



# BEAMEX - EAM integration for management of calibrations in TE/CRG

Thomas Ytterdal





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- Have a calibration management software to go with their calibrators.

# Beamex MC6



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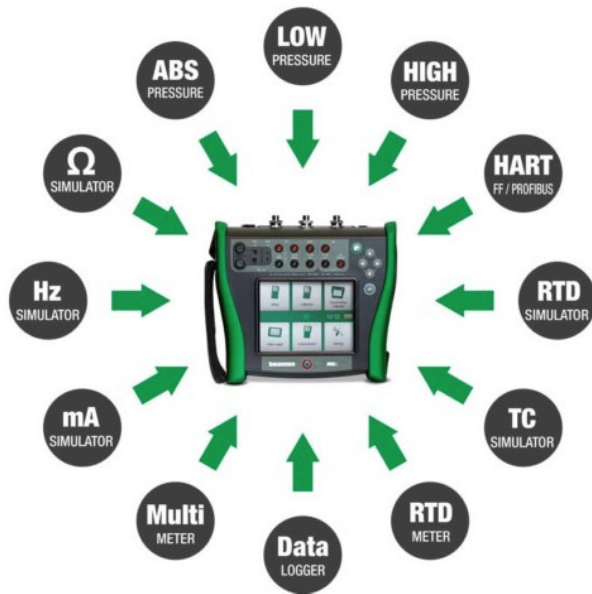


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- It offers calibration capabilities for pressure, temperature and various electrical signals.
- The MC6 also contains a fieldbus communicator for HART, FOUNDATION Fieldbus and Profibus PA instruments.

# Beamex CMX

The screenshot displays the Beamex CMX Professional software interface. The main window is titled "Beamex CMX Professional - [QSAB-4\QSAB-4-2PT193\Transmetteur de pression absolue\Procédure pour transmetteur de pression absolue]". The interface includes a menu bar (File, Database, View, Calibration, Documents, Tools, Window, Help) and a toolbar with icons for New, Delete, Edit, Cancel, Save, Close, and Help. A left-hand pane shows a tree view of the plant structure, including various devices and calibration points. The main area is divided into two sections: "Calibration Procedure" and "Calibration Points".

**Calibration Procedure Configuration:**

- Name: Procédure pour transmetteur de pression absolue
- Work Order Number: [Empty]
- Work Order State: Not Available
- Work Order Start Date: [Empty]
- Work Order End Date: [Empty]
- Active Procedure:
- Initial Calibration Date: 12/3/2019
- Interval: 1 years
- Due Date: [Empty]
- Error Calculation Method: % of span
- Reject II Error (Constant): 0.15 % of span
- Reject II Error (Relative): 0 % of reading
- Adjust II Error: [Empty] % of Reject II Error
- Don't Adjust II Error: [Empty] % of Reject II Error
- Adjust To Error: [Empty] % of Reject II Error
- Error Resolution: 0.01
- Error Limits Calculated From: Output
- Acceptance: Automatic

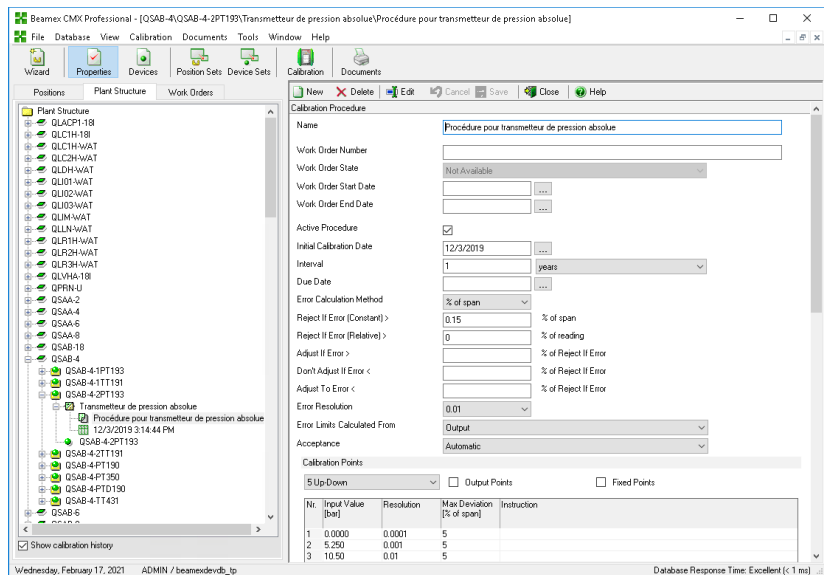
**Calibration Points:**

5 Up/Down  Output Points  Fixed Points

Nr.	Input Value [bar]	Resolution	Max Deviation [% of span]	Instruction
1	0.0000	0.0001	5	
2	5.250	0.001	5	
3	10.50	0.01	5	

