

PLUS+1[®] GUIDE



Take Control of Your Applications with PLUS+1[®] GUIDE!

GUIDE (Graphical User Integrated Development Environment) is a member of the PLUS+1[®] family of products that provide complete vehicle control solutions. Other PLUS+1[®] products include controllers, displays, and electrohydraulic products.

GUIDE allows graphical development of machine management applications, downloading of software via CAN, and development of user specific service and diagnostic tools. GUIDE maximizes OEM engineering productivity and protects intellectual property.

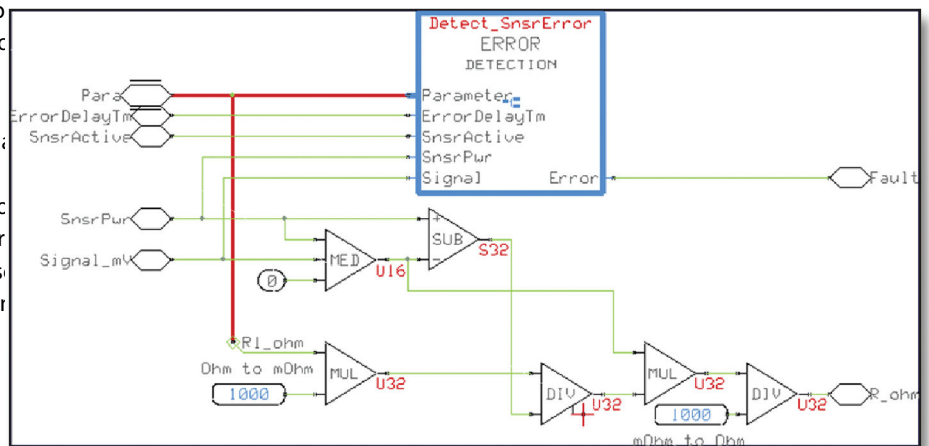
PLUS+1[®] GUIDE Development Tool

GUIDE uses graphic symbols and components to create application drawings that are easily understood by inexperienced programmers. The drawing represents the software application which is then automatically coded and serves as the documentation for the program.



Features

- Rapid production of applications enabled by dragging and dropping proven graphical symbols.
- Built on reliable, robust field-proven tools.
- Assures protection of proprietary intellectual property.
- Graphical editor allows easy development of applications by inexperienced programmers.
- PLUS+1[®] compliant function blocks increase productivity by allowing rapid set-up of Danfoss compliant sensor, pump, motor, and valve products.



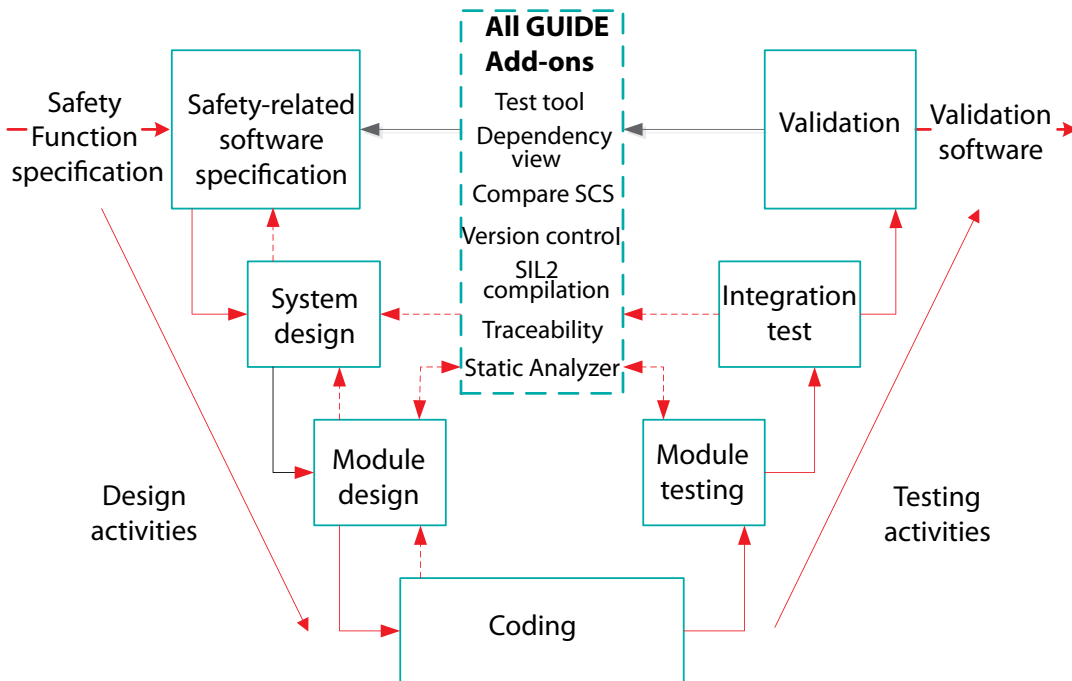
Comprehensive technical literature is online at www.danfoss.com

PLUS+1® GUIDE Development Tool

- Symbols and components are selected from a palette and dropped onto the drawing space.
- Danfoss developed function blocks are available for common control requirements such as PID control, ramp, filter, and command signal profiles.
- GUIDE compliance blocks allow rapid integration of input and output signals from Danfoss electrohydraulic products through the use of predetermined signal types and parameter default settings.
- Graphical programming reduces the number of steps required to develop an application; source code is generated directly from the application drawing to reduce coding errors.
- On-line and context-sensitive help allows easy comprehension of product features.
- Application data logging aids machine diagnostics.

