РЕГУЛЯТОРЫ ТЕМПЕРАТУРЫ

DME

M1 - Intelligent
Контроллер температуры для ГКС

5

Контроллеры серии MT Series

9

DME Smart Series
Контроллеры температуры

15

27/09/2016

MILACRON®

M1 - Intelligent
Контроллеры температуры ГКС

DME

27/09/2016

M1 - INTELLIGENT Контроллер температуры ГКС

MILACRON®

M1 - Intelligent Контроллер температуры ГКС

ПРЕИМУЩЕСТВА

Intelligent - удобный для пользователя

- Интуитивно понятный цветной тач-скрин интерфейс с регулируемым углом обзора
- Автоматическая диагностика оборудования обеспечивает оптимальную конфигурацию и производительность
- Передовой процессор для управления
- Непрерывный контроль замыкания и измерения тока

Архитектура системы Plug and play

- Запатентованная карта контроля “все в одном” для высочайшей надежности
- Модульные 6-ти зонные карты, 15 Ампер на каждую зону
- Режим калибровки
- Универсальный источник питания

Оптимизирует производительность любой горячеканальной системы

- Уникальный метод мягкого пуска низким напряжением увеличивает срок жизни нагревателя
- Функция равномерного запуска для снижения отходов литья и экономии электроэнергии
- Алгоритм автоматической настройки
- Фазовый угол и режим импульса (пропорционально времени, пересечение нулевого уровня)

Прочная высококачественная конструкция

- Компактный металлический корпус и мощные силовые разъемы
- Защита пресс-формы и контроллера
- Встроенные предохранители для нагревателей и термопар
- Портативный стенд

M1 Plus модель с большим 7-ми дюймовым экраном со встроенной функцией обнаружения утечек, *Большой ассортимент настроек и установок*

M1 - Intelligent™ Спецификация

Пользовательский интерфейс	Цветной LCD сенсорный экран
Размер экрана	5.7″ QVGA
Точность калибровки	0.5°C / 1°F
Контроль точности	+/- 0.5°C / 1°F
Время отклика	8.3 мс при 60 Гц
Алгоритм управления	PID^2 с автоматической настройкой
Температура (F или C)	выбираются программно
Термопары	J или K-тип, выбираются программно
Рабочий диапазон	0 - 472°C или 32 - 882°F
Выходное напряжение	Максимум 264 Вольт
Напряжение питания	200/240В (1 фаза) или 380/440В (3 фазы)
Supply Breaker	40A 3 Phase breaker for 6 and 12 zone control units 63A 3 Phase breaker for 18 and 48 zone control units
Частота	50 - 60 Гц, автоматическое переключение
Температура окружающей среды	5 - 45°C (41 - 113°F)
Humidity Range	Up to 95% non-condensing
Ground Fault Detection	40mA per zone
Power Control	Phase angle or burst firing modes (time proportional, zero-crossing)
Overload Protection	Semi-conductor fuses on both heater legs
Control Modes	Closed loop (auto), open loop (manual), standby, boost mode and slave mode
Alarm Output	Closing contact relay, max. 5A, 230V
T/C and Power Connector	HAN 24e or 3
LED Indicators	Fault, Scan
Soft-Start with Auto-Tune	Unique low voltage method for heater safety
Input Protection	Plug-in nano fuses on both TC legs
Port (optional)	USB

CAD reference point

27/09/2016

M1 - INTELLIGENT Контроллер температуры ГКС

Как заказать Контроллер температуры ГКС

Как заказать

Контроллер	тип разводки
INT3048	MC

суффикс

Пример заказа:

M1 - Intelligent 30-зонный контроллер со стандартными кабелями

M1 - INTELLIGENT Контроллеры

в комплекте корпус, сенсорный экран HMI, 15A модули и кабель 5м.

REF	Zones	REF		
		No Cable	MoldMaster cable	Standard DME Cable
INT0612	6 x 15A	INT0612 NC	INT0612 MC	INT0612 SC
INT1212	12 x 15A	INT1212 NC	INT1212 MC	INT1212 SC
INT1824	18 x 15A	INT1824 NC	INT1824 MC	INT1824 SC
INT2424	24 x 15A	INT2424 NC	INT2424 MC	INT2424 SC
INT3048	30 x 15A	INT3048 NC	INT3048 MC	INT3048 SC
INT3648	36 x 15A	INT3648 NC	INT3648 MC	INT3648 SC
INT4248	42 x 15A	INT4248 NC	INT4248 MC	INT4248 SC
INT4848	48 x 15A	INT4848 NC	INT4848 MC	INT4848 SC

Main Wiring Options

STANDARD Suffix **MC**

Разъёмы на стандартных кабелях

All cables have a top-entry hood with four pins for double lever housings. For 12 zones or more the standard connector is HAN24E and the tool end has female PWR and male T/C.
Variants such as side-entry or 2-pin can be easily provided. For tools having other than HAN24E connectors please view some options shown overleaf.



M1 - INTELLIGENT 12/24/48 STD

Два разёъма типа HAN24E по 12 зон, один силовой и один для термопары подсоединённый к контроллеру и пресс-форме по схеме ниже.

HAN24E		Zone											
		1	2	3	4	5	6	7	8	9	10	11	12
POWER	(L)	1	2	3	4	5	6	7	8	9	10	11	12
	(N)	13	14	15	16	17	18	19	20	21	22	23	24
T/C	(+)	1	2	3	4	5	6	7	8	9	10	11	12
	(-)	13	14	15	16	17	18	19	20	21	22	23	24

DME Suffix **SC**

Разъёмы стандарта DME

All cables have A side-entry hood with two pins for single lever housings. The standard PWR connector is PIC-24-G and the T/C connectors are either MTC-5-G, MTC-8-G or MTC-12-G depending on the number of zones used. All are female gender at the tool end of the cable. For tools having other connectors please view some options shown overleaf.




M1 - INTELLIGENT 12/24/48 DME

С разводкой проводов на контроллер как для серии Smart Series II 12 Std и на прессформе по стандарту DME по схеме ниже (Т/П и силовой на 12 зон).

		Zone											
		1	2	3	4	5	6	7	8	9	10	11	12
PIC-24-G	(L)	A1	A3	B1	B3	A5	C1	C3	D1	D3	C5	E1	E4
	(N)	A2	A4	B2	B4	B5	C2	C4	D2	D4	D5	E2	E4
MTC-12-G	(+)	1	2	3	4	5	6	7	8	9	10	11	12
	(-)	13	14	15	16	17	18	19	20	21	22	23	24

Beacon (for M1 - Intelligent 48)

REF
INT48beacon

Тележка (для M1 - Intelligent 48 зон)

REF
INT48TROLLEY

CAD reference point

27/09/2016

MILACRON®

MT Series
Temperature Control System

DME

27/09/2016

MILACRON®

MT Temperature Control System

Benefits

Out-of-the-box user friendly
- Intuitive touch screen interface
- Modular design with 2-zone control cards
- Cable set included
- Quick start guide for easy start-up

Optimizes the performance of any hot runner system
- Unique low voltage soft-start method
- Proprietary adaptive auto-tuning control algorithm
- Phase angle or burst firing modes (time proportional, zero-crossing)
- Wide range of user settings

Plug-and-play system architecture
- Patented "all-in-one" control card designed for reliability
- Cabinets are fully wired for maximum expansion
- No special setting required for start-up
- 15A per zone

Future now technology
- State of the art color touch screen display
- Most advanced micro controller technology
- Switch mode poser supply
- Infield calibration mode
- Continuous ground fault and current measurement

High quality, robust design
- Compact solid metal enclosure
- Heavy duty industrial connectors
- Mold and controller protection features
- On-board load and thermocouple fuses

MT Temperature Control System Specifications

User Interface	Full-color LCD touch screen
Display Size	2 inches (176 x 200 pixels)
Calibration Accuracy	0.5°C / 1°F
Control Accuracy	+/- 0.5°C / 1°F
Power Response Time	8.3 ms at 60 Hz
Control Algorithm	Self tuning PID
Degree (F or C)	Software selectable
Thermocouple	J- or K-Type, software selectable
Operating Range	0 - 472°C or 32 - 882°F
Output Voltage	Maximum 264 VAC
Supply Voltage	95-265 Vac
Frequency	50 - 60 Hz automatic switching
Ambient Temperature Range	5 - 45°C (41 - 113°F)
Humidity Range	Up to 95% non-condensing
Ground Fault Detection	40mA per zone
Power Control	Phase angle or burst firing modes (time proportional, zero-crossing)
Overload Protection	Semi-conductor fuses on both heater legs
Control Modes	Closed loop (auto), open loop (manual)
Alarm Output	Closing contact relay, max. 5A, 230V
T/C and Power Connector	Various options available
Soft-Start with Auto-Tune	Unique low voltage method for heater safety
Input Protection	Plug-in nano fuses on both TC legs

CAD reference point

27/09/2016

How to order your Temperature Control System

How to order: Controller | Wiring

Suffix

Order examples:

MT 10-zone with HAN48E connector on tool side — STEP1012 | SC

MT Controllers

incl. cabinet, 2-zone touch-screen, 15A control card and 5m cable.