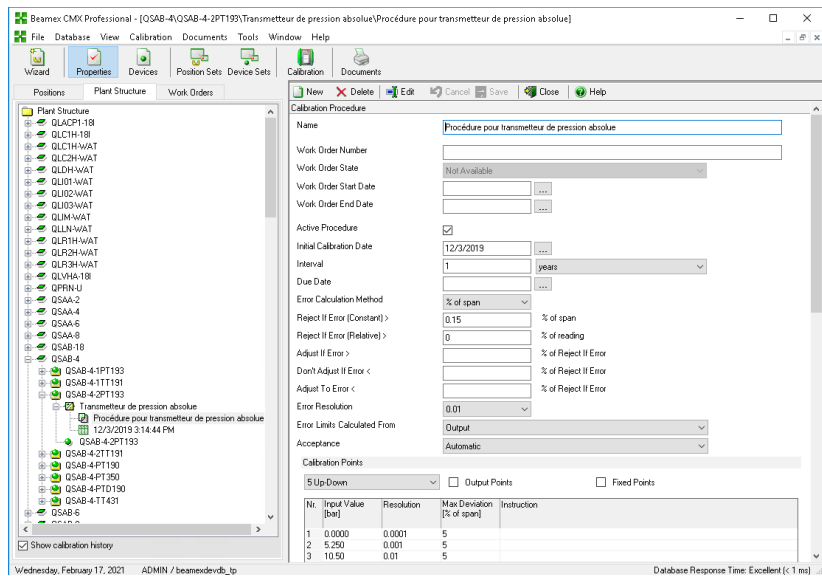
Wednesday, February 17, 2021 ADMIN / beamexdevb\_lp Database Response Time: Excellent (< 1 ms)

# Beamex CMX



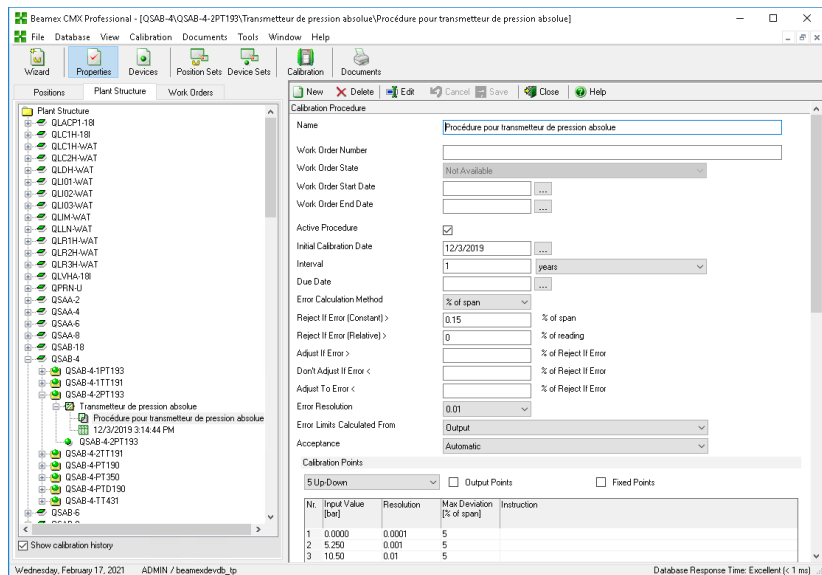
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- Synchronises and stores detailed calibration results and collected instrument information from the MC6 device
- Can be used for scheduling instrument calibrations

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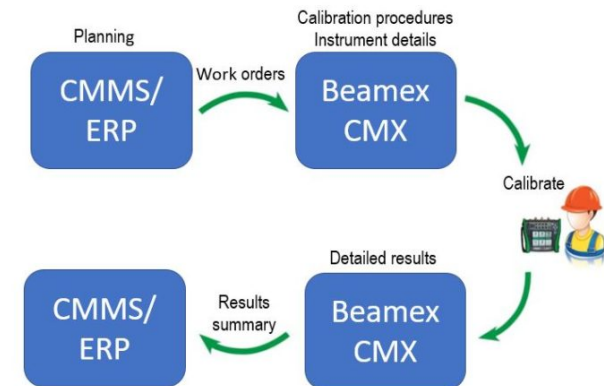
- Made for easy integration with CMMS systems
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- General idea:
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- Send existing positions from Infor EAM to Beamex CMX
- Handle scheduling of calibrations in Infor EAM using work orders and PM Schedules
- Store a summary of the calibration results in the work orders custom fields
- Generate a calibration certificate in Beamex CMX and store this in EDMS

# Sending equipment from Infor EAM

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- Additional information to be sent to CMX is stored in custom fields

CUSTOM FIELDS	
Function Abbreviation	QKITTR - Transmetteur de résistance
Function Channel number	1
In Range 0%	4
In Range 100%	20
Input unit	mA - milliampere
Out Range 0%	1.95
Out Range 100%	30
Output Unit	Ohm - ohm



# Interface for sending equipment

PROD Infor EAM - Beamex Equipment Import

**Add Equipment**

**Equipment to import: 1**

- QSCA-2-7PT172

**Successfull Import:**

**Failed Import:**

# Equipment in Beamex CMX

The screenshot displays the Beamex CMX Professional software interface. The main window title is "Beamex CMX Professional - [QLC1H-S-PT162\Transmetteur de pression absolue]". The interface includes a menu bar (File, Database, View, Calibration, Documents, Tools, Window, Help) and a toolbar with icons for Wizard, Properties, Devices, Position Sets, Device Sets, Calibration, and Documents. Below the toolbar are tabs for Positions, Plant Structure, and Work Orders. A tree view on the left shows a hierarchy of positions, with "Transmetteur de pression absolue" selected under "QLC1H-S-PT162". The right pane shows the configuration for this device, including input and output parameters, sensor supply, and calibration details.

