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Technical Data Sheet

PolyCode

Electrofusion Control Unit with optional Bluetooth capability

Scope of application

The electrofusion control units of type PolyCode are solely meant for the welding of thermoplastic pipes (e.g. made of PE-HD, PE80, PE100 or PP) when used with electrofusion fittings that have an input voltage of less than 48 V. These devices are conforming to the standards DVS 2208-1 and ISO 12176-2, of which the applicable standards for the electrofusion fittings to be used are derived from.

Input of welding parameters

The electrofusion control units of type PolyCode provide the following means for entering the welding parameters:

Barcode (ISO TR 13950, Typ 2/5i, 24-digit) or QR Code

The barcode or QR code attached on most electro fusion fittings on the market contains all necessary data for processing them. After scanning with the scanner, this data is automatically transferred to the electrofusion unit and evaluated. The code essentially contains the following data: Manufacturer, type, diameter, fusion voltage, fusion time (with temperature correction, if applicable), resistance and resistance tolerance.

SmartFuse-System*

By reading out the reference resistor in one of the connector pins of the SmartFuse-fitting the control unit automatically determines the welding parameters for the fitting.

Manual input of the barcode digits

If the barcode on the fitting or the barcode reading device is damaged or defective, it is possible to enter the barcode digits (if available) into the control unit manually.

Manual input of welding voltage and time (PolyCode 400 only)

If no barcode is available, it is possible to enter the fusion parameters provided by the fitting manufacturer (like voltage and time) manually.

***) Not all electrofusion control units feature the SmartFuse-System. Please ask your distributor for further infomation. Electrofusion control units without the SmartFuse-System can be recognised by the two welding terminals partially covered by black pvc caps. Electrofusion control units with the system have one terminal covered by a red pvc cap and one terminal covered by a black one.**

Bluetooth functionality

The electrofusion control units of type PolyCode can be equipped with an optionally available USB Bluetooth dongle. That makes it possible to control and record the welding procedure with the PFS app "ElectroFusion Studio".

The app for smartphones and tablets is available for Android in the Google Play Store and for iOS in the Apple App Store. When using Bluetooth, the electrofusion control unit can only be used together with this app.

Attention!

To be able to use the app with the electrofusion control unit it is mandatory to have a registered account. Please ask your distributor.

Range of fitting dimensions

The range of fitting dimensions for which an electrofusion control unit can be used depends essentially on the power consumption of the used fittings. Since the power consumption of the fittings is different for different fitting manufacturers, it is not possible to provide a general rule which covers all the possible fitting dimensions. When in doubt, each fitting size must be checked separately.

Attention!

For electrofusion control units of type PolyCode, when all welding work is performed successively, such that the control unit has pauses in welding that correspond to the preparation time of the next fitting, the following rule applies.

The duration of the pause after each weld must be at least equal to the preparation time for the next welding joint. When you allow only shorter pauses, the electrofusion control unit is put under heavy load and can therefore heat up so much, even when welding smaller fittings, that a longer pause must be allowed for cooling down.

Attention!

Before processing fittings in this dimension range, you have to check that the welding current demand of the fitting does not continuously exceed the output current of the device and that the maximum output current is not exceeded.

The statements made above are made under the assumption that the ambient temperature is 20 °C.

PolyCode

Fitting	Requirements
16-75 mm	Usable without additional restrictions.
90-180 mm	Please note the following table.
180 mm (SmartFuse)	Only fittings that have a welding time of 400 s or below can be welded.
180 mm (Barcode)	Only couplers that have a resistance of >0.6 Ω can be welded.
>180 mm	Couplers >180 mm cannot be welded.

