



MALÅ GPR CX (Concrete Imaging) System

Scan, cut and core with confidence!

CX12 is the intelligent choice for
concrete inspection



Scan, cut and core with confidence!

CX12 is the intelligent choice for
concrete inspection





Ground penetrating radar for concrete scanning and inspection

The MALÅ GPR CX Concrete Imaging System allows you to perform ground penetrating radar scans of concrete structure simply and safely and present data clearly for real-time and in-the-box 3D data acquisition, display and analysis.

The MALÅ GPR CX System provides accurate inspection of concrete structure such as floors, walls, slabs, bridge deck for the detection of metallic and non metallic objects and features, i.e. rebar, post tension cables, metallic/ non-metallic conduits and pipes, voids, as well as the measurement of slab thickness.



The software for the MALÅ GPR CX System includes three different measurement modes; 2D, 3D Grid and Object Mapper- projects, which makes it the most flexible and comprehensive system on the market.

The extremely user-friendly software with its simple interface may be operated by either the popular push-and-turn knob, or in a fully remote mode using buttons on the antenna.

A MALÅ GPR CX System comes standard in a CX Shipping Case, but depending on the application and user requirements it can also be used in conjunction with an optional [MALÅ GPR PC/Monitor holder](#) for greater portability and flexibility.

The system fully supports the [MALÅ GPR High Frequency \(HF\) Antennas](#) allowing the user to choose the best antenna for a given application and obtain unsurpassed accuracy and data clarity.

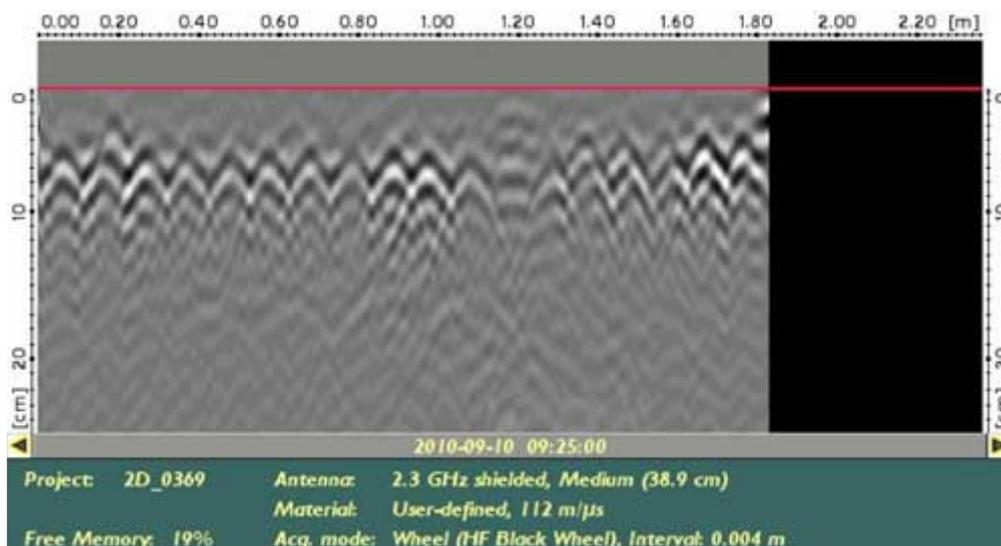
The MALÅ GPR CX System is a complete system scanning and inspecting of concrete structure, from survey to end results.

The basics of MALÅ CX Concrete inspections

The MALÅ CX ground penetrating radar (GPR) concrete scanning system is designed for the non-destructive investigation and imaging of concrete and other man made structures. Construction professionals involved in the cutting, coring or drilling of concrete structure require a safe and reliable means of inspecting work areas to locate and identify hidden features that could cause damage to machinery, or pose a danger to the operator or the structure itself during these activities.