**Function Configuration:**

- Name: Transmetteur de pression absolue
- Abbreviation: QK1TP2
- Input:
  - Category: Analog variable
  - Quantity: PRESSURE
  - Range: 0 - 25 bar
  - Method: Measured
  - Pressure Type: Absolute
- Output:
  - Category: Analog variable
  - Quantity: ELECTRICAL
  - Range: 4 - 20 mA
  - Method: Measured
- Sensor Supply:
  - Quantity: [ ]
  - Level: [ ]
- Transfer Function: Linear
- Repeatability Formula: Standard Deviation of Average Output
- Initial Calibration Count: [0] Total Calibrations: 0
- Note: [ ]

**Document Links:**

Document description	Name	File In Database	Open

At the bottom of the window, the status bar shows "Tuesday, February 23, 2021 ADMIN / beamexdevdb\_tp" and "Database Response Time: Excellent (< 1 ms)".

# Equipment in Beamex CMX

The screenshot displays the Beamex CMX Professional software interface. The window title is "Beamex CMX Professional - [QLC1H-18\QLC1H-S-PT162\Transmetteur de pression absolue]". The menu bar includes File, Database, View, Calibration, Documents, Tools, Window, and Help. The toolbar contains icons for Wizard, Properties, Devices, Position Sets, Device Sets, Calibration, and Documents. The main interface is divided into two panes. The left pane, titled "Plant Structure", shows a hierarchical tree of equipment. The right pane, titled "Function", displays the configuration details for the selected "Transmetteur de pression absolue".

**Plant Structure (Left Pane):**

- Plant Structure
  - QLACP1-18I
    - QLC1H-18I
      - QLC1H-S-PT141
        - QLC1H-S-PT162
          - Transmetteur de pression absolue**
            - QLC1H-S-PT162

**Function Configuration (Right Pane):**

**Input:**

- Name: Transmetteur de pression absolue
- Abbreviation: QKITP2
- Category: Analog variable
- Quantity: PRESSURE
- Range: 0 - 25 bar
- Method: Measured
- Pressure Type: Absolute

**Output:**

- Category: Analog variable
- Quantity: ELECTRICAL
- Range: 4 - 20 mA
- Method: Measured

**Sensor Supply:**

- Quantity: [ ]
- Level: [ ]

