	XL	XLE
 MacKay Guardian™ XLE Model	✓	✓	✓
	✓	✓	✓
	✓	✓	✓
	✓	✓	✓
	✓	✓	✓
	✓	✓	✓
 MacKay Guardian™ XL Model	✓	✓	✓
	✓	✓	✓
	✓	✓	✓
	✓	✓	✓
	✓	✓	✓
	✓	✓	✓
 MacKay Guardian™ X Model	✓	✓	✓
	✓	✓	✓
	✓	✓	✓
	✓	✓	✓
	✓	✓	✓
	✓	✓	✓
<b>General Specifications</b> <ul style="list-style-type: none"> <li>! Compatible with all MacKay mechanism housings and most competitors' products.<sup>4</sup></li> <li>! Manufactured under ISO 9001:2000 certified quality processes.</li> <li>! Designed to work under extreme environmental conditions.</li> <li>! Can withstand prolonged exposure to intense UV radiation, humidity, rain, sleet, snow and grime and under normal street vibration.</li> <li>! Operating temperature range: -40°C (-40° F) to 80°C (176° F).</li> </ul>			
<b>Internal Time Keeping</b> <ul style="list-style-type: none"> <li>! Equipped with a time-of-day clock that is accurate to a few seconds-per-week.</li> <li>! Real Time Clock Accuracy and Count Down Timer Accuracy is certified by an independent laboratory.</li> <li>! A 365-day calendar/Real Time clock.                             <ul style="list-style-type: none"> <li>• with short-term power backup during battery exchanges/replacement.</li> </ul> </li> <li>• Time-of-day clock is automatically re-synchronized to the handheld computer's time-of-day clock during data transfer.</li> <li>• Perpetual and automatic daylight savings time change feature.<sup>4</sup></li> <li>• Automatically introduce a scheduled profile/rate change.</li> </ul>			
<b>Powered by Patented MacKay SmartPower™ Technology</b> <ul style="list-style-type: none"> <li>• Supports 6V and 9V alkaline battery packs.</li> <li>• Can operate for a period in excess of 12 months<sup>1</sup> using a 6V (4xAA) alkaline pack, dual 9V alkaline pack<sup>2</sup>, or single 9V lithium pack.</li> <li>• Supports the use of 3V, 4.5V, 6V and 9V battery packs, with no changes to main board hardware required.</li> <li>• Can operate for a period in excess of 36 months<sup>1</sup> (3yrs) using a 4.5V (3xC) alkaline pack, and for a period in excess of 48 months<sup>1</sup> (4yrs) using a 3V (2xD) alkaline pack.</li> </ul>			
<b>Front Display</b> <ul style="list-style-type: none"> <li>• High contrast and high visibility Liquid Crystal Display (LCD) and Light Emitting Diode (LED) technologies.</li> <li>• LCD has programmable time-of-day/duration and LED back light for effective night-time operation.</li> <li>• Large display - 2.5cm (1 inch) x 5cm (2 inches). Shows four 1.27cm (1/2 inch) high numeric digits, colon, plus seven additional icon/symbols/messages.</li> </ul>			
<b>Rear Display</b> <ul style="list-style-type: none"> <li>• Large and highly visible display - 2.5cm (1 inch) x 7.5cm (3 inches). Flashes red and silver to indicate "Time Expired" or solid silver for valid parking time.</li> <li>• Can display text "EXPIRED", "OUT OF ORDER", two 1.27cm (1/2 inch) high No Parking Symbols</li> <li>• Optionally supports dual numeric displays (time displayed front and back).<sup>3</sup></li> </ul>			
<b>LED Display</b> <ul style="list-style-type: none"> <li>• Dual colour (Red/Green) Super Bright LED's on both front and rear.</li> <li>• Flashing LED visible at distance of 24 meters (80 feet) at night.</li> <li>• Programmable for maximum flexibility in enforcement options.</li> </ul>			
<b>Patented SmartChute™ Coin Discriminator</b> <ul style="list-style-type: none"> <li>• 3-coil design provides accurate coin reads and long life.</li> <li>• Straight-drop/clear view coin chute allows for superior detection and removal of foreign objects.</li> <li>• Coin chute is easily and quickly replaced/serviced in the field without the need for special tools.</li> <li>• Coin chute calibration or chute training is not required.</li> <li>• Sorts up to 16 different coin/token signatures and uses a single entrance slot.</li> <li>• Can be programmed to detect non-metallic jams such as paper/gum.</li> <li>• Validates and discriminates coins electronically by two different coil sensors/methods.</li> <li>• Invalid coin indicator on display.</li> </ul>			
<b>Communication and Data Transfer</b> <ul style="list-style-type: none"> <li>• Supports the following modes of communication and programming:                             <ul style="list-style-type: none"> <li>• RF (Radio Frequency)</li> <li>• IR (Infrared)</li> <li>• peripheral port</li> <li>• card slot, and card adapter port (if card reader installed).</li> </ul> </li> <li>• A typical meter rate or parameter change in less than 10 seconds using IR.</li> <li>• Transfer of coin audit data, as well as clock date re-synchronization, in less than 3 seconds using IR. Faster data transfers may be possible using other communication modes.</li> <li>• Coin audit totals are always protected and stored in non-volatile memory.</li> <li>• Audit information retained during battery failure and/or replacement.</li> <li>• Status of meter uploaded when interrogated or otherwise stimulated.</li> <li>• Meter information can be imported into an electronic parking citation issuance system to be printed on a ticket at the time of issuance.<sup>4</sup></li> </ul>			

