

GOT 1000 Series and Engineering Environment, GT Designer2

Author: *Tetsuyuki Usami**

1. Introduction

Mitsubishi Graphic Operation Terminals, GOT 1000 Series, was first introduced in July 2004. Since then, we have expanded both product lineup and functionality for further market penetration.

This article introduces the new models and functionalities of the GOT 1000 Series and the implemented technology in them.

2. GOT 1000 Series and Engineering Environment

The GOT 1000 Series consists of three models: GT15 (full-spec model that covers wide-ranging applications from networking to stand-alone operation); GT11 (standard model fully equipped with basic functionalities for stand-alone use); and GT10 (basic model with GOT functions condensed into palmtop size).

After the GOT 1000 Series was launched in 2004, the product lineup and functionalities have been expanded.

As the engineering environment for the GOT 1000 Series, the drawing software package GT Designer2 supports all GOT 1000 models and is expected to help reduce rising engineering costs. When the GOT 1000 was released, GT Designer2 was updated to support all models and functions of the GOT series. Since then, further improvements have been made by adding new functions and enhancing operability for improved performance.

The following sections introduce the expanded models and functionalities of the GOT 1000 Series and GT Designer2.

3. Expanded Functions of GT Designer2

3.1 Features of GT Designer2

GT Designer2 was launched in 2002 as the drawing software package for the GOT 900 Series to reduce the time for creating screens. GT Designer2 is easy to use even for beginners, with many functions for reducing the time to create screens, and Windows-based operations.

3.2 Expanded functions after the GOT 1000 compatible version (Version 2 and later)

GT Designer2 was upgraded to GOT 1000 compatible Version 2, where various functions were en-

hanced as listed in Table 1. Corresponding to the highly functional GOT 1000's ability to handle a greater amount of information, the enhanced functions make it much easier for users to create screens, thus improving efficiency.

Table 1 Expanded functions of GT Designer2

Name of Function	Description of Expanded Function
Window preview	Preview of the window screen is available.
Multiple data enlargement/reduction	Multiple data can be enlarged or reduced at once.
Wizard	A newly created project can be interactively initialized.
Data consistency check	Data in the personal computer can be checked with the data in the GOT main unit.
Screen image list	Screen images can be checked on a thumbnail list; and editing functions such as copy and delete are available.
3D CAD data compatible	IGES format graphic data can be read in.
Automatic size adjustment of direct input characters	When changing a switch size, directly entered characters are automatically adjusted.
Library color selection	Library images can be displayed by color.
Touch area fit-in	Touch area (valid area) can be optimized to fit within the frame of the switch image.
Data transfer tool	Data upload/download tool without any support from GT Designer2.

3.3 Compatibility with the integrated platform

To make GT Designer2 compatible with the integrated platform, the following functions have been added:

- (1) Graphical system setup function
 - (2) Label reference function
 - (3) Security function (User authentication)
- Details of (1) and (2) are described below.

- (1) Graphical system setup function

The system management software is now able to allocate the GOT in the same way as the programmable controller. When an allocated GOT is selected (double clicked), the system management software starts GT Designer2, which then configures detailed settings such as the type of GOT and communication

settings. Settings made by GT Designer2, i.e. GOT type, communication settings, etc., are reflected in the system management software.

(2) Label reference function

In the previous version of GT Designer2, items displayed on the monitor, e.g., numeric data and lamps, were specified by the device notation, making it difficult to identify the data type of displayed items. In addition, when the device assignment was changed across the system, the changed device and data needed to be checked on all screens, which was inefficient and time-consuming. The new label reference function makes it possible to specify monitor display items by their labels (names) instead of the device notation.