**Transfer Function:** Linear

**Repeatability Formula:** Standard Deviation of Average Output

**Initial Calibration Count:** 0 Total Calibrations 0

**Note:** [ ]

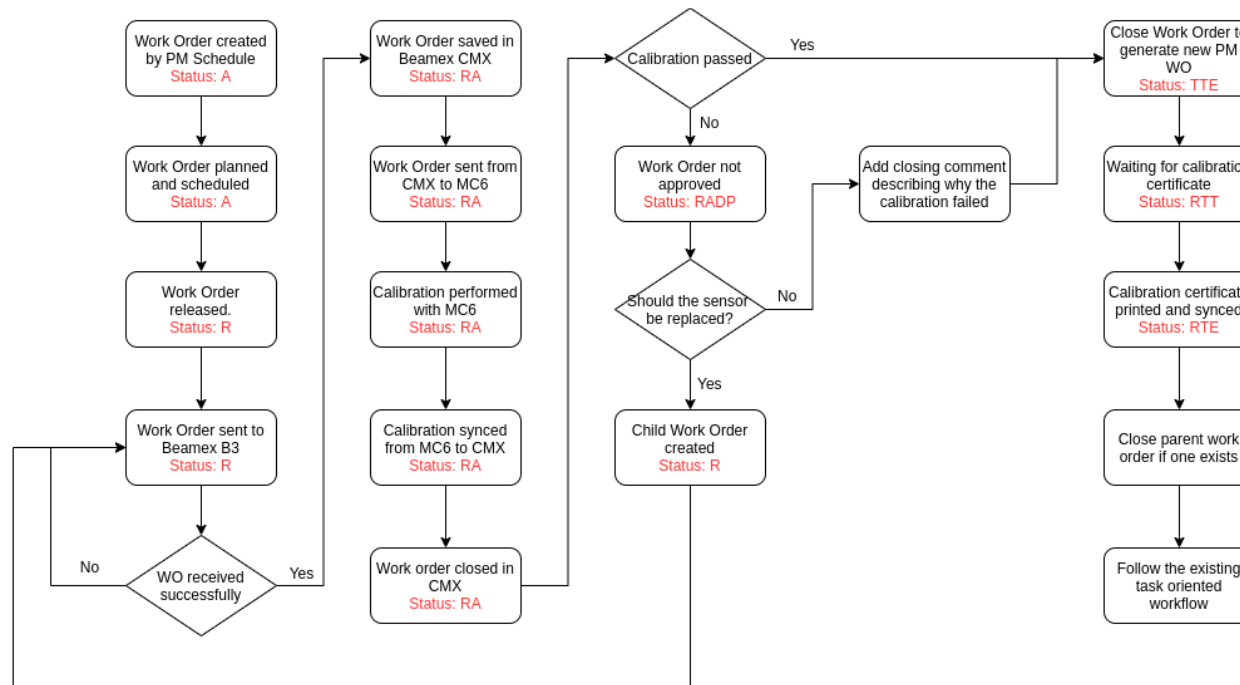
**Document Links:**

Document description	Name	File In Database	Open
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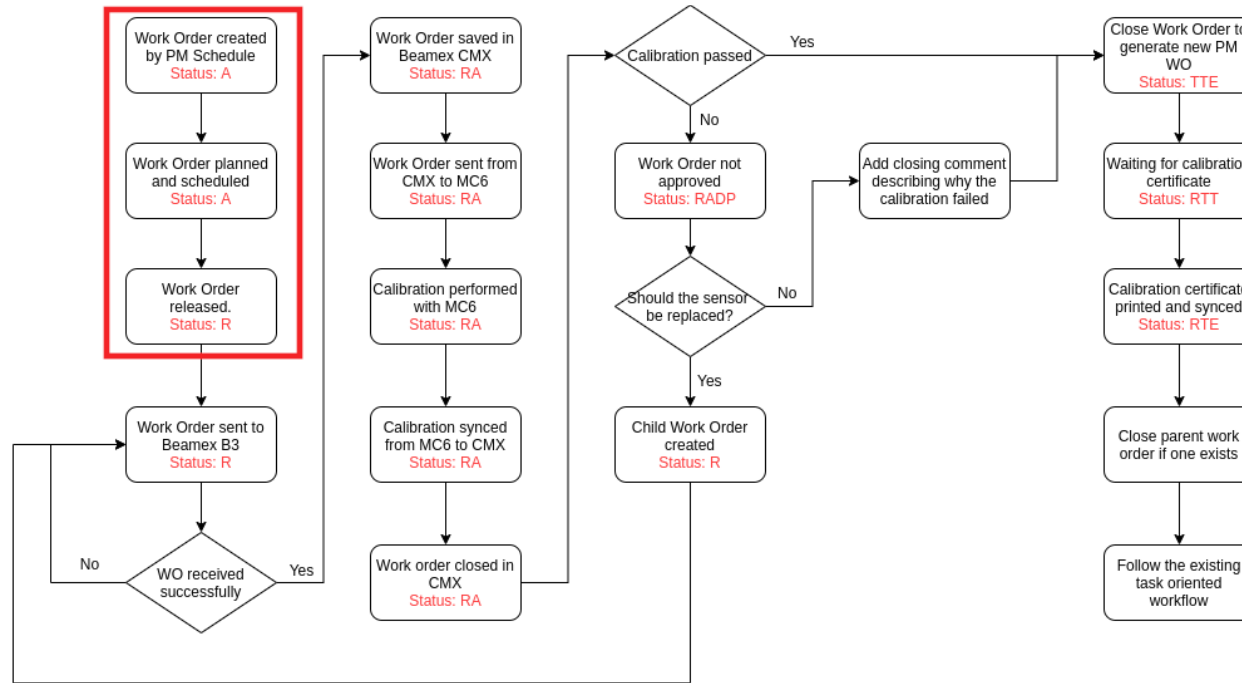
At the bottom of the window, the status bar shows "Tuesday, February 23, 2021 ADMIN / beamexdevdb\_tp" and "Database Response Time: Excellent (< 1 ms)".

## Handling Work Orders and Scheduling in Infor EAM

# Workflow



# Workflow



# Preventive Maintenance Schedule

Record View | Comments × | Activities × | Equipment × | Work Orders × | EDMS Documents × | More ▾

PM Schedule: QCMXP-TT \* PMS Temperature Transmitter for Beamex

---

**PM Details** ^

Type: Fixed ▾ Class:

Out of Service:

**Scheduling** ^

Perform Every:  Years ▾ Release Window:

Meter Interval:

Nesting Reference:

Complete Status: ▾

**Production Details** ^

Production Priority:

Req. Start Date Buff. (Days):  Req. End Date Buff. (Days):

**Revision Control** ^

Status: Approve  Revision:

**Work Order Details** ^

WO Type: PM - Preventive mainte ▾

Duration:

WO Class: QCMXC

Supervisor: MPEZZETTI

Priority: ▾

**WO Custom Fields** ^

Opérateur (ID CERN):

Status = Passed / Failed:

Certificate Number:

As Found Passed:

As Left Passed:

As Found Max Error:

As Left Max Error:

Procedure Error Type:

As Found Max Error Nonlinearity:

As Left Max Error Nonlinearity:

**Custom Fields** ^

# Preventive Maintenance Schedule

Record View Comments x Activities x **Equipment** x Work Orders x EDMS Documents x More v

(temp)All\_Equipment Edit Equipment [a] [q] Run

Equipment	Department	Location	Route	Perform Every	Period UOM	Due Date	Work Order	Updated	PM Type	Date Deactivated	Meter Interval	Meter UOM	Meter Due	Perform On	Perform On
QLC1H-WAT-CPCB-TT152AX	QSSE	279		1	Years	10-AUG-2021	28370346	<input type="checkbox"/>	Fixed						
QLC1H-WAT-CPCB-TT150X	QSSE	279		1	Years	10-AUG-2021	28351943	<input type="checkbox"/>	Fixed						
QLC1H-WAT-CPCB-TT154X	QSSE	279		1	Years	10-AUG-2021	28370347	<input type="checkbox"/>	Fixed						
QURCA-4-TT249	QSSE	UX45		1	Years	23-JUN-2021	28996755	<input type="checkbox"/>	Fixed						
QSCCA-4-TT150	QSSE	SH4		1	Years	23-JUN-2021	28996756	<input type="checkbox"/>	Fixed						
QURCA-4-7TT211	QSSE	UX45		1	Years	23-JUN-2021	28995194	<input type="checkbox"/>	Fixed						
QSCCA-8-TT173	QSSE	SHM8		1	Years	23-JUN-2021	28538866	<input type="checkbox"/>	Fixed						
QSCCA-4-TT173	QSSE	SH4		1	Years	23-JUN-2021	28996665	<input type="checkbox"/>	Fixed						