	X	XL	XLE
<b>ISO Card System<sup>4</sup></b> <ul style="list-style-type: none"> <li>• Programmable to use one (or more) of the following ISO7816 compliant card payment technologies:                             <ul style="list-style-type: none"> <li>• Microprocessor cards capable of using sophisticated security algorithms to deter fraud.<sup>4</sup> (e.g. DES)</li> <li>• Reloadable/reusable type memory card used as a token based stored value card.</li> <li>• Disposable type memory card used as low cost token based stored value card.</li> <li>• Card payment schemes requiring active authentication.<sup>4</sup></li> </ul> </li> <li>• Card reader rated at 200,000 insertions and constructed for easy maintenance.</li> <li>• Card reader can optionally support single security access module (SAM).<sup>3,4</sup></li> </ul>			
<b>Special Expansion Features</b> <ul style="list-style-type: none"> <li>• Expansion ports are accessible from within the meter frame. These ports act as integration points for future add-on hardware and accessories.                             <ul style="list-style-type: none"> <li>• Card reader edge connector port.</li> <li>• Main board edge connection port.</li> </ul> </li> <li>• Meter supports an optional button interface located next to coin slot.<sup>4</sup></li> <li>• Other custom applications/configurations available upon special request.<sup>4</sup></li> </ul>			
<b>Memory Size &amp; Programmable Features</b> <ul style="list-style-type: none"> <li>• Standard programming resident in 60 KB re-programmable memory.</li> <li>• Additional 256 KB serial Flash data storage.</li> <li>• Highly flexible rate/tariff/max-time structure including:                             <ul style="list-style-type: none"> <li>• Up to eight (8) defined rates with defined max time for each.</li> <li>• Standard rate operation.</li> <li>• Time-of-day rate/max time control.</li> <li>• Day-of-week rate/max time control.</li> <li>• Day-of-year rate/max time control.</li> <li>• Progressive/regressive tariffs.<sup>4</sup></li> <li>• Cumulative grace.</li> </ul> </li> </ul>			
<b>Software System Management Features</b> <ul style="list-style-type: none"> <li>• Meter revenue audit including individualized coin counts, plus total invalid coin count.</li> <li>• Separate time-stamped transaction (coin/card) and maintenance logs for ticket adjudication.</li> <li>• Transaction log stores time-stamped data for the last approx. 450 coin and/or card transactions.</li> <li>• Maintenance log stores time-stamped data for the last approx. 100 maintenance events.</li> <li>• Coin discrimination data is retrievable in the field for chute performance analysis by factory personnel.</li> <li>• Swapping/moving meters within a meter system.</li> <li>• Audit disable for coin and/or card check during:                             <ul style="list-style-type: none"> <li>• Maintenance/testing.</li> <li>• Time/rate programming.</li> <li>• Meter maintenance.</li> <li>• Meter/post inventory.</li> </ul> </li> <li>• Password protected - user and group level security features.</li> </ul>			
<b>Handheld Computer</b> <ul style="list-style-type: none"> <li>• Rugged handheld computer, with Ethernet/serial communications/rechargeable cradle and attached IR and/or RF communications device.</li> <li>• Wide range of accessories available.</li> </ul>			
<b>Warranty</b> <ul style="list-style-type: none"> <li>• J.J. MacKay Canada Limited, the manufacturer, guarantees for a period of one year from the date of shipment against defects in workmanship and/or materials.</li> </ul>			

Contact your local representative for further information.

[1] Actual battery life achieved may vary significantly depending on many factors including but not limited to: battery manufacturer, age of battery when installed, meter usage, hours of operation, features implemented, and operating environment.  
 [2] Requires Dual 9V adapter, Part # 35GD0000055  
 [3] Factory installed option, 6-8 weeks lead time.  
 [4] Certain restrictions and/or costs may apply.

As our policy is one of continuous product improvement and development, we reserve the right to alter product specification and design. Photos are representative; product appearance may differ.

Copyright © 2006 J.J. MacKay Canada Limited. All rights reserved. The MacKay Logo, MacKay Guardian, SmartChute and SmartPower are either trademarks or registered trademarks of J.J. MacKay Canada Limited in Canada and other countries. All other trademarks are the property of their respective owners. J.J. MacKay Canada Limited reserves the right to modify the specifications without prior notice. Please refer to our website for up-to-date specifications.

Head Office:

J.J. MacKay Canada Limited  
 1342 Abercrombie Road  
 PO Box 338, New Glasgow  
 Nova Scotia, Canada B2H 5E3  
 Phone: (902)752-5124  
 Fax: (902) 752-5955

Sales Office:

Head Office customer service and technical support:

Toll free in North America: 1-888-4MACKAY  
 (462-2529)

Fax: (902) 752-4889  
 Email: customer.service@mackaymeters.com  
 Web: www.mackaymeters.com