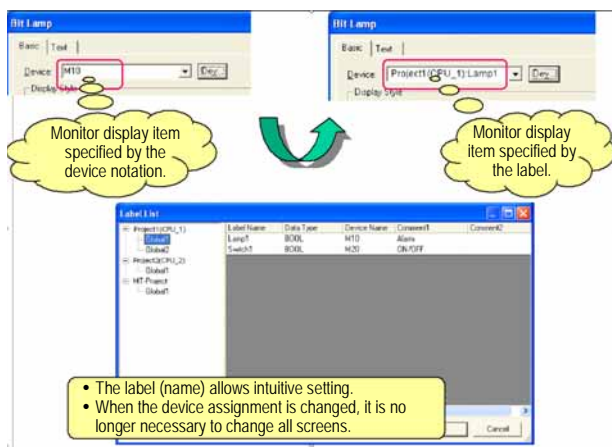


Fig. 1 Label reference function

4. Expanded Models and Functions of the GOT 1000 Series

The product lineup of the GOT 1000 Series has continually grown. The main models added in 2007 are listed in Table 2.

Table 2 Expanded models of GOT 1000 Series

Model	Outline
GT15, 5.7-inch VGA model	With a 5.7 inch VGA LCD, this model realizes large information display and compact size.
GT11, 5.7-inch model specifically for bus connection	Connection mode is specifically for bus connection to pursue cost effectiveness.
GT10, 4.5-inch model	GT10 basic model following the 3.7 inch model.
CF card unit	Add-on unit for the CF card interface.
External input/output interface unit	Optional unit for connecting I/O devices such as an operation panel and lamps.
Sound output unit	Optional unit for sound output

Functionalities have also been expanded as shown in Table 3, with the main ones described below.

(1) Compatibility with high-speed programmable controller and high-speed motion controller

Connectivity of GOT 1000 has been enhanced for both the high-speed programmable controller and the high-speed motion controller, which are compatible with the integrated platform. The GOT 1000 now supports various connection modes (bus, serial and Ethernet) as well as maintenance monitoring functions such as system monitor and ladder monitor functions.

Table 3 Expanded functions of GOT 1000

Name of Function	Description of Expanded Function
Backup and restoration function	Backs up the sequence programs, etc. in the GOT main unit with one touch.
Operator authentication function	Sets up each operator's authority level for access to the operation and display screens.
Expansion of advanced recipes	Number of advanced recipes has been increased to 2000 records.
Ladder monitor	Supports local device monitoring, and enables storing of sequence program comment data onto a CF card.
MES interface function	Buffers triggered actions, and expands accessible databases.
Stroke font	Thai and Chinese (Simplified and traditional characters) have been added.
Transparent bitmap figures	Transparent color is available for bitmap figures.

(2) Backup and restoration function

To ensure proper system operation and maintenance, sequence programs, etc. must be periodically backed up in case of system failure, and replacement or program reinstallation must be promptly carried out when the programmable controller fails. To overcome this challenge, a "Backup and Restoration Function" has been newly developed.

The backup and restoration function enables the sequence programs to be backed up in the GOT 1000 with one touch. In addition, should the programmable controller fail, restoration from the GOT can be achieved with one touch without using a personal computer. This function ensures simple and quick backup and restoration.

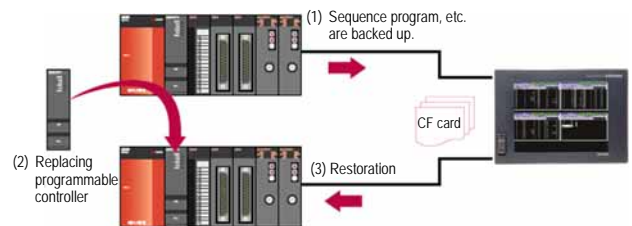


Fig. 2 Backup/restoration function

(3) Operator authentication function

To strengthen security, an "Operator authentication

function" has been developed to manage the operation authority for GOT 1000. This function authenticates the operator name and password, and manages each operator's authority for access to the display and operation screens. In addition, together with the operation log function, it is also possible to record which operator performed what operations.

The operator authentication function thus boosts security and helps trace the cause of operation errors.

We will continue pursuing graphic operation terminals for efficient operations and shorter downtime by enhancing the operator interface, device connectivity and accessibility to the information systems as well as improving the basic functions.