Service Tool

PLUS+1® includes an easy to use download feature. Application files are downloaded to the target controller via CAN. The download tool allows PLUS+1® users to access all of the controllers and intelligent modules on the PLUS+1® network. Simple, fast, reliable communications between a controller, or network of controllers, and a PC USB port is accomplished with the CG150 CAN/USB gateway.



System requirements

	Service Tool Minimum	GUIDE Minimum	GUIDE/Service Tool Recommended
CPU*	3.0 GHz, 64-bit (x64), 4 cores, 2012 or later		
OS	64-bit Windows 7 or 10 (It is recommended to keep the OS up-to-date with the latest updates)		
UAC	Local Administrator Access is needed only for installation of the tools, not for running them		
RAM	1 GB		3 GB
HD	>1 GB Free, HDD		>2 GB Free, SSD
Resolution	1280 x 1024		1920 x 1080
Email	For license registration		
PDF	Any recent standards compliant pdf reader		
Web	Any recent standards compliant web browser (for HTML based F1 help)		
XML	MSXML 4.0 Service Pack 2 (Microsoft XML Core Services)		
.Net	N/A	Version 4 (Full) is needed for PLC code support in GUIDE	

* The CPU should be intended for at least laptop use. Processors designed for netbooks, tablets or similar are not recommended.

Ordering information

Description	Part number
Library-Work Function	11179529
Library- Propel Application Library (Advanced)	11182154
Integration-Simulink S Function	11179531
PLUS+1® GUIDE Professional	11179523
PLUS+1® GUIDE Add-ons	11179525
PLUS+1® Service Tool Add-ons	11179527

Related product

Description	Part number
CG150-2 CAN/USB Gateway Interface Communicator	11153051

Reference literature (on line at www.danfoss.com)

Title	Literature ID
PLUS+1® GUIDE User Manual	10100824
PLUS+1® Service Tool User Manual	L1307770
PLUS+1® Service Tool Design Manual	L1320837

PLUS+1[®] Controllers



Mobile Machine Management

Danfoss PLUS+1[®] controllers are elements of the flexible, powerful, expandable, and affordable family of mobile machine management products. These devices are general-purpose controllers that are equally suited for use as a member of a distributed machine control system, with intelligence in every node, or as a stand-alone controller.

Product Highlights

The MC024-110 employs a 32 bit Cortex-M3 Processor, providing the controller with extremely fast single cycle processing speed and 512K internal flash. The MC024-112 has an application key that enables the use of Danfoss developed GUIDE machine control solutions. The same GUIDE HWD file is used with both controllers.

Application Development

The MC024-112 employs an application key that enables the use of Danfoss developed PLUS+1[®] GUIDE machine control solutions. The same PLUS+1[®] GUIDE HWD file is used with both controllers.

Users develop MC024-112 applications with PLUS+1[®] GUIDE. This Microsoft Windows based development environment features a user-friendly, field proven, icon-based graphical programming tool, application downloader, and service/diagnostic tool.

Features

- User-programmable with PLUS+1[®] GUIDE (Graphical User Integrated Development Environment)
- 24 pins: (2) individually keyed DEUTSCH DTM pin connectors
- ARM 32 bit Cortex-M3 RUNNING AT 120 MHz
 - 12 bit analog-to-digital converter
 - 16 bit timers/counters
- FRAM non-volatile memory
- 9 to 36 Vdc power supply, monitored internally
- 1 CAN 2.0 B port, the fixed range analog input can be configured as the shield pin
- Power supply for external sensors rated at 5 Vdc to 300 mA and regulated internally
- 2 LEDs under user control
- 3 mounting alternatives: stack, end, or side
- Contains application key required to run Danfoss developed machine control application software
- CE compliant





Example

MC024-110 and MC024-112

14 Inputs

- (5) universal (DIN/AIN/FreqIN) that are user-defined as either
 - *Analog*: with configurable ranges 0 to 5.25 Vdc (with over range protection) or 0 to 36 Vdc
 - *Digital*: pull up (5 Vdc), pull down (0 Vdc), or pull to center (2.5 Vdc)
 - *Frequency* (timing): 1 Hz to 10 kHz
- (6) digital (DIN) configurable as pull up (5 Vdc) or pull down (0 Vdc)
- (2) analog (AIN/Temp/Rheo) 0 to 5.25 Vdc or 0 to 10,000 ohm rheostat
- (1) fixed range analog (AIN/CAN shield) 0 to 5.25 Vdc or CAN shield pin