Records: 50 of 100+ Show Filter Row:

Actions v ^

Equipment Details ^

Equipment: QLC1H-WAT-CPCB-TT150) Motor compressor DE bearing temp.- CP -

Department: QSSE [q]

Location: 279 [q]

Route: [q]

Perform Every: 1 Years v

Due Date: 10-AUG-2021 [calendar]

Work Order: 28351943

PM Type: Fixed v

WO Class: QCMXC [q]

Budget Code: Q-NLHCWA [q]

Assigned To: [q]

Date Deactivated: [calendar]

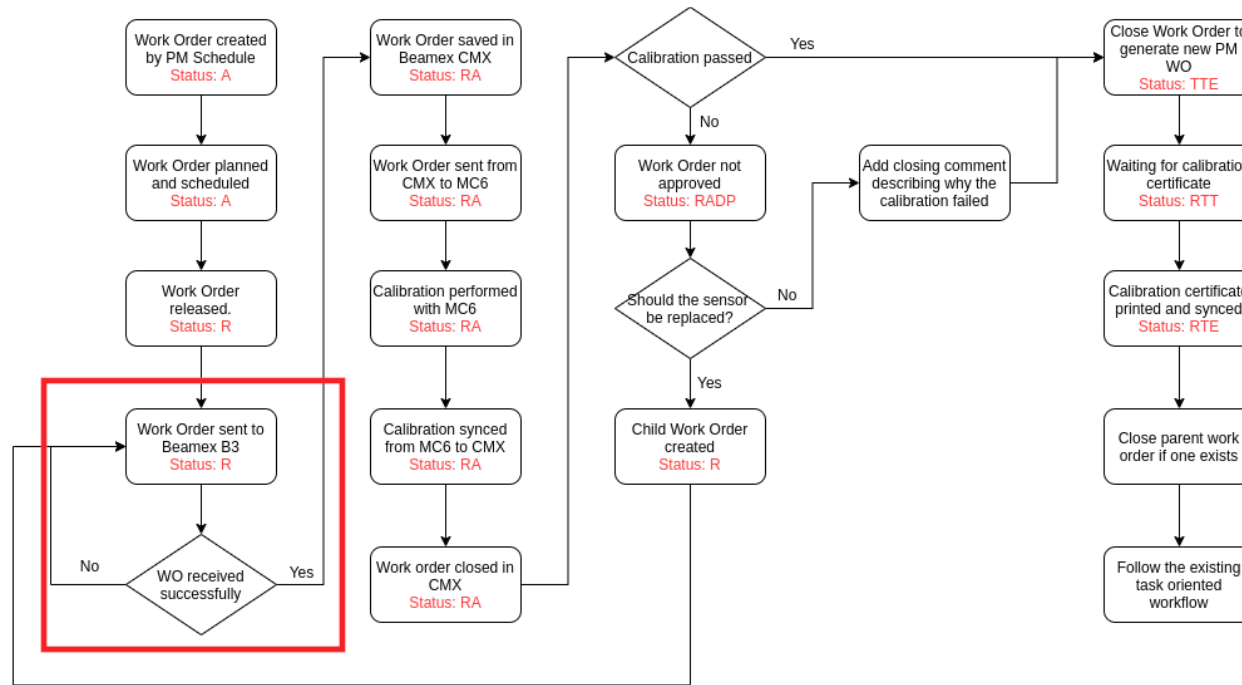
Meter Interval: [q]

Meter Due: [calendar]