PolyCode 180

Fitting	Requirements
016-140 mm	Usable without additional restrictions.
160-180 mm	Longer cool-down times must be provided for because otherwise the device might show the "Device too hot" error message. In this case, it is necessary to let the electrofusion control unit cool down before putting it to use again.
180 mm (SmartFuse)	**Only couplers that have a welding time of 400 s or below can be welded.**
Saddle (Barcode)	**Saddles with a heating coil resistance of >1 Ω and a welding time below 1300 sec can be welded.**
180 mm (Barcode)	**Only couplers that have a resistance of >0.6 Ω can be welded.**
>180 mm	**Couplers >180 mm cannot be welded.**

PolyCode 400

Fitting	Requirements
16-400 mm	Usable without additional restrictions.
>400 mm	When working with dimensions from 400 mm on, longer cool-down times must be provided for because otherwise the device might show the "Device too hot" error message. In this case, it is necessary to let the electrofusion control unit cool down before putting it to use again.

Scope of delivery

Note

The PolyCode is available in different variants. The scope of delivery differs, depending on the ordered variant. Errata and technical modifications reserved!

	PolyCode 400 USB (BT) PolyCode 180 USB (BT) PolyCode USB (BT)		**Enclosed**
	1 ×	Instruction manual	DE010
	1 ×	2D scanner	1_0120_011 / _013
	1 ×	USB stick	5_5001_512
	1 ×	Bluetooth dongle	2_5100_006

Technical data

PolyCode 400 USB (BT)		
General		
Output voltage	[V]	8 to 48 AC
Data recording		Yes
Barcode reader		Scanner
Power (60 % ON time) according to ISO 12176-2		2050 W (55.9 A)
Operating temperature range	[°C]	-10 to +50
International protection		IP54
Appliance class		1
Conformity		CE
ISO 12176-2 Class - classification		P_2 3 U S_1 V AK D X
Input of welding parameters		
Barcode with scanner **SmartFuse** **Manual input of the barcode digits**		
Input/Mains		**230 V devices**
Nominal voltage (tolerance)	[V]	230 AC (190 to 300)
Nominal frequency (tolerance)	[Hz]	50/60 (40 to 70)
Power factor cos ρ		0.6 to 0.9 (phase-angle control)
Nominal current	[A]	16
Power consumption	[VA]	3680
Length of cord	[m]	4.5
Plug type		Euro Schuko plug
Output		
Output voltage	[V]	8 to 48 AC
Output current (max.)		110
Output current (t → ∞)	[A]	30
Output current (min.)	[A]	2
Energy adjustment		Temperature compensation
Welding cable length	[m]	3, other lengths on request
Welding cable installation		Fixed
Welding terminals	[mm]	4.0 (or universal terminals for 4.0 and 4.7)
Monitoring functions		
Input		Voltage, current, frequency
Output		Voltage, current, resistance, contact, short circuit
Other		System, Working Temperature, Service
Error messages		Plain Text, Acoustic Signal
Casing/Display		
Material		Steel plate with plastic frame
Display		4×20 Characters (alphanum.), background lighting
Dimensions, weights and packaging		
Product dimensions L×W×H	[mm]	-
Product weight	[kg]	-
Packaging dimensions L×W×H	[mm]	470×370×180
Packaging material		Plastic
Packaging type		Suitcase
Transport weight	[kg]	16.2

The given technical information is valid for the standard setup of the electrofusion control unit. Depending on the ordered setup there may be variations.