4 Outputs

- (4) universal (PWMOUT/DOOUT/PVGOUT) that are user-defined as either
 - *Digital*: (3 A), configurable as source or sink
 - *PWM*: (30 to 4000 Hz), configurable as open or closed loop with current control
 - *Analog voltage*: open loop PWM at 4000 Hz
- Any PWMOUT/DOOUT/PVGOUT can be used to provide reference power to one PVG valve

Specifications

Product parameters

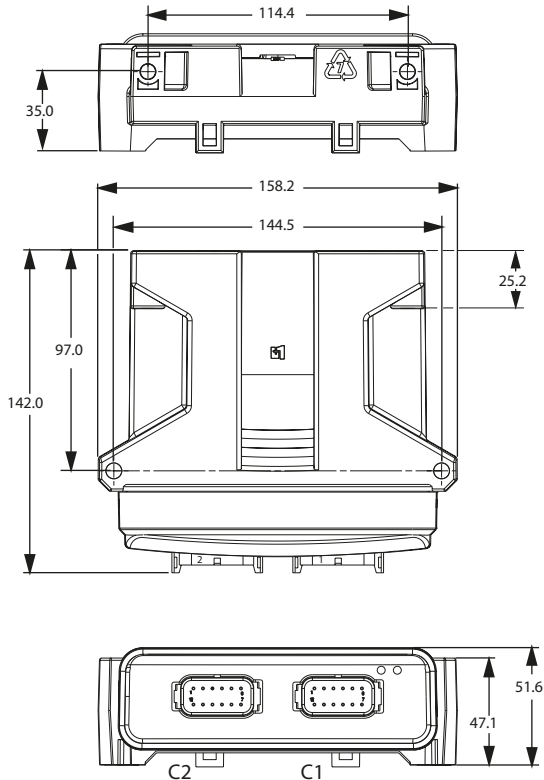
Supply voltage	9 to 36 Vdc
Operating temperature (ambient)	-40°C to 70°C [-40°F to 158°F]
Storage temperature	-40°C to 85°C [-40°F to 185°F]
Programming temperature	-40°C to 70°C [-40°F to 158°F]
IP rating (with mating connector attached)	IP 67
EMI/RFI rating	100 V/M
Weight	0.40 kg [0.88 lb]
Vibration	IEC 60068-2-64
Shock	IEC 60068-2-27 test Ea
Maximum current, sourcing	8 A
Maximum current, sinking	8 A

Example
MC024-110 and MC024-112

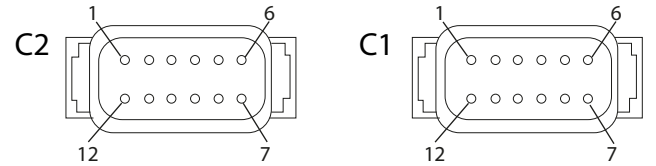
Dimensions and pin assignments

Mounting dimensions and pin assignments

Dimensions in mm [in]



Pin connector



kwa1379009271343

Pin	Controller function	Pin	Controller function
C2-P1	DIN	C1-P1	Power ground -
C2-P2	DIN/AIN/FreqIN	C1-P2	Power supply +
C2-P3	DIN/AIN/FreqIN	C1-P3	CAN +
C2-P4	DIN/AIN/FreqIN	C1-P4	CAN -
C2-P5	DIN/AIN/FreqIN	C1-P5	AIN/CAN shield
C2-P6	DIN/AIN/FreqIN	C1-P6	DIN
C2-P7	AIN/Temp/Rheo	C1-P7	DIN
C2-P8	AIN/Temp/Rheo	C1-P8	5 Vdc sensor power +
C2-P9	PWMOUT/DOUT/ PVGOUT	C1-P9	Sensor power ground -
C2-P10	PWMOUT/DOUT/ PVGOUT	C1-P10	DIN
C2-P11	PWMOUT/DOUT/ PVGOUT	C1-P11	DIN
C2-P12	PWMOUT/DOUT/ PVGOUT	C1-P12	DIN

! Caution

This device is not field serviceable. Opening the device housing will void the warranty.

Use care when wiring mating connector. Pinouts listed are for device pins.

SAMER has become a preferred Hydraulic Supplier with many manufacturers because offers the best of what really matters:
the hardware at the internal core of the Machine Application.

SAMER offers following services:

- Systems design with pumps and motors in closed and open loop circuits including valves
- Sale of hydraulic components and electronic devices.
- Commissioning and start up on machinery.
- Repair of hydraulic components
- Postsale and service troubleshoot on phone