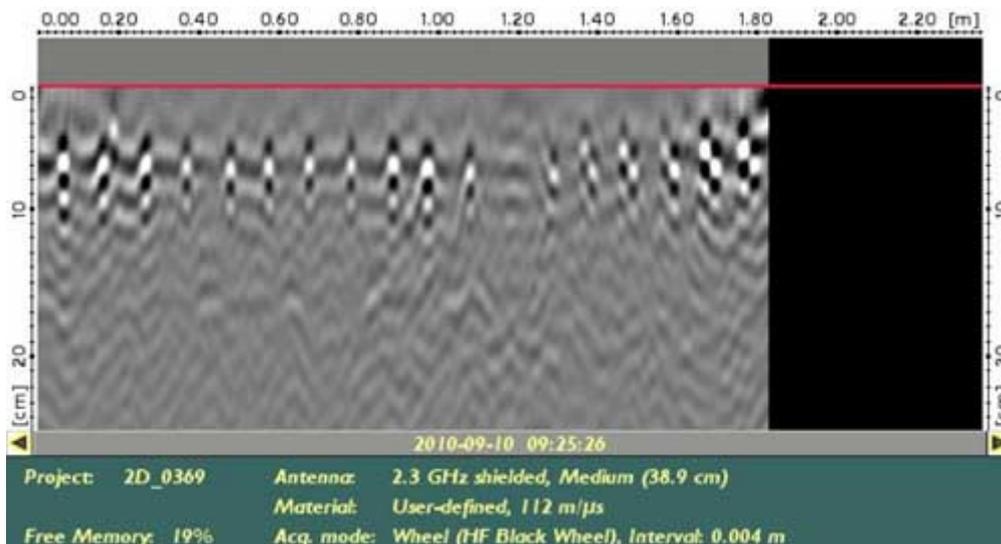
"In Australia, we have found the main targets of concrete investigations are post-tension cables and utilities" says Mads Toft of MALÅ GPR Australia. "The system is also commonly used for the mapping of steel reinforcement which under some conditions should not be cut by coring. Typically, a locator professional using the MALÅ CX concrete scanner would be called in to 'clear' an area prior to cutting or coring the concrete slab. Much because of the integrated GPS support system, other common applications for the MALÅ CX ground penetrating radar (GPR) system includes void detection and asphalt thickness estimation," continues Mads.

The MALÅ CX ground penetrating radar (GPR) system allows users to scan concrete structure simply and safely and present GPR data clearly for real-time and in-the-box data acquisition, display and analysis. In most cases, scanning is performed in straight lines and in perpendicular directions and the data displays reflections which reveal the features within a concrete structure.



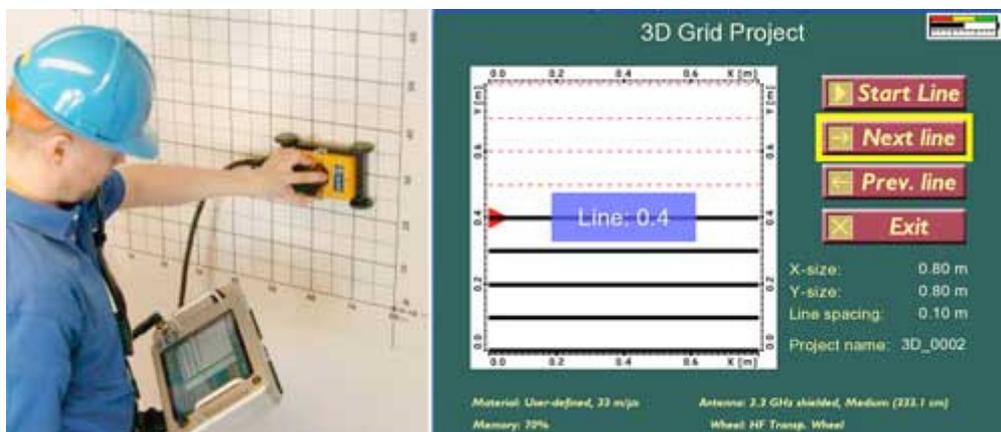
Reflections from a 2D ground penetrating radar (GPR) concrete scan, showing regularly spaced steel reinforcing

One impressive feature of the MALÅ CX ground penetrating radar (GPR) system is the simplicity of the included interactive migration tool. Migration is a processing technique which focuses the reflections in the ground penetrating radar (GPR) data images to its point source, allowing for clear and precise interpretation of even the most closely spaced concrete features. Migration is also useful for identifying and separating features that are overlying each other (e.g. a utility running directly above a bar of steel reinforcing).



Migration of the ground penetrating radar (GPR) data in the previous image. Migration focuses the reflections to its source and allows for as clear as possible visual interpretation - note the very closely spaced bars at the end of the profile (right hand side).