PolyCode 180 USB (BT)			
General			
Output voltage	[V]	8 to 48 AC	
Data recording		Yes	
Power (60 % ON time) according to ISO 12176-2		1030 W (25.6 A)	
Operating temperature range	[°C]	-10 to +50	
International protection		IP54	
Appliance class		1	
Conformity		CE	
ISO 12176-2 Class - classification		P_2 2 U S_2 V AK D X	
Input of welding parameters			
Barcode with scanner **SmartFuse** **Manual input of the barcode digits**			
Input/Mains		**230 V devices**	**110 V devices**
Nominal voltage (tolerance)	[V]	230 AC (190 to 300)	110 AC (90 to 150)
Nominal frequency (tolerance)	[Hz]	50/60 (40 to 70)	50/60 (40 to 70)
Power factor cos ρ		0.6 to 0.9 (phase-angle control)	0.6 to 0.9 (phase-angle control)
Nominal current	[A]	9	18
Power consumption	[VA]	2000	2000
Length of cord	[m]	5	On request
Plug type		Euro Schuko plug, others on request	On request
Output			
Output voltage	[V]	8 to 48 AC	
Output current (max.)		54	
Output current (t → ∞)	[A]	14	
Output current (min.)	[A]	2	
Energy adjustment		Temperature compensation	
Welding cable length	[m]	3	
Welding cable installation		Fixed*	
Welding terminals	[mm]	4.0 (or universal terminals for 4.0 and 4.7)	
Monitoring functions			
Input		Voltage, current, frequency	
Output		Voltage, current, resistance, contact, short circuit	
Other		System, Working Temperature, Service	
Error messages		Plain Text, Acoustic Signal	
Casing/Display			
Material		Steel plate with plastic casing	
Display		4×20 Characters (alphanum.), background lighting	
Dimensions, weights and packaging			
Product dimensions L×W×H	[mm]	-	
Product weight	[kg]	-	
Packaging dimensions W×H×D	[mm]	470×370×180	
Packaging material		Plastic*	
Packaging type		Suitcase	
Transport weight	[kg]	13.6	

The given technical information is valid for the standard setup of the electrofusion control unit. Depending on the ordered setup there may be variations.

PolyCode USB (BT)			
General			
Output voltage	[V]	8 to 48 AC	
Data recording		Yes	
Barcode reader		Scanner	
Power (60 % ON time) according to ISO 12176-2		1030 W (25.6 A)	
Operating temperature range	[°C]	-10 to +50	
International protection		IP54	
Appliance class		1	
Conformity		CE	
ISO 12176-2 Class - classification		P_2 2 U S_2 V AK D X	
Input of welding parameters			
Barcode with scanner **SmartFuse** **Manual input of the barcode digits**			
Input/Mains		**230 V devices**	**110 V devices**
Nominal voltage (tolerance)	[V]	230 AC (190 to 300)	110 AC (90 to 150)
Nominal frequency (tolerance)	[Hz]	50/60 (40 to 70)	50/60 (40 to 70)
Power factor cos ρ		0.6 to 0.9 (phase-angle control)	0.6 to 0.9 (phase-angle control)
Nominal current	[A]	9	18
Power consumption	[VA]	2000	2000
Length of cord	[m]	5	On request
Plug type		Euro Schuko plug, others on request	On request
Output			
Output voltage	[V]	8 to 48 AC	
Output current (max.)		54	
Output current (t → ∞)	[A]	14	
Output current (min.)	[A]	2	
Energy adjustment		Temperature compensation	
Welding cable length	[m]	3, other lengths on request	
Welding cable installation		Fixed	
Welding terminals	[mm]	4.0 (or universal terminals for 4.0 and 4.7)	
Monitoring functions			
Input		Voltage, current, frequency	
Output		Voltage, current, resistance, contact, short circuit	
Other		System, Working Temperature, Service	
Error messages		Plain Text, Acoustic Signal	
Casing/Display			
Material		Steel plate with plastic frame	
Display		4×20 Characters (alphanum.), background lighting	
Dimensions, weights and packaging			
Product dimensions L×W×H	[mm]	-	
Product weight	[kg]	-	
Packaging dimensions L×W×H	[mm]	470×370×180	
Packaging material		Plastic	
Packaging type		Suitcase	
Transport weight	[kg]	11	

The given technical information is valid for the standard setup of the electrofusion control unit. Depending on the ordered setup there may be variations.

Data recording

The electrofusion control units of type PolyCode provide data recording for approx. 1000 welding cycles and their barcode identifier conforming to ISO 12176-4 (traceability).