REF	Zones	REF		
		No Cable	MoldMaster cable	Standard DME Cable
STEP0204	2 x 15A	STEP0204 NC	STEP0204 MC	STEP0204 SC
STEP0404	4 x 15A	STEP0404 NC	STEP0404 MC	STEP0404 SC
STEP0606	6 x 15A	STEP0606 NC	STEP0606 MC	STEP0606 SC
STEP0812	8 x 15A	STEP0812 NC	STEP0812 MC	STEP0812 SC
STEP1012	10 x 15A	STEP1012 NC	STEP1012 MC	STEP1012 SC
STEP1212	12 x 15A	STEP1212 NC	STEP1212 MC	STEP1212 SC
STEP1418	14 x 15A	STEP1418 NC	STEP1418 MC	STEP1418 SC
STEP1618	16 x 15A	STEP1618 NC	STEP1618 MC	STEP1618 SC
STEP1818	18 x 15A	STEP1818 NC	STEP1818 MC	STEP1818 SC

Benefits

Out-of-the-box user friendly
- Intuitive color touch screen interface
- (2) 15A control zones
- Mold and controller protection features
- Quick start guide for easy start-up
- Heavy duty industrial connector included
- Boost, standby and slave mode

Optimizes performance
- Unique low voltage soft start method
- Proprietary adaptive auto-tuning control algorithm
- Phase angle and burst firing modes (time proportional, zero-crossing)
- Continuous display of % power and current

Two Zone
STEP0202H10A

MT Temperature 2-zone Controller Specifications

Calibration Accuracy	1°F / 0.5°C
Thermocouple	J or K-Type, software selectable
Operating Range	0 - 472°C or 32 - 882°F
Supply Voltage	95-265Vac
Frequency	50 - 60 Hz automatic switching
Ground Fault Detection	40mA per zone
Power Control	Phase angle and burst firing modes (time proportional, zero-crossing)
Overload Protection	Semi-conductor fuses on both legs
Control Modes	Closed loop (Auto), open loop (Manual)
Soft-Start with Auto Tune	Using unique low voltage method for heater safety
Input Protection	Plug in nano fuses on both T/C legs
Dimensions	15 x 25 x 8.5 cm

CAD reference point

27/09/2016

Main Wiring Options

STANDARD — Suffix MC

Standard Cable Tool Ends

All cables have a top-entry hood with four pins for double lever housings. For 12 zones or more the standard connector is HAN24E and the tool end has female PWR and male T/C.
Variants such as side-entry or 2-pin can be easily provided. For tools having other than HAN24E connectors please view some options shown overleaf.



MT Series 04 Std

Has one HAN16E with wiring at controller and tool as detailed below.

HAN16E		Zone 1	2	3	4
POWER & T/C	(L)	9	11	13	15
	(N)	10	12	14	16
	(+)	1	3	5	7
	(-)	2	4	6	8

MT Series 06 Std

Has one HAN24E with wiring at controller and tool as detailed below.

HAN24E		Zone 1	2	3	4	5	6
POWER & T/C	(L)	1	3	5	7	9	11
	(N)	2	4	6	8	10	12
	(+)	13	15	17	19	21	23
	(-)	14	16	18	20	22	24

MT Series 12 Std

Has two HAN24E connectors per 12 zones, one PWR and one T/C with wiring at controller and tool as detailed below.

HAN24E		Zone 1	2	3	4	5	6	7	8	9	10	11	12
POWER	(L)	1	2	3	4	5	6	7	8	9	10	11	12
	(N)	13	14	15	16	17	18	19	20	21	22	23	24
T/C	(+)	1	2	3	4	5	6	7	8	9	10	11	12
	(-)	13	14	15	16	17	18	19	20	21	22	23	24

MT Series 18 Std

Has four HAN24E connectors, two PWR and two T/C with wiring at controller and tool as detailed below.

HAN24E	POWER (L)	POWER (N)	T/C (+)	T/C (-)
Zone 1	1	13	1	13
Zone 2	2	14	2	14
Zone 3	3	15	3	15
Zone 4	4	16	4	16
Zone 5	5	17	5	17
Zone 6	6	18	6	18
Zone 7	7	19	7	19
Zone 8	8	20	8	20
Zone 9	9	21	9	21
Zone 10	10	22	10	22
Zone 11	11	23	11	23
Zone 12	12	24	12	24
Zone 13	1	13	1	13
Zone 14	2	14	2	14
Zone 15	3	15	3	15
Zone 16	4	16	4	16
Zone 17	5	17	5	17
Zone 18	6	18	6	18
not used	7	19	7	19
not used	8	20	8	20
not used	9	21	9	21
not used	10	22	10	22
not used	11	23	11	23
not used	12	24	12	24

DME — Suffix SC

DME Standard Tool Ends

All cables have A side-entry hood with two pins for single lever housings. The standard PWR connector is PIC24G and the T/C connectors are either MTC5G, MTC8G or MTC12G depending on the number of zones used. All are female gender at the tool end of the cable. For tools having other connectors please view some options shown overleaf.




MT Series 04 DME

Wired as StepUp 04 Std at controller, and DME standard at tool as detailed below.

		Zone 1	2	3	4	*
PIC24G	(L)	A1	A3	B1	B3	A5
	(N)	A2	A4	B2	B4	B5
MTC5G	(+)	1	2	3	4	5
	(-)	6	7	8	9	10

* not used

MT Series 06 DME

Wired as MT Series 06 Std at controller, and DME standard at tool as detailed below.

		Zone 1	2	3	4	5	6	*	*
PIC24G	(L)	A1	A3	B1	B3	A5	C1	C3	D1
	(N)	A2	A4	B2	B4	B5	C2	C4	D2
MTC8G	(+)	1	2	3	4	5	6	7	8
	(-)	9	10	11	12	13	14	15	16

* not used

MT Series 12 DME

Wired as MT Series 12 Std at controller, and DME standard at tool as detailed below (one PWR and one T/C per 12 zones).

		Zone 1	2	3	4	5	6	7	8	9	10	11	12
PIC24G	(L)	A1	A3	B1	B3	A5	C1	C3	D1	D3	C5	E1	E4
	(N)	A2	A4	B2	B4	B5	C2	C4	D2	D4	D5	E2	E4
MTC12G	(+)	1	2	3	4	5	6	7	8	9	10	11	12
	(-)	13	14	15	16	17	18	19	20	21	22	23	24

MT Series 18 DME

Wired as MT Series 18 Std at controller, and DME standard at tool as detailed below.

	PIC24G (L)	PIC24G (N)	MTC12G (+)	MTC12G (-)
Zone 1	A1	A2	1	13
Zone 2	A3	A4	2	14
Zone 3	B1	B2	3	15
Zone 4	B3	B4	4	16
Zone 5	A5	B5	5	17
Zone 6	C1	C2	6	18
Zone 7	C3	C4	7	19
Zone 8	D1	D2	8	20
Zone 9	D3	D4	9	21
Zone 10	C5	D5	10	22
Zone 11	E1	E2	11	23
Zone 12	E3	E4	12	24
Zone 13	A1	A2	1	13
Zone 14	A3	A4	2	14
Zone 15	B1	B2	3	15
Zone 16	B3	B4	4	16
Zone 17	A5	B5	5	17
Zone 18	C1	C2	6	18
not used	C3	C4	7	19
not used	D1	D2	8	20
not used	D3	D4	9	21
not used	C5	D5	10	22
not used	E1	E2	11	23
not used	E3	E4	12	24

CAD reference point

27/09/2016

Other Wiring Options* — * available for the whole range

Option-HAN10E

Suffix **H10E**

For MT Series 4 Std & MT Series 6 Std at controller with separate PWR and T/C connectors at the tool as detailed below.

HAN10E	POWER		HAN10E	T/C	
	(L)	(N)		(+)	(-)
Zone 1	1	9	Zone 1	1	9
Zone 2	2	10	Zone 2	2	10
Zone 3	3	11	Zone 3	3	11
Zone 4	4	12	Zone 4	4	12
Zone 5	5	13	Zone 5	5	13

Allows maximum of 5 zones

Option-Combi

Suffix **CC**

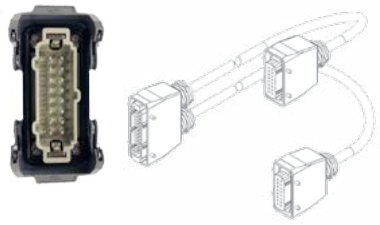
Re-wire any MT Series or Intelligent controllers to provide all of the connectors wired in PWR and T/C combined Combi style as detailed below. For controllers with 6 zones or more a 10% charge is added.

HAN24E	POWER		T/C	
	(L)	(N)	(+)	(-)
Zone 1	1	2	13	14
Zone 2	3	4	15	16
Zone 3	5	6	17	18
Zone 4	7	8	19	20
Zone 5	9	10	21	22
Zone 6	11	12	23	24
Zone 7	1	2	13	14
Zone 8	3	4	15	16
Zone 9	5	6	17	18
Zone 10	7	8	19	20
Zone 11	9	10	21	22
Zone 12	11	12	23	24

Option-HAN16E

Suffix **H16E**

Tool uses smaller HAN16E connectors. Wired as standard at controller.
Provide Y-Cables with HAN24E at controller for each pair of smaller HAN16E at tool.