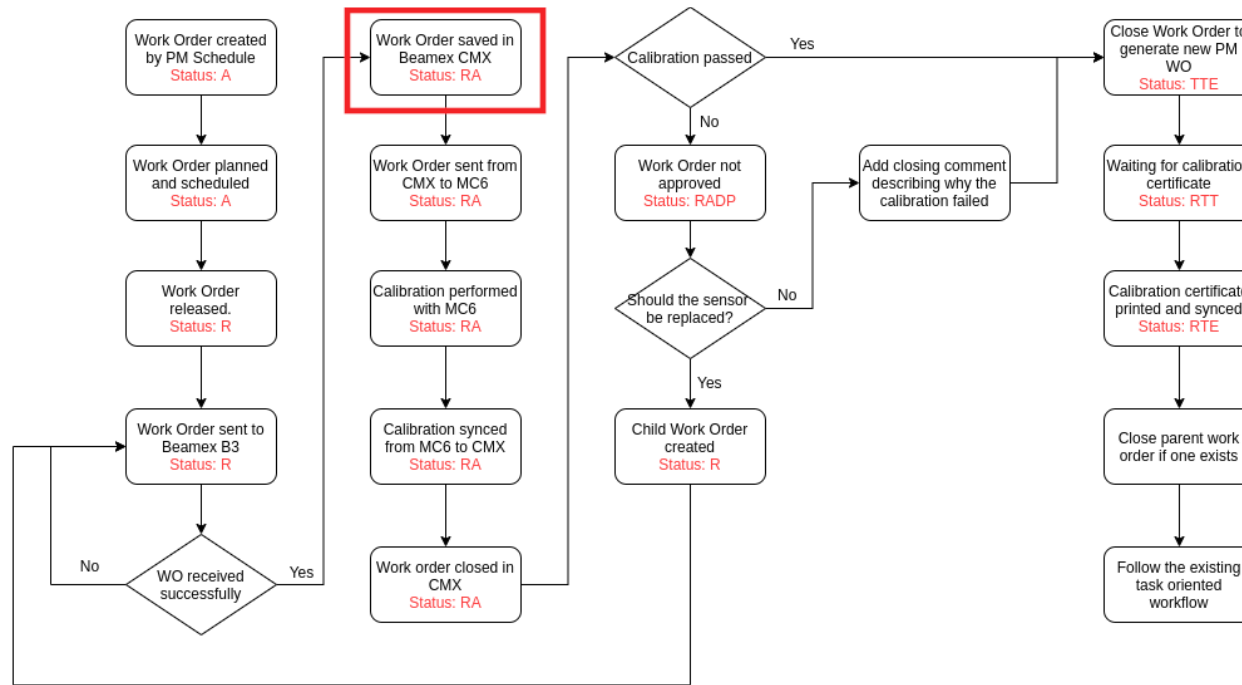
WO User Defined Fields v



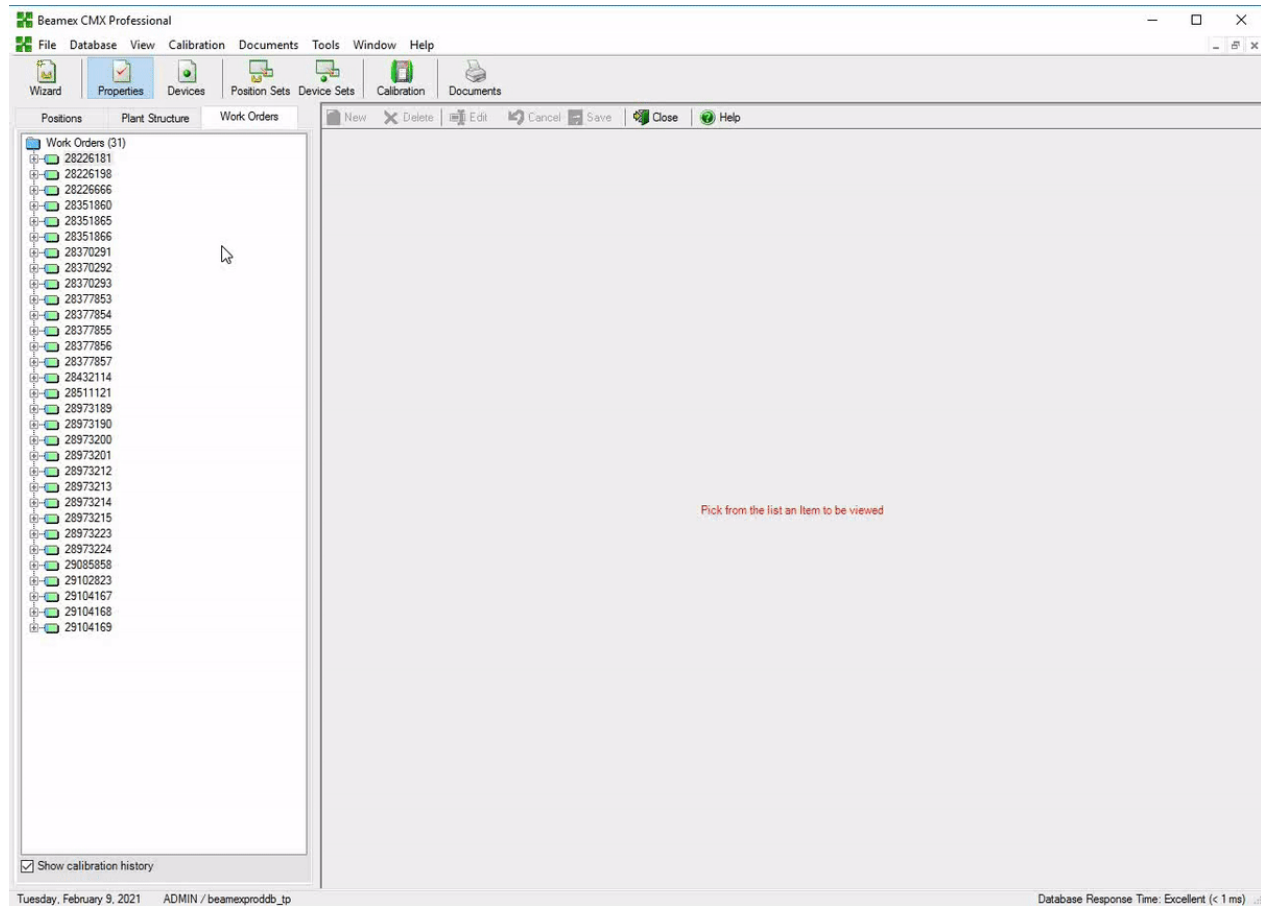