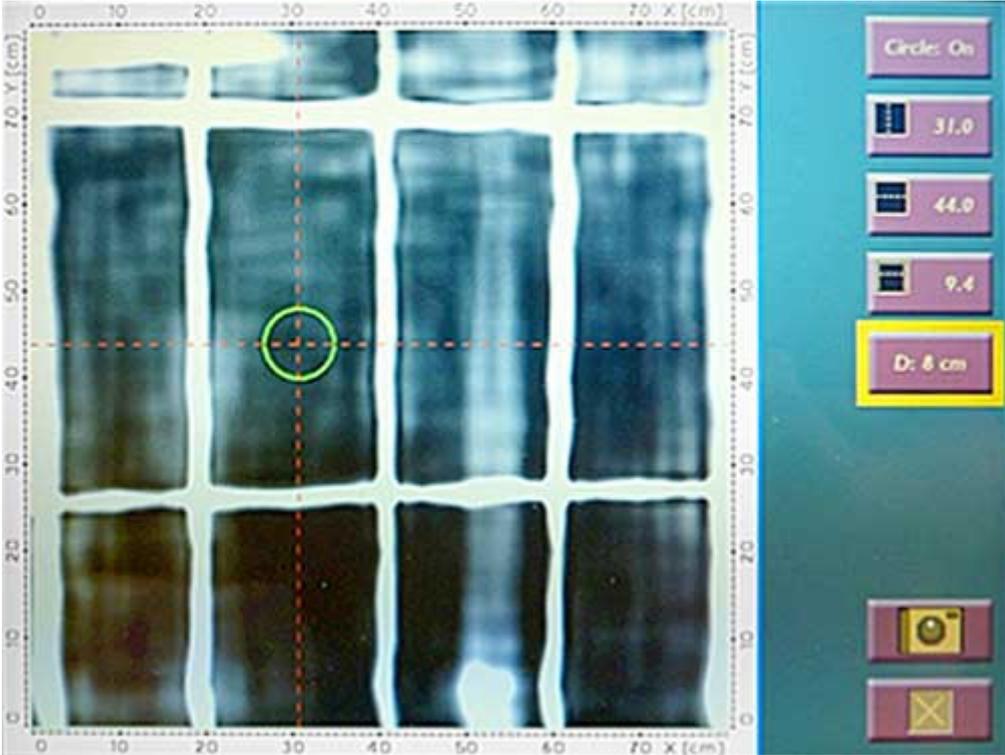
In addition to visual identification using ground penetrating radar (GPR), the MALÅ CX system was the world's first to combine GPR with the more common Electro-Magnetic (EM) technology by way of a fully integrated 50/60 Hz sensor. This combination allows the detection of both metallic and non metallic objects and features, but also aids in the detection and location of metallic conductors energized with 50/ 60 Hz within the structure under investigation; thereby offering an additional element of safety to the system.



Making a Grid Project (3D picture) of a concrete wall. The interactive software guides the user to collect the ground penetrating radar (GPR) data.

In an area where quite detailed concrete investigation is required, the MALÅ CX ground penetrating radar (GPR) system has the ability to create a 3D picture of the subsurface. Users collect a number of perpendicular profiles following the MALÅ grid map and the intuitive steps in the software. Processing of this collected data is performed in real-time, in the-the-box, and presents a 'top-down' and cross sectional view of the area under investigation. There are a number of features within this processed 3D ground penetrating radar (GPR) data which allows users to look down 'through' the slab and to identify features at different depths and running in different directions. A very useful aspect of the 3D projects is the ability to select a 'virtual core hole' and find a clear space within the investigated area, that can be marked on the ground surface and approved for penetrations.

"The MALÅ CX ground penetrating radar (GPR) concrete scanner is a very successful instrument in Australia and is becoming quite well accepted, and in some cases required, within the construction industry" says Mads Toft. The system is known for its accuracy, reliability, ease-of-use and is going a long way in providing a higher level of safety on work sites. The MALÅ CX ground penetrating radar (GPR) system has the capacity to minimize risk and save lives (e.g. by avoiding power cables) to save money (e.g. by avoiding post-tension, structural steel and utilities which, if cut, can result in long periods of down time and repairs) and provides a new level of knowledge with regards to concrete and structural investigation.



A 'virtual core-hole' allows users to identify and avoid hazard features such as the steel reinforcing and tension cable shown in this image.