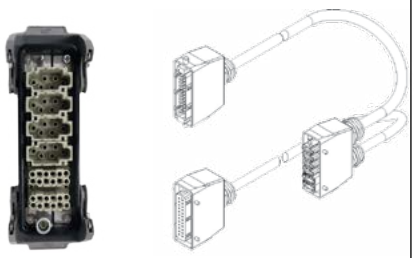


HAN16E	POWER		HAN16E	POWER	
	(L)	(N)		(L)	(N)
Zone 1	1	9	Zone 7	1	9
Zone 2	2	10	Zone 8	2	10
Zone 3	3	11	Zone 9	3	11
Zone 4	4	12	Zone 10	4	12
Zone 5	5	13	Zone 11	5	13
Zone 6	6	14	Zone 12	6	14
not used	7	15	not used	7	15
not used	8	16	not used	8	16

Option-HANMOD

Suffix **HMOD**

Tool-end has HAN Modular connector with combined PWR and T/C as detailed below. Wired as standard at controller. Provide Y-Cables with two HAN24E at controller for each HanMOD at tool.

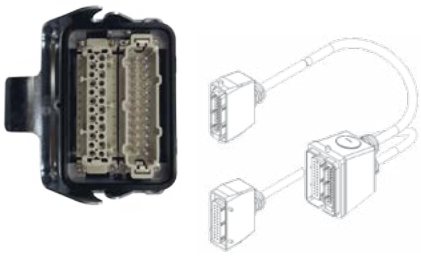


HanMOD	POWER & T/C			
	(L)	(N)	(+)	(-)
Zone 1	C1	C2	A1	A7
Zone 2	C3	C4	A2	A8
Zone 3	C5	C6	A3	A9
Zone 4	D1	D2	A4	A10
Zone 5	D3	D4	A5	A11
Zone 6	D5	D6	A6	A12
Zone 7	E1	E2	B1	B7
Zone 8	E3	E4	B2	B8
Zone 9	E5	E6	B3	B9
Zone10	F1	F2	B4	B10
Zone11	F3	F4	B5	B11
Zone12	F5	F6	B6	B12

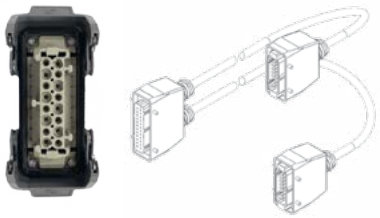
Option-HAN48E

Suffix **H48E**

Tool-end has single HAN48E with Male PWR and Female T/C as detailed below. Wired as standard at controller. Provide Y-cable with two HAN24E at controller for each HAN48E at tool.



HAN48E	POWER & T/C			
	(L)	(N)	(+)	(-)
Zone 1	1	13	1	13
Zone 2	2	14	2	14
Zone 3	3	15	3	15
Zone 4	4	16	4	16
Zone 5	5	17	5	17
Zone 6	6	18	6	18
Zone 7	7	19	7	19
Zone 8	8	20	8	20
Zone 9	9	21	9	21
Zone 10	10	22	10	22
Zone 11	11	23	11	23
Zone 12	12	24	12	24



HAN16E	T/C		HAN16E	T/C	
	(+)	(-)		(+)	(-)
Zone 1	1	9	Zone 7	1	9
Zone 2	2	10	Zone 8	2	10
Zone 3	3	11	Zone 9	3	11
Zone 4	4	12	Zone 10	4	12
Zone 5	5	13	Zone 11	5	13
Zone 6	6	14	Zone 12	6	14
not used	7	15	not used	7	15
not used	8	16	not used	8	16

Other Options?

We can accommodate any other wiring standard not detailed here.
However, any change request, that needs a change to the connectors or wiring within the controller, does attract a 10% surcharge.

CAD reference point

27/09/2016

MILACRON®

Create your own cabling option here

If you require non-standard cables and/or connectors not previously listed then please provide the following information (if available, please supply a tool drawing as well).

Company .....

Address .....

.....

.....

Contact .....

Tel: .....

Fax: .....

Email: .....

DME Contact .....

Controller Type	MT Series	M1 -Intelligent
Maximum No. of zones	4	
	6	12
	12	24
	18	48
Cable Length (Standard is 15ft)		
Are Code pins required	Yes/No	

	PWR Cable	T/C Cable	Combined PWR & T/C
Controller End Connector (Standard is HAN24E)			
Top or Side Entry Hood? (Standard is Top Entry)			
Tool End Connector (Standard is HAN24E)			
Top or Side Entry Hood (Standard is Side Entry)			
Pins for SIngle or Double Lever (Standard is Double Lever)			
Are Mould Plugs Required?	Yes/No	Yes/No	Yes/No

How are Zones Wired?

CAD reference point

27/09/2016

MILACRON®

Контроллеры температуры серии DME Smart

DME

27/09/2016

MILACRON®

Info

Блок регулирования температуры

***DME* Smart Series® Блок регулирования температуры**

DME's Smart Series® является результатом обширных исследований, направленных на разработку самой универсальной и надежной линии регуляторов температуры.
Эти блоки имеют полную разводку проводов и готовы к использованию, имеются в наличии стандартные конфигурации на 5, 8 и 12 зон

Основные характеристики

1. Прочная конструкция. Цельносварной корпус из стали 16 сортамента гарантирует долгий срок эксплуатации.
2. Простые соединители входной мощности переменного тока позволяют выбирать напряжение, фазу и регулировать нагрузку, подходящие для вашего устройства. Все центральные блоки Smart Series® запитываются 380/420 В пер. тока, 3 фазы, 5 проводов, 50-60 Гц. Возможны различные варианты напряжения, фазы и регулировки нагрузки::
   3 x 380 В пер. тока + Np + земля
   220-240 В, 3 фазы, 50-60 Гц
   208-240 В, 1 фаза, 50-60 Гц
   110-120 В, 1 фаза, 50-60 Гц (для нагревателей на 110 В пер. тока)
   Блоки на 16 - 48 зон состоят из 2, 3 и 4 блочных секций, соединенных вместе в один объединенный комплекс , который требует только одно главное соединение входящей мощности переменного тока.
3. Прочные линейные соединители монтажных плат для модулей подключения питания и термопар. Большая контактная поверхность, обеспечивающая дополнительную надежность. Эксклюзивная система двойного заземления (модули заземляются перед подключением и после полной вставки).
4. Главный выключатель тока (размыкатель электронной цепи / отключение) с лампочками индикации питания .
5. Положение охлаждающего вентилятора в главном блоке обеспечивает усиленное вентилирование воздуха и поддерживает работу теплообменника.
6. Верхние и нижние направляющие для упрощения вставки и извлечения модулей.
7. Защелкивающиеся клеммы позволяют быстро и легко фиксировать на месте модули и глухие панели без инструментов.
8. Прочные соединители со встроенными защелками для силовых кабелей и кабелей термопар.
9. Международные символы и схемы установки нанесены на заднюю панель центрального блока для вашего удобства.
10. Таблички для записи информации о зоне.
11. Резьбовые подставки для упрощения крепления рамы блока к напольной подставке.
12. Пониженные уровни электрического шума и нагрева.

27/09/2016

Регулятор температуры на базе микропроцессора для одной зоны — ESH1022

REF
ESH1022

Included:
- **ABC10**
- **C1460A0040024**
- **C14610G0032004**

Спецификация

Вход термопар

Сенсор термопары: Тип 'J', заземленный или незаземленный

Внешнее сопротивление термопары: Дистанционное подключение Т/П благодаря высокому полному сопротивлению

Изоляция термопары: Изолирована электропитанием цепи управления

Коррекция свободного спая: Автоматическая, более 0,01 °C/°C

Полное сопротивление на входе: 22 МОм

Защита на входе: Диодные фиксаторы, резистивно-емкостный фильтр и предохранитель

Стабильность входного усилителя: 0,01 °C/°C

Динамический диапазон на входе: 537 °C

Коэффициент ослабления синфазного сигнала: Более 100 дБ

Коэффициент подавления электропитания: Более 90 дБ

Выход

Напряжение/мощность: 10 А, номинал. 240 В пер. тока, 1-фазное, 2400 Вт при 240 В пер. ток.

Выходной привод: Внутренний симистор, активируется пульсами пер. тока при нулевом переходе

Защита от перегрузки: 10 А: предохранители по обе стороны линии переменного тока

Защита от перехода: Dv/Dt и подавление переходного пульса

Изоляция силовой линии: Оптическая и трансформаторная изоляция от линий переменного тока, изоляционное напряжение > 2500 В

Электропитание

Входящее напряжение: 240 В пер. ток + 10%-20%, 50-60 Гц

Питание постоянным током: Внутренняя выработка, регулируемая и компенсируемая

Использование удельной мощности: Менее 5 Вт, не включая нагрузку

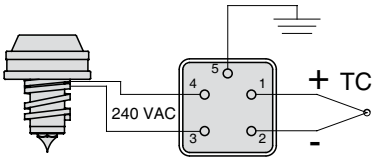
Габариты: Ширина: 18,29 см, Высота: 6,86 см, Глубина: 21,84 см

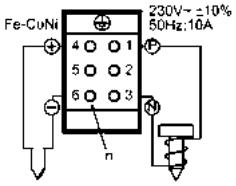
Предохранители: 2 ABC-10 предохранителей на каждую единицу

Диагностика

Диагностика ESH автоматически подает пользователю сигнал о сбое в работе.