# Workflow



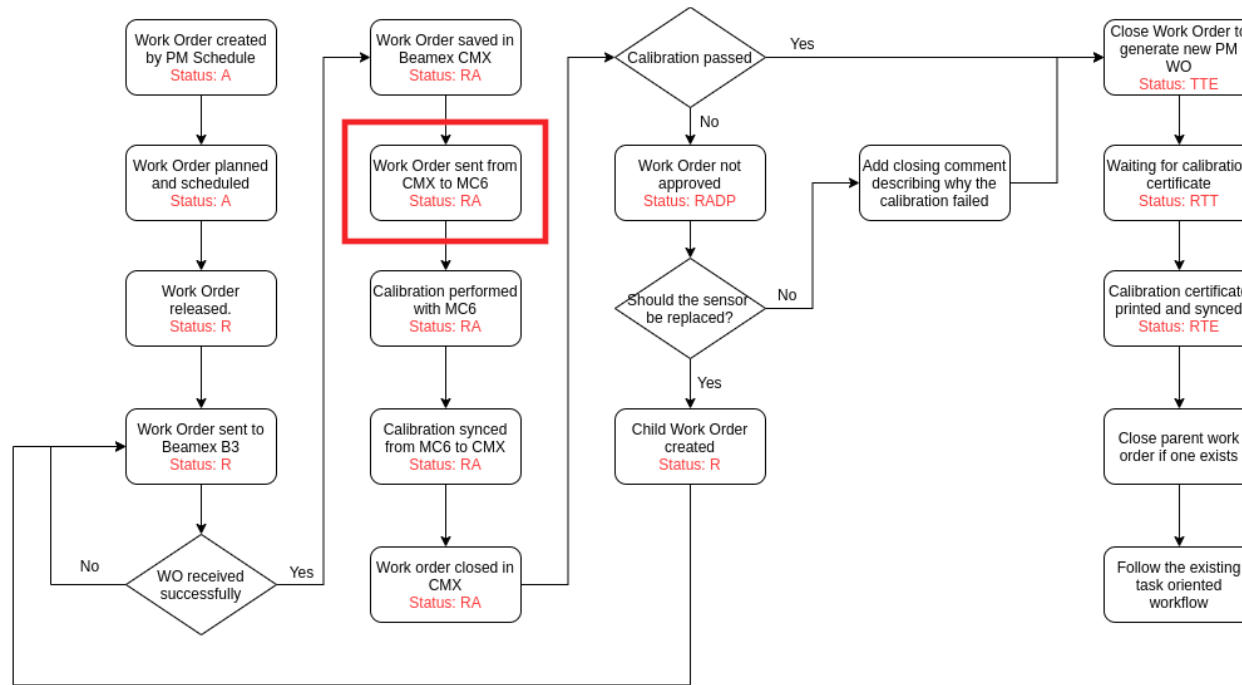
# Workflow



# Work Orders in CMX

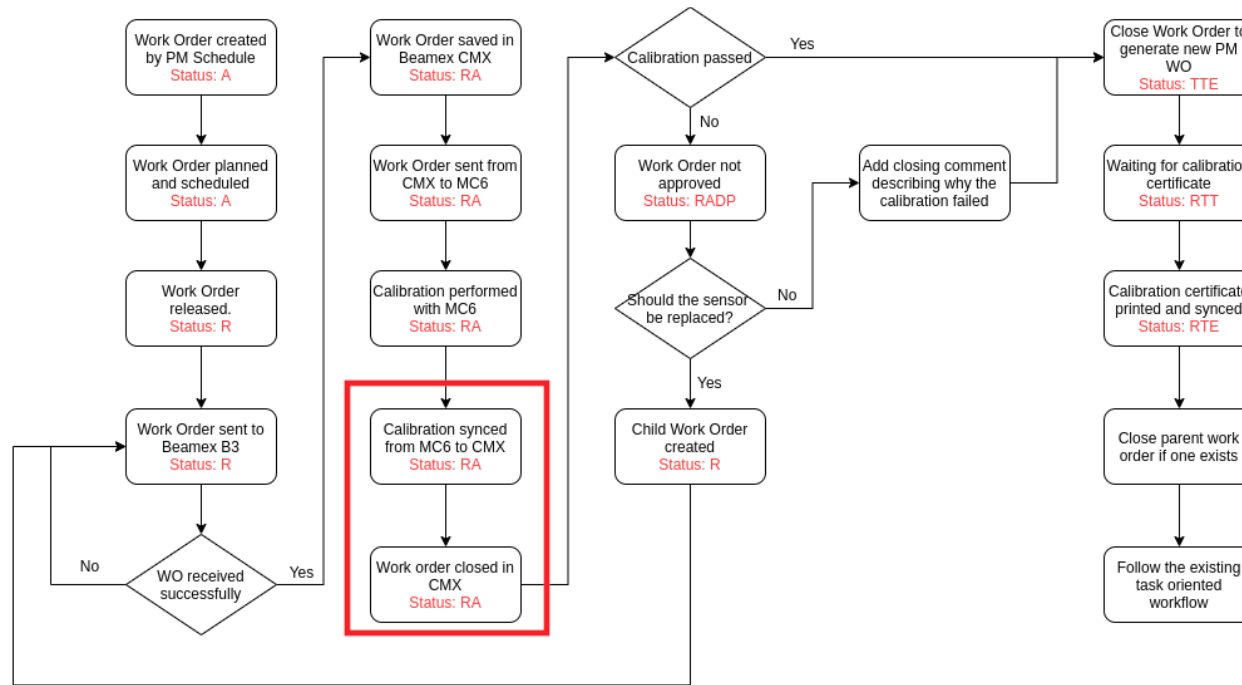