	PolyCode 400 USB (BT) PolyCode 180 USB (BT) PolyCode USB (BT)	
Data recording		
Number of reports		Approx. 1000
Interface		USB stick
Data format		PDF, CSV
Recorded data		
General data		Time, date, report number, ambient temperature, welder name, job number max. 40-digits (alphanumerical)
Fusion data		Voltage, current, energy, nominal and actual welding time, mode, resistance, error messages with 10 voltage and current values
Fitting data		Barcode Information (ISO/TR 13950), Type, Dimension, Manufacturer
Device data		Serial number, inventory number, date of last service, working hours, system configuration
Worker code		Barcode (PF or ISO 12176-3) for operator identification and access to manual input and system configuration
Traceability functions		
Job number		Job number max. 40 digits (alphanumerical), input by barcode or manual
Worker code		ISO 12176-3
Weather condition		DVS 2207 / 2208
Welding Barcode		ISO TR 13950
Traceability barcode of fitting		ISO 12176-4
Traceability Barcode of 1st pipe		ISO 12176-4
Traceability Barcode of 2nd pipe		ISO 12176-4
Traceability barcode of 3rd pipe / infotext		ISO 12176-4 / 40 digits (alphanumerical)
Additional functions		
Output options		Whole memory, selectable by job number
Job code input/selection		Barcode, manual, internal list of job numbers for selection
Input of position data / free text		40 characters, per joint

The given technical information is valid for the standard setup of the electrofusion control unit. Depending on the ordered setup there may be variations.

Technical file according to ISO 12176-2

PolyCode USB (BT)		
Classification		
Device type		PolyCode USB (BT)
Classification		P_2 2 U S_2 V AK D X

Duty cycle according to ISO 12176-2 at 30 %, 60 % and 100 %, Test time t = 60 minutes

Test time 60 min 60 min	Power at U_{OUT} = 36 V	Power at U_{OUT} = 40 V	Output current I_{OUT}
30 %	**1100 W**	**1220 W**	**30.5 A**
60 %	**920 W**	**1030 W**	**25.6 A**
100 %	**756 W**	**842 W**	**21.0 A**

Additional Information	
Soft Start	At least 3 seconds (ramp)
Ambient temperature compensation	According to ISO 13950
Fitting temperature compensation	No
Data recording	Yes
Bluetooth dongle	Bluetooth LE

PolyCode 180 USB (BT)		
Classification		
Device type		PolyCode 180 USB (BT)
Classification		P_2 2 U S_2 V AK D X

Duty cycle according to ISO 12176-2 at 30 %, 60 % and 100 %, Test time t = 60 minutes

Test time 60 min 60 min	Power at U_{OUT} = 36 V	Power at U_{OUT} = 40 V	Output current I_{OUT}
30 %	**1100 W**	**1220 W**	**30.5 A**
60 %	**920 W**	**1030 W**	**25.6 A**
100 %	**756 W**	**842 W**	**21.0 A**

Additional Information	
Soft Start	At least 3 seconds (ramp)
Ambient temperature compensation	According to ISO 13950
Fitting temperature compensation	No
Data recording	Yes
Bluetooth dongle	Bluetooth LE

PolyCode 400 USB BT		
Classification		
Type		PolyCode 400 USB (BT)
Classification		P_2 3 U S_1 V AK D X
Duty cycle according to ISO 12176-2 at 30 %, 60 % and 100 %, Test time t = 60 minutes		

Test time 60 min	Power at U_{OUT} = 36 V	Power at U_{OUT} = 40 V	Output current I_{OUT}
30 %	2700 W	3000 W	74.1 A
60 %	2050 W	2250 W	55.9 A
100 %	1600 W	1800 W	44.7 A

Additional Information	
Soft Start	At least 3 seconds (ramp)
Ambient temperature compensation	According to ISO 13950
Fitting temperature compensation	No
Data recording	Yes
Bluetooth dongle	Bluetooth LE

The given technical information is valid for the standard setup of the electrofusion control unit. Depending on the ordered setup there may be variations.