ESH1012 — Сменные части





	REF	Наименование
	ABC10	Предохранители
	C14610A0040024	Штыревые вставки
	C14610G0032004	Колпачковый верхний соединитель
	C14610F0030004	Герметичное переборочное крепление
	MCC0001	Силовые кабели и кабели термопар
	C14610B0040024	Гнездовые вставки

	REF	Наименование
	AGST6	Штыревые вставки
	AGS3106	Герметичное переборочное крепление
	AGL3106	Колпачковый нижний соединитель
	MCC0002	Силовые кабели и кабели термопар
	AGBU6	Гнездовые вставки

27/09/2016

MFPX

Центральные блоки для регулирования температуры и передачи данных

5-зонный контроллер MFPX-5-C 4,5-G

Спецификации:

Зоны:	Макс. 5, центр. блок с вентилятором
Сетевое напряжение:	Макс. 240 В i/420 В , 50-60 Гц.
Макс. ток нагрузки:	35 А, главный выключатель с защитой от перегрузки 50 А/фазу
Габариты и вес:	Д = 360 мм, Ш = 290 мм, В = 229 мм (не включает соединители), 9 кг

[illegible] 3 [illegible]
- / [illegible] ABC15
- / [illegible] HWCC1
- / [illegible] PIC24G
- / [illegible] KRA3E
- / [illegible] KNA022-3+E [illegible]
- / [illegible] RA32-3E [illegible]
- 1 [illegible]: MPS0005

8-[illegible]: MFPX8C4-5G (kit)

[illegible]

[illegible]	[illegible]
[illegible]	[illegible]-20. [illegible]
[illegible]	50 [illegible]
[illegible]	[illegible] = 513 [illegible] = 290 [illegible] = 229 [illegible]), 11,4 [illegible]

[illegible] 6 [illegible]
- / [illegible] ABC15
- / [illegible] HWCC1
- / [illegible] PIC24G
- / [illegible] MTC8G
- / [illegible] MPC244-5G [illegible]
- 1 [illegible] TC84-5G [illegible]
- 1 [illegible] MPS0008

12-[illegible]: MFPX12C4-5G (kit)

[illegible]

[illegible]	[illegible]
[illegible]	[illegible]-20. [illegible]
[illegible]	70 [illegible]
Dimensions and weight:	[illegible] = 716 [illegible] = 290 [illegible] = 229 mm (L doesn't include connectors), 16 kg

Центральный блок на 12 зон поставляется с: - 1 комплект дополнительных предохранителей: ABC15
- 1 комплект обжимных соединителей: HWCC1
- 1 соединитель входной мощности пресс-формы: PIC24G
- 1 соединитель термопары: MTC12G
- 1 силовой кабель формы: MPC244-5G (длина 4,5 м)
- 1 кабель термопары: TC124-5G (длина 4,5 м)
- 1 глухая панель: MSP0012

[illegible]:

MFPX5G [illegible]
- / [illegible] ?@A+/3
- / [illegible] FUAA+/

[illegible]

[illegible]:

- [illegible] NGA+02+E
- [illegible]: MTC5G
- [illegible] MPC244-5G [illegible]
- [illegible] TC54-5G [illegible]
- [illegible]: MPS0005

[illegible]

MFPX 8 G [illegible]
- 1 [illegible] ABC15
- / [illegible] HWCC1

[illegible]

[illegible]

- [illegible] PIC24G
- [illegible] MTC8G
- [illegible] MPC244-5G [illegible]
- [illegible] TC84-5G [illegible]
- [illegible] MPS0008

Как заказывать зап.части:

MFPX12G корпус контроллера (без кабелей) включает в себя
- 1 комплект дополнительных предохранителей: ABC15
- 1 комплект обжимных соединителей: HWCC1

модули подбираются отдельно

Дополнительно:

- соединитель входной мощности пресс-формы: PIC24G
- соединитель термопары: MTC12G
- силовой кабель формы: MPC244-5G (длина 4,5 м)
- кабель термопары : TC124-5G (длина 4,5 м)
- глухая панель: MSP0012

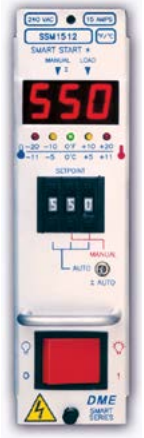
Центральные блоки с соединительными кабелями длиной 4,5м

27/09/2016

Модули

Info

Модули Smart Series® разработаны специалистами D-M-E для выполнения основных функций контроля параметров. Простая конструкция модулей позволяет оператору легко овладеть приемами управления и эксплуатации данных приборов. Точные и надежные, они воплощают в себе последние достижения электроники и механики. Нижеприведенные характеристики применимы к обоим модулям.



SSM1512
Модуль регулирования темпе-ратуры с микропроцессором и цифровым дисплеем (15A)

DSS1512
Самонастраивающийся мо-дуль регулирования темпера-туры и передачи данных с микропроцессором и двойным дисплеем, (15A)

TSM1512
Color touch screen digital dis-play providing readouts for Actual Temperature, Current Mode, Percentage Power and Current Reading. Closed-loop, fuzzy logic PID control, and auto-tuning of PID parameters provide precise control even under the most adverse pro-cessing conditions.

MFBP10G
Глухая панель

Электронные характеристики

1. 100% полупроводниковые - отсутствие реле и других двигающихся частей.
2. Симистор активируется при нулевом переходе для минимизации радиопомех.
3. Переходная схема и схема подавления Dv/Dt .
4. Встроенные симисторы и элементы питания. Регулирование элементов питания и компенсирование температуры.
5. Двойная система предохранителей для симисторной цепи и электропитания переменным током.
6. 240 В пер. тока ± 20%, 1 фаза, стандарт.
7. Двойное заземление для безопасности оператора.
8. Новая антидуговая цепь защищает модули и центральные блоки.

Механические характеристики

1. Все модули 15 А одинаковы по размерам (Ш 50,8 x В 177,8 x Г 190,5 мм) для упрощения взаимозаменяемости.
2. Крепкая конструкция коробочного типа обеспечивает дополнительную прочность и защиту цепей.
3. Предусмотрен доступ к предохранителям для быстрой замены.
4. Большой теплоотвод и монтажная плата улучшают рассеивание тепла и повышают надежность модуля.
5. Встроенная ручка, двойные направляющие и нажимные защелки позволяют легко вставлять и блокировать модуль в блоке.
6. Маркировка модуля и номинальная мощность указаны для наглядностина передней панели.
7. Элементы управления на передней панели легко воспринимаются и просты в эксплуатации - лампочки индикаторов предоставляют оператору информацию об используемых функциях.
8. Оператору не нужно производить настройки внутри модулей.

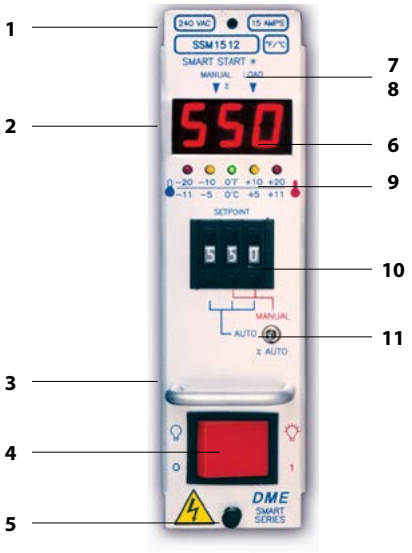
27/09/2016

MILACRON®

SSM1512

Microprocessor-based control modules

1. **Идентификационный ярлык**
2. **Цифровой светодиодный дисплей**
3. **Ручка**
4. **Кнопка вкл/выкл питания**
5. **Нажимная защелка**
6. **Лампочка индикации температуры процесса**
7. **Лампочка индикации ручного регулирования питания**
8. **Лампочка индикации нагрузки питания**
9. **Лампочки индикации отклонения температуры**
10. **Кнопка температуры процесса/заданного параметра**
11. **Регулирование заданного параметра/питания**
12. **Переключатель авто/ручной**



Спецификации производительности

Режим управления авто/ручной:	Распределение времени
Диапазон температуры:	От комнатной до 537 °C / 999° F
Погрешность регулировки:	±0,5 °C в зависимости от общей тепловой системы
Стабильность температуры:	±0,5% полной шкалы в диапазоне т-ры окруж. среды от 0 до 50 °C
Погрешность калибровки:	ВМенее 0,2% полной шкалы
Продолжительность цикла:	0,33 сек
Время срабатывания питания:	Менее 0,13 сек
Автоматический сброс:	Корректирует сброс не более чем ±1 °C всех настроек
Ручной контроль:	Регулирование 0-99%. Сохраняет выходную мощность на уровне 1% от настройки.
Smart Start® (SS):	Линейное возрастание от начальной температуры до заданной точки
Smart Start® продолжительность:	4,5 минут
Smart Start® температура откл.:	93 °C
Очередность режимов управления	- SS предшествует автомат. режиму - разрыв термопары отменяет SS и автоматический режимы - Перевернутая или закороченная Т/П отменяет SS и автомат. режимы - Ручное управление отменяет разрыв термопары, перевернутую термопару и автоматический режим - Во время сбоев подача напряжения прекращается