New Product Release: MALÅ CX12

New MALÅ Concrete

Inspection tool



New MALÅ CX12™

”The MALÅ CX systems have been a tremendous success”, says Mads Toft, representative of MALÅ in Australia and New Zealand. ”I love demonstrating this unit to clients. It is so easy to use and people are amazed by the quality of this equipment and the results it delivers.”

In the hands of professional, the MALÅ CX systems have proven to be extremely efficient. “I have seen people building entire businesses around this instrument and makes a living from using it and selling the service. The ROI of this equipment is counted in months instead of years.”, continues Mads.



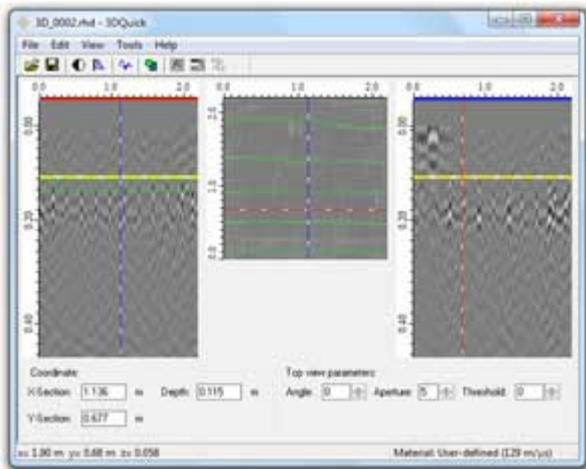
MALÅ CX12™ in action

In order to stay ahead in the game, MALÅ continuously seek to improve their products. The feedback from clients is extremely important and at the very core of every new development project.



The new CX12™ (right) is much more compact and improves logistics

In comparison to the market leading CX11, The new MALÅ CX12™ is smaller, tougher, has improved environmental protection, and includes a completely reworked user interface for even simpler and intuitive operation. The CX12™ also comes bundled with the completely new MALÅ 3D Vision™ software as standard.



MALÅ 3D Vision software

“It is hard, if not stupid, to fix something that isn’t broken”, says Bernth Johansson Head of Development at MALÅ. “The CX11 interface and hardware is very good and much appreciated by our clients and we do not wish to change the positive experience people have with this product line. We have been very careful when developing the CX12, we have kept the best parts and ideas of the CX11 and, together with loads of new and good ideas from our clients, our team of developers have made a tremendous achievement fitting this onto a new and much refined core. Not only is the CX12 a worthy successor of the MALÅ CX11 but also a better platform for future development of the MALÅ concrete imaging product line”, says Bernth.



CX12 in production

Summary of Improvements, Features & Benefits of the CX12™

Hardware

- New carry/storage case
- 31% reduction in shipping/storage volume
- 13% reduction in system weight
- Water resistant and protected to IP65
- New angled Antenna connector offers improved drag relief and a lower protrusion profile
- Remote control of CX firmware via Antenna control buttons
- Electromagnetic (EM) Antenna option

Firmware

- LINUX operating system for fast and reliable job processing
- Intuitive project driven user interface for enhanced work flow
- Project modes for 2D, 3D Grid, and Object Mapper™
- In-the-box processing to clear jobs on site
- Hyperbola fitting tool for velocity calibration
- Screen-shot function for verification and simple reporting
- GPS compatible

Software

- The CX12™ will ship with the all new MALÅ 3D Vision™ software. This simple yet versatile Windows™ based PC visualization software replicates the in-box Grid Project function from the CX Monitor, offering clients greater flexibility for off-line data processing and development compelling visualization.
- Handles 3D Grid Project data directly from the CX12™

- View both X and Y Grid Project profiles with top view
- Drawing editor to mark-up 3D Grid Project data sets for reporting

Additional Benefits

- Industry leading screen visibility, even in bright sunlight
- Superior battery technology
- Aircraft quality aluminum housing with IP67 rating
- Better in-the-box software
- Excellent post-sales support

With the CX12™, MALÅ is strengthening its leading position within the non-destructive concrete inspection market. The CX series are the intelligent choice for concrete inspection professionals, having helped users to scan, cut, and core with confidence for almost a decade. With the MALÅ CX12™ concrete inspection systems, MALÅ widens the gap to competitor products and sets a new standard in the industry.

The CX12™ also offers solutions in the following areas

- Subsurface Profiling & Object Location
- Geophysical Surveying
- Non-Destructive Assessment & Testing

Copyright © 2012 MALÅ Geoscience. All rights reserved.