Спецификации входа

Сенсор термопары:	Тип 'J' заземлен. и незаземленный
Внешнее сопротивление Т/П:	Регулир. вход с высоким постоян-ным сопротивл. позволяет дистанционное подключение Т/П
Изоляция Т/П	Изолирована цепью управления питанием
Компенсация свободного спая:	Автоматическая, более 0,01 °C/°C
Тип входа:	Двоично-десятичный селектор
Полное сопротивление ввода:	22 МОм
Защита входа	Диодные фиксаторы, РЕ фильтр
Стабильность вход. усилителя:	0,01 °C/°C
Динамический диапазон входа:	537 °C
Коэф. ослабления синфаз. сигнала:	Более 100 дБ
Коэф. подавления электропит.:	Более 90 дБ

Спецификации выхода

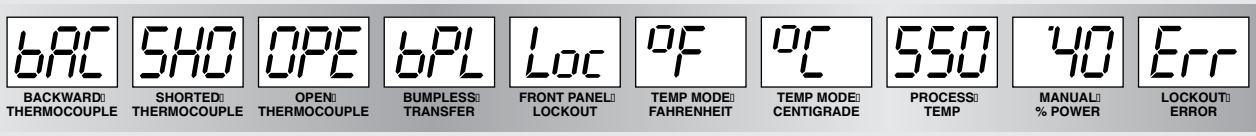
Допустимая мощность:	15 А: 15 А, 3600 Вт при 240 В Драйвер выход: IВнутр. полупровод. симистор,актив. пульсами пер. тока при нул. перех.
Защита от перегрузки:	15 А: предохр. по обе стороны линии пер. тока Защита от перехода: Включая Dv/Dt подавление переходного пульса
Изоляция силовой линии:	Оптич. и трансформ. изоляция от линий пер. тока. Изоляционное напряжение более 2500.

Элементы управления и индикаторы

Питание вкл/выкл:	16 А кулисный переключ. (15 Amp.) Утверждено VDE
Многофункциональный дисплей:	(3) 7-сегментных светодиода
Нагрузка/индикатор Smart Start®	Дисплей мигает во время работы Smart Start®
Закороченная термопара::	'Sho' чередуется с обычным диспл., автом. блокирует питание нагреват.
Открытая термопара:	'oPE' чередуется с обычным диспл.,
Reversed thermocouple:	automatically inhibits power to heater
Temperature deviation indicators:	Separate LEDs: ±11 °C (Red), ±5 °C (Yellow), 0 °C (Green)

Electrical power specifications

Input voltage:	240 VAC + 10%-20%
Frequency:	50/60 Hz
DC power supplies:	Internally generated, regulated and compensated
Unit power usage:	Less than 5 watts, excluding load
Dimensions:	15 Amp.: W 5,08 x H 17,78 x D 19,05 cm
Fuse requirements:	15 Amp. only: (2) ABC-15 fuses (2 spare fuses included with module) 50 mA TC input 315 mA Transformer



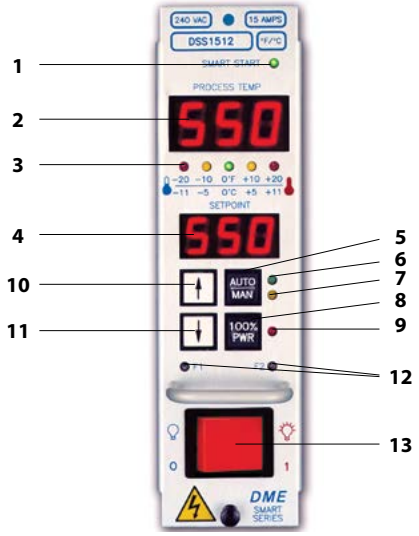
REF	Amp.	Watt
SSM1512	**15**	3600

27/09/2016

Microprocessor control modules - Auto tuning P.I.D.

DSS1512

1. **Smart Start® light**
2. **Process temperature display**
3. **Temperature deviation lights**
4. **Setpoint display**
5. **Auto/manual switch**
6. **Auto light**
7. **Manual light**
8. **100% power switch**
9. **100% power light**
10. **Setpoint - up button**
11. **Setpoint - down button**
12. **F1/F2 lights**
13. **Power ON/OFF switch**



Performance specifications

Control modes auto/manual:	Time proportioning / Selective Cycle®
Temperature range:	Ambient to 537 °C
Control Accuracy:	± 0,5 °C dependent on the total thermal system
Calibration Accuracy:	Better than 0,2% of the full scale
Manual Control:	Adjustable from 0-100%. Maintains output power to within 1% of set point.
Smart Start®:	Linear voltage ramping/5 min. max.
Smart Start® override temperature:	124 °C
100% power:	Applies 100% power to the output Jumper selectable inhibit or S = 15, L = 30 sec.
Operational mode priority:	- Smart Start® precedes auto mode - T/C break, reversed or shorted T/C overrides Smart Start® and auto modes - Manual control overrides the auto mode, T/C breaks, reversed or shorted thermocouples - Output is inhibited during all fault conditions

Input specifications

Thermocouple sensor:	Type 'J' grounded or ungrounded
External T/C resistance:	Less than 0,05 °C/W
T/C isolation:	Isolated by control circuit power supply
Cold junction compensation:	Automatic, better than 0,015 °C/°C
T/C break, reversed & shorted protection:	Automatically inhibits power to heater, unless bumpless transfer is invoked
Input impedance:	5,6 Megohms
Input amplifier stability:	Greater than 0,01 °C/°C
Common mode rejection ratio:	Better than 120 dB
Power supply rejection ratio:	Better than 110 dB

Output specifications

Power capability:	15 Amp.: 15 Amp., 3600 Watts @ 240 VAC
Output drive:	Internal solid state triac, triggered by zero AC crossing pulses
Overload protection:	15 Amp.: Fuses are provided on both sides of AC line
Transient protection:	Dv/Dt and transient pulse suppression included
Power line isolation:	Optically and transformer isolated from AC lines. Isolation voltage is greater than 2500 Volts.

Controls and Indicators

Setpoint adjustment:	Push-button up & down arrow keys
Auto/manual selection:	Push-button switch with LED indicators
100% power selection:	Push-button switch with LED indicator adjacent to switch
Power On/Off:	15 Amp rocker switch
100% power indication:	Red LED adjacent to 100% power key flashes Process display flashes '100'
Auto indication:	Illuminates green LED adjacent to Auto/Man key
Manual indication:	Illuminates yellow LED adjacent to Auto/Man key
Smart Start® indication:	Illuminates green LED above the process display
Blown fuse indication:	2 neon indicators (15 Amp. only)
Shorted thermocouple:	Flashes 'Shi' in process display
Open thermocouple:	Flashes 'oPi' in process display
Reversed thermocouple:	Flashes 'bci' in process display
Temperature deviation indication:	Separate LEDs: > + or - 17 °C = Red, flashing > + or - 11 °C = Red > + or - 5 °C = Yellow 0 °C = Green

Electrical power specifications

Input voltage:	240 VAC + 10%/-15%
Frequency:	50/60 Hz.
DC power supplies:	Internally generated, regulated, and compensated
Module power usage:	Less than 6 watts, excluding load
Dimensions:	15 Amp.: W 5,08 x H 17,78 x D 19,05 cm
Fuse requirements:	15 Amp. only: (2) ABC-15 fuses (2 spare fuses included with module) 315 mA: Transformer

REF	Amp.	Watt
DSS1512	**15**	3600

27/09/2016

MILACRON®

TSM1512

Microprocessor-based temperature control modules with color touch screen display

The TSM15 Smart Series Module has a color touch screen digital display providing readouts for Actual Temperature, Current Mode, Percentage Power and Current Reading. Closed-loop, fuzzy logic PID control, and auto-tuning of PID parameters provide precise control even under the most adverse processing conditions.

In the event of a thermocouple failure, the TSM can automatically invoke bumpless transfer to a percent power mode based on the last valid percentage learned before the thermocouple failure. If desired, manual bumpless transfer may be selected, in which case a thermocouple fault will turn off power to the heater until the manual percent power mode is activated by the operator.

The TSM boost level option limits boosting of the temperature by 75°C or 135°F to limit the degradation of material.

The TSM module also includes a Smart Start® mode to safely bake out damaging internal heater moisture at system start-up and to prolong heater life. Fast or slow load modes may also be selected to protect smaller heaters or compensate for "slow" loads such as externally heated manifolds. An accurate, durable and full-featured module, the TSM is fully compatible with all Smart Series or G-Series® 15 AMP mainframes.

Leak Detection capabilities (reference TSM1512 User Manual)

TSM15 SmartSeries® Controller with Default Settings (Factory Settings)

Zone temperature	260ºC or 500ºF
Standby level	100ºC or 180ºF
Boost level	75ºC or 135ºF
Over temperature range	10ºC or 18ºF
Under temperature range	
Ramp	On
Auto-Manual	On
Extended alarms for Manual, Standby and Boost	Off

When reconfiguring your controller for a new tool or environment, this chapter of the manual shows how to alter controller default settings to your preferred values and afterward to save them.

Should anything seem wrong with your new settings then it is possible to restore the default settings at any time.

1 Actual temperature (and scale)

2 Current mode shows set-point

3 Percentage power applied

4 Current reading

Front Panel Controls and Indicators

REF
TSM1512

27/09/2016

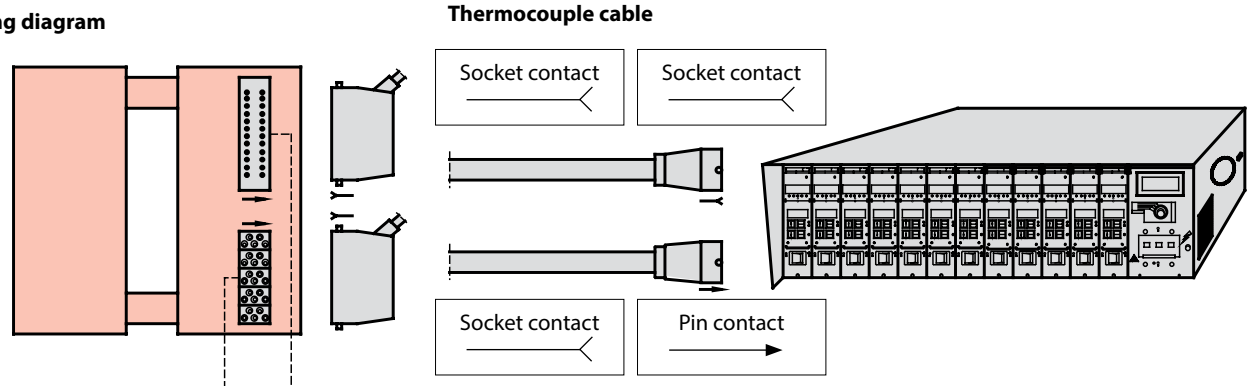
Wiring instructions

Info

Wiring instructions for DME heaters

1. Power wires can only be extended with crimp connectors (HWCC-1,2 and 5) and power wires of the same cross-section area (total length max. 8 m).
2. Fe-Co thermocouple wires can only be extended with Fe-Co wires. With the exception of the polarity of the extension cable (US standards: red = negative, white = positive; European standards: red = positive, blue = negative). One must take care that the thermocouple wires are in good contact with the cable joint.
3. Mold power input connector (PIC-24-G) and terminal mounting box (PTCX, PICX, PTC) must be connected with the protective conductor to the mold.
4. Take care that wiring is correct to the position of the modules.
5. Use Ohm-meter to check each heater for proper function prior to starting the ***DME*** Hot Runnerless System.

Wiring diagram



TC Wiring code

DIN	+ red/ - blue
USA	+ white / - red
EUROPE	+ black / - white

Mold power input connector

REF	PIC24G Zone	Contr. No.
	1	A1, A2
	2	A3, A4
	3	B1, B2
	4	B3, B4
5-zone MF	5	A5, B5
	6	C1, C2
	7	C3, C4
8-zone MF	8	D1, D2
	9	D3, D4
	10	C5, D5
	11	E1, E2
12-zone MF	12	E3, E4

Thermocouple connector

REF MTC5G

Zone	Contr. No. +	Contr. No. –
1	1,	6
2	2,	7
3	3,	8
4	4,	9
5	5,	10

REF MTC8G

Zone	Contr. No. +	Contr. No. –
1	1,	9
2	2,	10
3	3,	11
4	4,	12
5	5,	13
6	6,	14
7	7,	15
8	8,	16

REF MTC12G

Zone	Contr. No. +	Contr. No. –
1	1,	13
2	2,	14
3	3,	15
4	4,	16
5	5,	17
6	6,	18
7	7,	19
8	8,	20
9	9,	21
10	10,	22
11	11,	23
12	12,	24

27/09/2016

MILACRON®

MTC

Thermocouple connectors

REF	Zones
MTC5G	5
MTC8G	8
MTC12G	12

TC

Thermocouple cables

❶ to mold

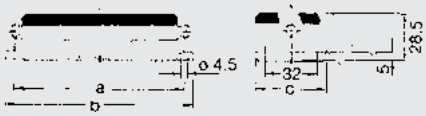
to frame ❷

REF	Zones	Cable length
TC54-5G	5	4,5 m
TC84-5G	8	4,5 m
TC124-5G	12	4,5 m

REF	Zones	Cable length
TC5DE	5	0,5 m
TC8DE	8	0,5 m
TC12DE	12	0,5 m

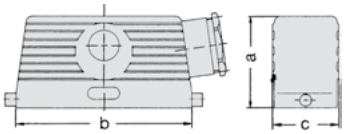
C14610F

Thermocouple cables



REF	a	b	c	contacts
C14610F0100011	83	93	43	10+
C14610F0160011	103	113	43	16+
C14610F0240011	130	140	43	24+

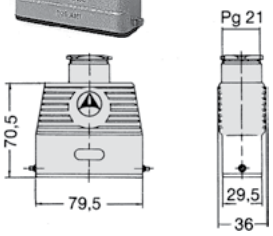
❶ Hoods end entry



REF	a	b	c	contacts
C14610G0101061	51	73	43	10+
C14610G0161061	61	93	43	16+
C14610G0241061	61	119,5	43	24+

C14610G

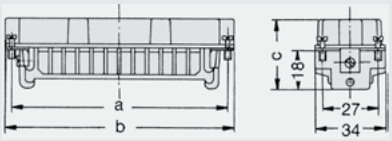
❷ Hoods top entry



REF
C14610G0252002

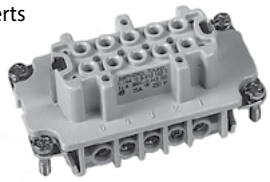
C14610A

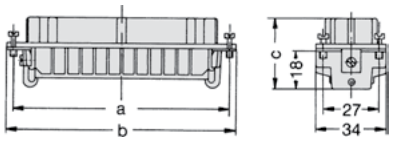
Male inserts



REF	a	b	c	contacts
C14610A0101021	57	64	34	10+
C14610A0161021	77,5	84,5	34	16+
C14610A0241021	104	111	34	24+

❶ Female inserts

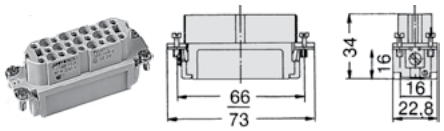




REF	a	b	c	contacts
C14610B0101021	57	64	34	10+
C14610B0161021	77,5	84,5	34	16+
C14610B0241021	104	111	34	24+

C14610B

❷ Female inserts (without contacts)



REF
C14610B0250002

VN02

❷ Female socket contacts

REF
VN02

OE...

Thermocouples cables

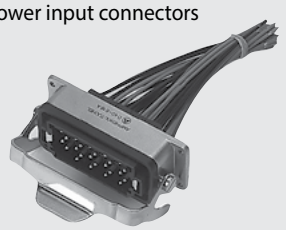
REF	Identification	
Oe160-5	**FeCo** Thermocouplescables(**tobeorderedperm.)	16poles0,5mm2(FeCo)
Oe240-5		24poles0,5mm2(FeCo)

CAD reference point

27/09/2016

PIC

Mold power input connectors



REF	Amp.
PIC24G	15

MPC

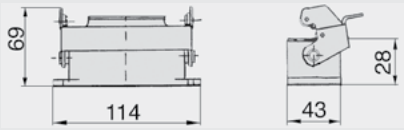
Mold power cables

REF	Amp.	Cable length
MPC244-5G	15	4,5 m

Conversion table			
REF	Cable length	Male	Female
MPC2524	0,5 m	24	25
MPC2425	0,5 m	25	24

C14610P

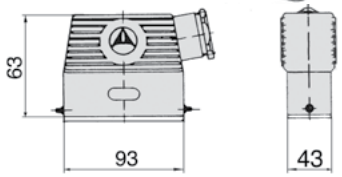
Housing bulkhead mountings



REF
C14610FBA24P

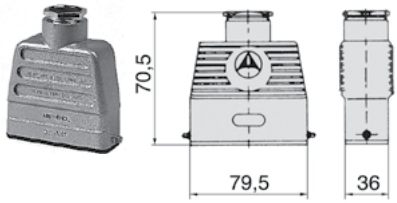
C14610G

❶ Hoods end entry



REF
C14610GHL24P

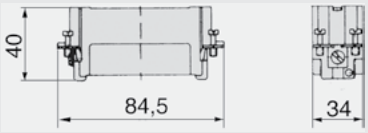
❷ Hoods top entry



REF
C14610G0252002

C14610A

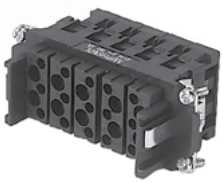
Male inserts (without contacts)

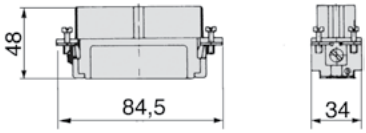


REF
C14610A2416

C14610B

❶ Female inserts (without contacts)

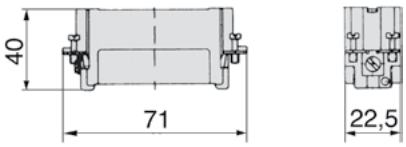




REF
C14610B2416

C14610A

❷ Male inserts (without contacts)



REF
C14610A0250002

VN01

Male pin contacts

REF	
VN012416	1,5mm²
VN012420	2,0mm²

VN02

❶ Female socket contacts

REF	
VN022416	1,5 mm²
VN022420	2,0 mm²

VN01

❷ Male pin contacts

REF
VN01

Oe...

Powercabels (1,5 mm², 25 poles)

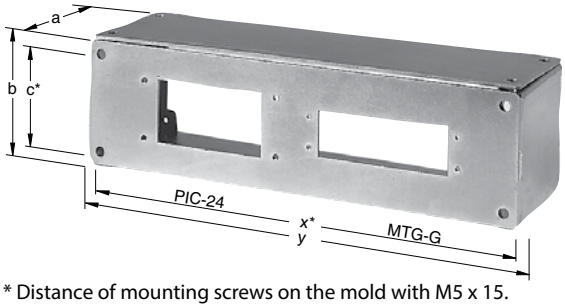
REF	Identification	
Oe251-5	Powercabels (**to be ordered per m.)	25 poles 1,5 mm2

CAD reference point

27/09/2016

PTCX

Terminal mounting boxes for power and thermocouple connectors

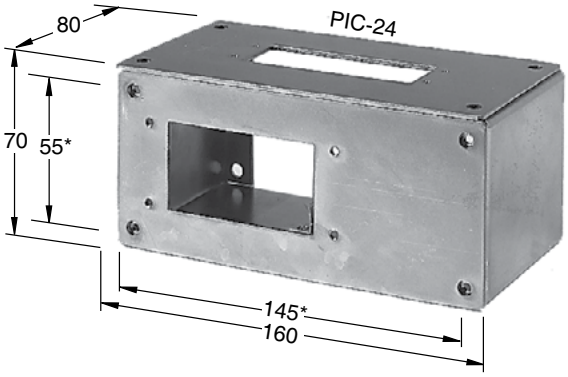


REF	a	b	c	x	y	Installation possibilities for
PTCX5K	70	70	55	243	258	PIC24G / MTC5G
PTCX8K						PIC24G / MTC8G
PTCX12K						PIC24G / MTC12G

* Distance of mounting screws on the mold with M5 x 15.

PICX

Terminal mounting boxes for power and thermocouple connectors



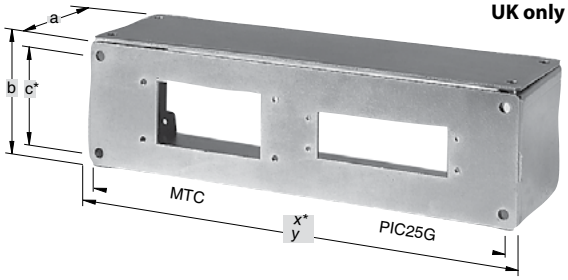
REF	Installation possibilities for
PICX245K	PIC24G / MTC5G
PICX248K	PIC24G / MTC8G
PICX2412K	PIC24G / MTC12G

* Distance of mounting screws on the mold with M5 x 15.

PTC

Terminal mounting boxes for power and thermocouple connectors

UK only



REF	a	b	c	x	y	Installation possibilities for
PTC5TBG	105	60	38	205	220	PIC5G / MTC5G
PTC8TBG	105	60	38	225	240	PIC8G / MTC8G
PTC12TBG	105	60	38	253	265	PIC12G / MTC12G

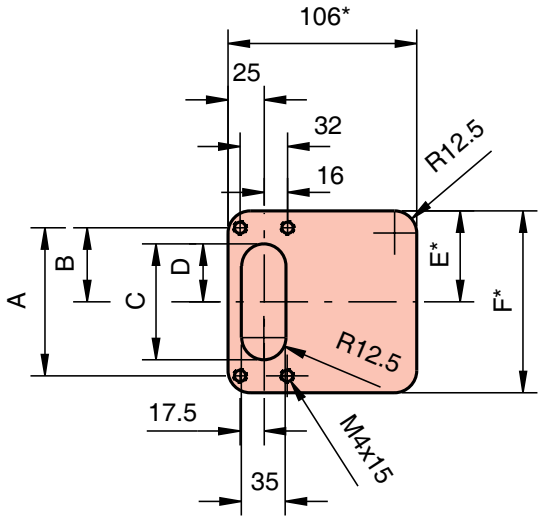
* Distance of mounting screws on the mold with M5 x 15.

CAD reference point

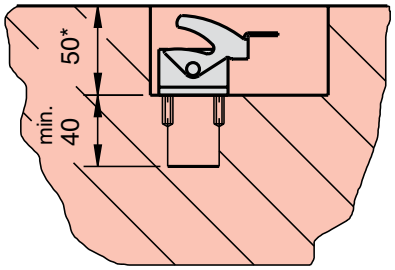
27/09/2016

Mounting without Boxes

Pocket for thermocouple connectors MTC...G

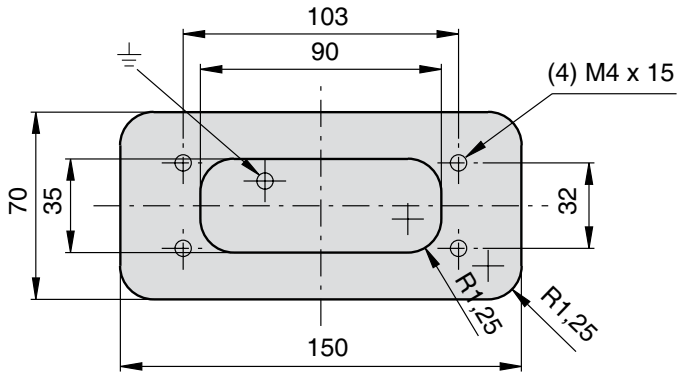


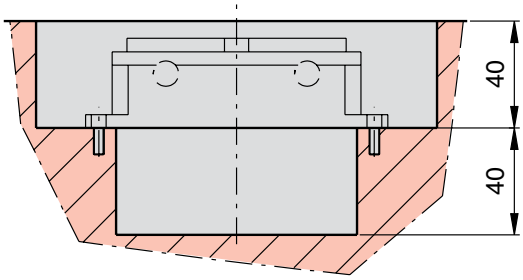
Note: Drawing depicts below flush mounting.
For surface mounting, disregard dimensions marked with *.



Dimensions	For connector		
	MTC5G	MTC8G	MTC12G
A	83	103	130
B	41,5	51,5	65
C	65	85	112
D	32,5	42,5	56
E	51	61	74,5
F	102	122	149

Pocket for mold power input connectors PIC24G





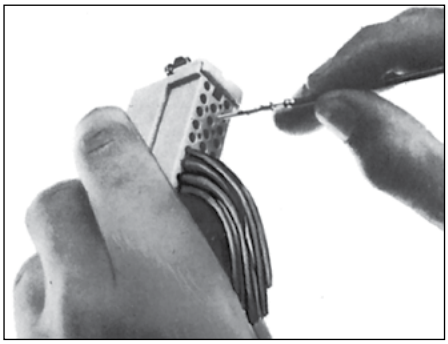
Note: Drawing depicts below flush mounting.
For surface mounting, disregard dimensions marked with *.

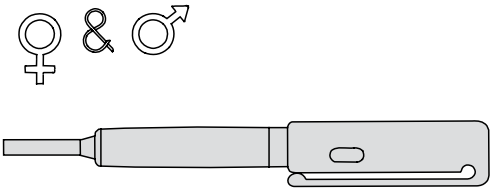
CAD reference point

27/09/2016

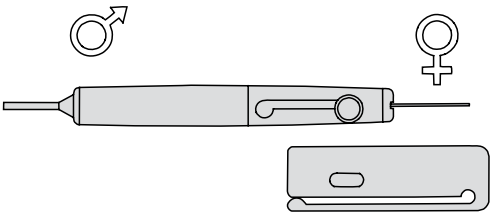
FG / FGN

Removal tools for pin contacts VN-01 and socket contacts VN 02





REF	for
FGN2416	VN012416 / VN022416



Rear insertion

Contact to snap in audibly

Check longitudinal clearance of 0,2 mm

Front release

Female contact

Male contact

REF	for
FG0300146	VN01 / VN02

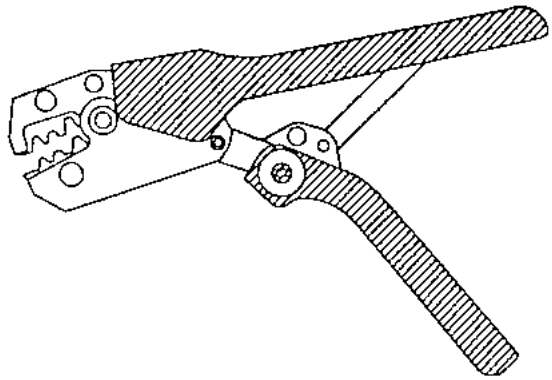
TA

Contact crimp tools

REF	for
TA0100146	VN01
	VN02

FAN

Contact crimp tools



REF	for
FAN2416	VN01241620
	VN02241620

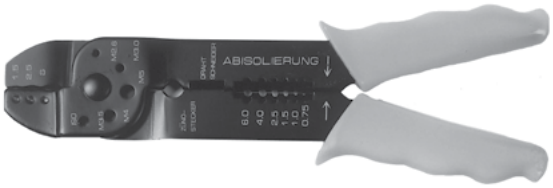
CAD reference point

27/09/2016

Crimptools

KT

REF	for
KT9500014	HWCC1



Crimp connectors

HWCC

REF	AMPS	Rating
HWCC1 (Cool-One)	10-15	16-22 RED
HWCC2 (Cool-One)	10-15	14-16 BLUE
HWCC5 (Hot-One)	15-30	10-12 YELLOW

Fuses for SSMX and DSS

ABC

REF	Amp.
ABC1	1
ABC5	5
ABC10	10
ABC15	15

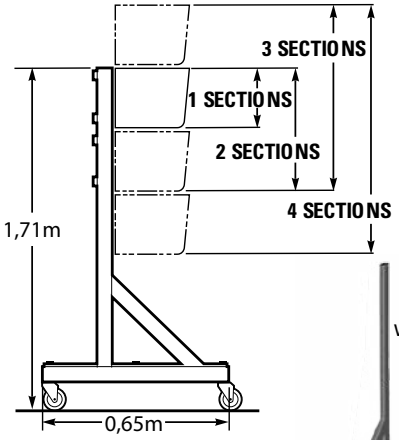
Universal Floor Stand

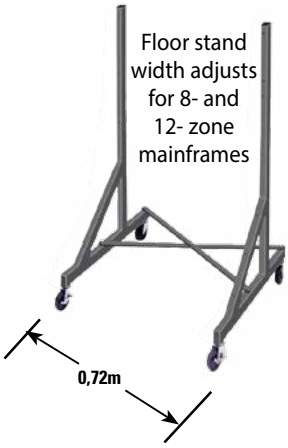
MFS...

The Universal Floor Stand will accommodate all 15 or 30 amp Mainframes from one to four sections high. Stand is made from heavy gauge steel and includes locking casters (181 kg rating). All assembly and Mainframe mounting hardware is included. Heavy duty floor stand available for larger systems (453 kg rating).

REF	RATING (kg)
MFS512G	181
MFS512GHD*	453

* HD stand not shown.
Floor stand comes with plates for 5-zone frame mounting on 8-zone “x” pattern





CAD reference point

27/09/2016

27/09/2016

GENERAL CONDITIONS OF SALE DME EUROPE

1. CONCLUSION OF CONTRACT - APPLICATION
The contract is validly entered into and the order is accepted after written confirmation by seller. These sales conditions apply to the exclusion of any other terms or conditions, unless expressly accepted in writing beforehand by the vendor.
Seller has 30 (thirty) days since the reception of the order to accept or to refuse it. During this period, buyer shall not withdraw his order.
Absence of any written confirmation of the order shall only be interpreted as being an implicit acceptance in case of performance of the order by seller.

2. PAYMENT
Unless otherwise agreed in writing, invoices are payable in the stated currency within 30 (thirty) days after invoice date to the-bank designated by seller. Transfer charges are for account of buyer.
If buyer does not pay within this term, seller shall automatically have ipso jure and without any prior formal notice, the right to charge legal interest plus 2 % from due date of the invoice. Moreover, in case of late payment, a fixed indemnity corresponding to 10 % of the payable amount shall automatically be due from the first day following the due date, without prejudice to seller's right to prove higher damage and ask for corresponding indemnity. Should payment be in foreign currency, seller has the right to adapt the foreign currency in case of depreciation-of this foreign currency in regard of the euro.
Should payment of the delivered goods be in instalments, the non-payment of one of the instalments gives seller the right to terminate the contract. The payments, which were done until then, shall remain property of seller as indemnity, without prejudice to the right to claim further damages or to the right to require the performance of the contract.
Payment of advance shall not give buyer the right to terminate the contract upon reimbursement of the paid advance, If payment is done by bill of exchange or check, payment is deemed satisfied only when the bill of exchange or the check is honoured.
Place of payment is always Mechelen even if payment is done with bill of exchange.

3. RETENTION OF TITLE
Delivered goods remain property of seller until full payment has been received by seller. The sale of an unpaid item by buyer to a third party results in automatic assignment of the debt due by the third party to buyer, inclusively the retention of title, to seller. Seller has then the authority to take any necessary means in order to validly assign towards the third party. Seller may retake unpaid goods at any time and he may inform any client and/or any subcontractor of buyer about the fact that seller is and remains the only owner of the concerned goods until full payment.
The purchaser undertakes to carefully keep the goods that have not been paid for, and undertakes not to pledge them or use them in any other way as a guarantee or security. The purchaser shall inform third parties who may apply any security rights over his assets (such as, but not limited to, the lessor of the premises occupied by the purchaser) that the products are and shall remain the property of the vendor until full payment of all sums owed by the purchaser to the vendor, and in the event of an attachment or other measures taken by third parties that apply to products for which full payment has not yet been made the purchaser undertakes to immediately inform the vendor of this to enable him to apply his rights.

4. RISKS
Notwithstanding the preceding provisions, the risk transfers to buyer as soon as he has the goods at his disposal.

5. DISPATCHING OF INSIGNIFICANT VALUE
Each dispatch of less than € 50 will be increased with costs of payments and-may, at sellers option, be sent cash on delivery (COD).

6. PRICE OFFERS AND PRICE LISTS
Price offers and price lists are without obligation and are subject to change without any previous notice.
Any information released by seller is delivered in good faith and seller shall not be responsible for the choice of material and goods.

7. PRICE AND DISPATCHING
All prices are ex works. Transportation, duties and taxes for account of buyer, unless seller's previous and express written specification to the contrary. Seller shall send goods by the fastest and most economic way at the risks of buyer. Goods may be insured by seller at buyer's option, the insurance premiums are for buyer. Seller is not responsible for the choice of packing.

8. DELIVERY
Date of delivery is the date when the goods are ready for inspection at the indicated place. Place of origin is Mechelen, Belgium, or any other place indicated by seller. Seller is not responsible for any late delivery, except those delays due to his own fault or gross negligence.

9. RETURNING OF GOODS
No goods can be returned without seller's previous, express and written consent. If buyer commits an error in ordering, the retaking of goods is possible only for inventory standard items. Goods must be returned within 15 (fifteen) days after invoice date and all goods must be in original conditions,' all costs of transport are for buyer, as well as insurance and repacking costs. Special-order goods, marked or used items are non-returnable.

10. DEFECTS
Seller warrants defects in material and/or workmanship. Warranty is limited to the replacement or repair, at seller's option, of any merchandise found defective during 1 month. This warranty does not include defects due to buyer's fault or to abnormal use, bad maintenance, imperfect installation, buyer's inadequate repair, unforeseeable circumstances or in case changes were brought to material without previous and express written approval of seller.
Notice of conspicuous defects must be given to seller by registered letter sent within 10 (ten) working days following date of delivery.
Notice of hidden defects must be given to seller by registered letter with in 10 (ten) working days after date of discovery, and in any case, within a 10-month term following date of delivery.
Seller is not responsible for any damage and in particular salary and material costs, losses, loss of profit or loss of a chance incurred by buyer, unless it is demonstrated that defect is due to seller's gross or intentional fault. If seller is responsible for defect, seller has the right either to terminate the contract and to pay back all the invoiced prices or to replace the delivered product within a reasonable term. If goods for repair must be transported, costs and risks of this transport are for buyer.
In case seller is responsible for any damage, this will be limited to the foreseeable damage with a maximum amount corresponding to the amount of the product's invoiced price.
Should a third party lodge a claim against seller to obtain payment of an indemnity for a damage for which seller is not responsible in accordance with the present conditions or for a higher amount than the one seller is responsible for, buyer will warrant seller against those claims.

11. DESCRIPTION
Only product descriptions used in seller's latest literature and correspondence with buyer, are binding for description of goods.
Buyer is responsible for using items in conformity with all regulations, including but not limited to, the safety regulations in force at the place of use.

12. SPECIFIC ORDERS
For the performance of a special work, the project signed by buyer is binding to the extent it has been accepted by seller.
For the performance of such work, special conditions may be required. In case of any inconsistency between general conditions and special conditions, the special conditions shall apply. Should special conditions be unclear, they shall be interpreted in light of the general conditions.

13. ACT OF GOD
Seller shall not pay any damage for non-performance or late performance of his undertakings due to Act of God. Act of God includes in particular and without being limited thereto, strike, lock-out, and the non-performance by seller's suppliers of their undertakings.

14. VALIDITY AND INDIVIDUAL CLAUSES
If one or more provisions of these present general conditions are held to be invalid, the remaining provisions will continue to be valid and enforceable, and parties will agree upon other provisions having an economic effect that corresponds closest to the economic effect of the invalid provision(s).

15. WAIVER
In case seller does not exercise one of his rights in accordance with the present conditions, this shall not be interpreted as a waiver of these rights.

16. APPLICABLE LAW – COMPETENT COURTS
This sales contract will be governed by Belgian law. The competent court is the Commercial Court of Mechelen, without prejudice to seller's right to introduce the case before another competent court.

DME Europe C.V.B.A.
Schaliënhoevedreef 20-D
RPR - RPM Mechelen
BE-2800 Mechelen, Belgium
VAT ID: BE0456932455

P +32 15 28 87 30
F +32 15 40 51 17
W www.milacron.com

www.milacron.com