# Workflow

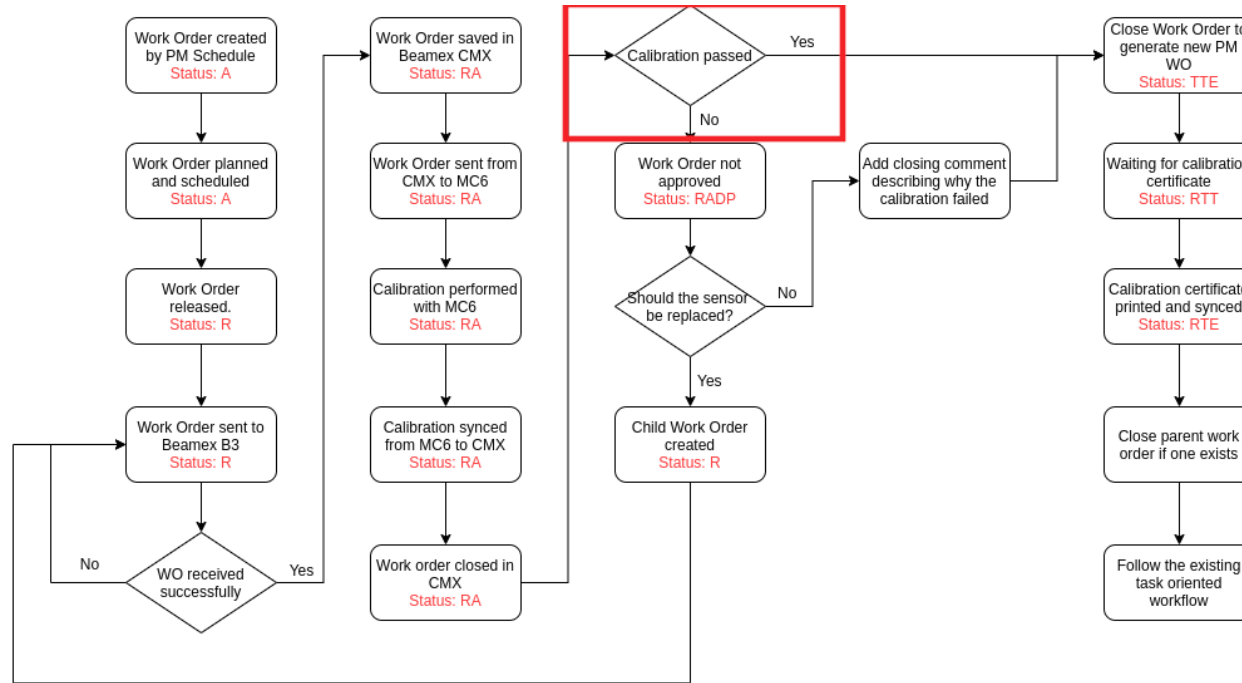


# Calibration

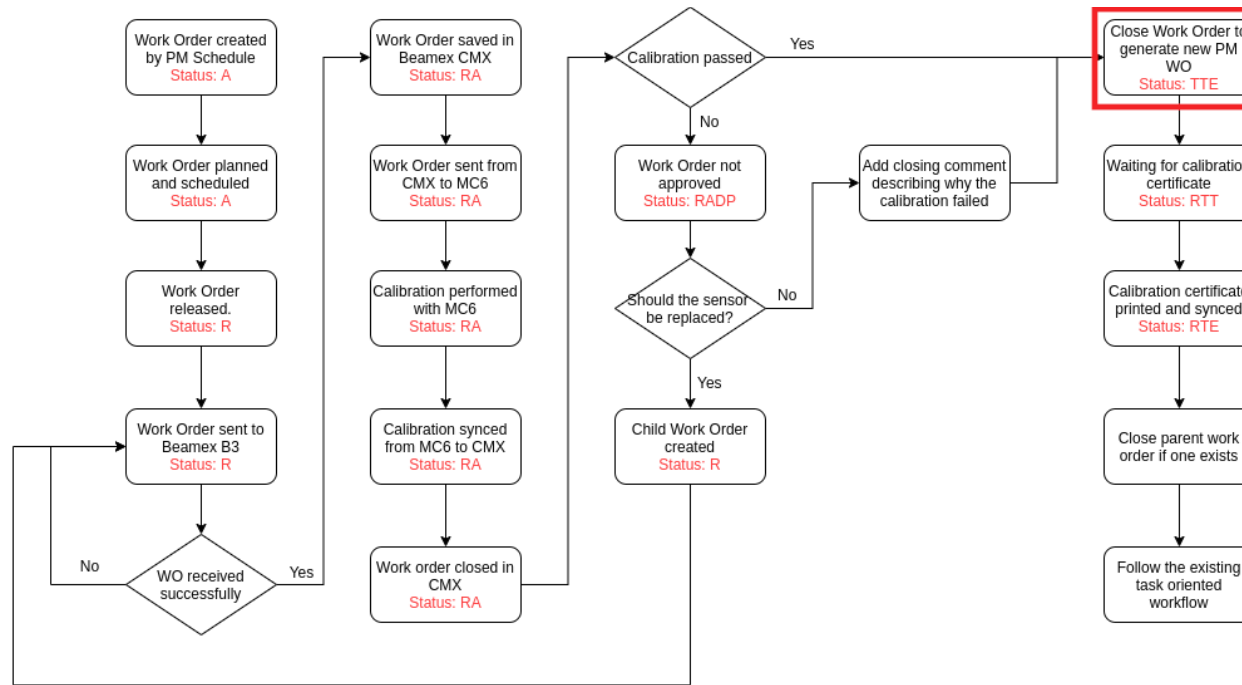
# Workflow



# Workflow

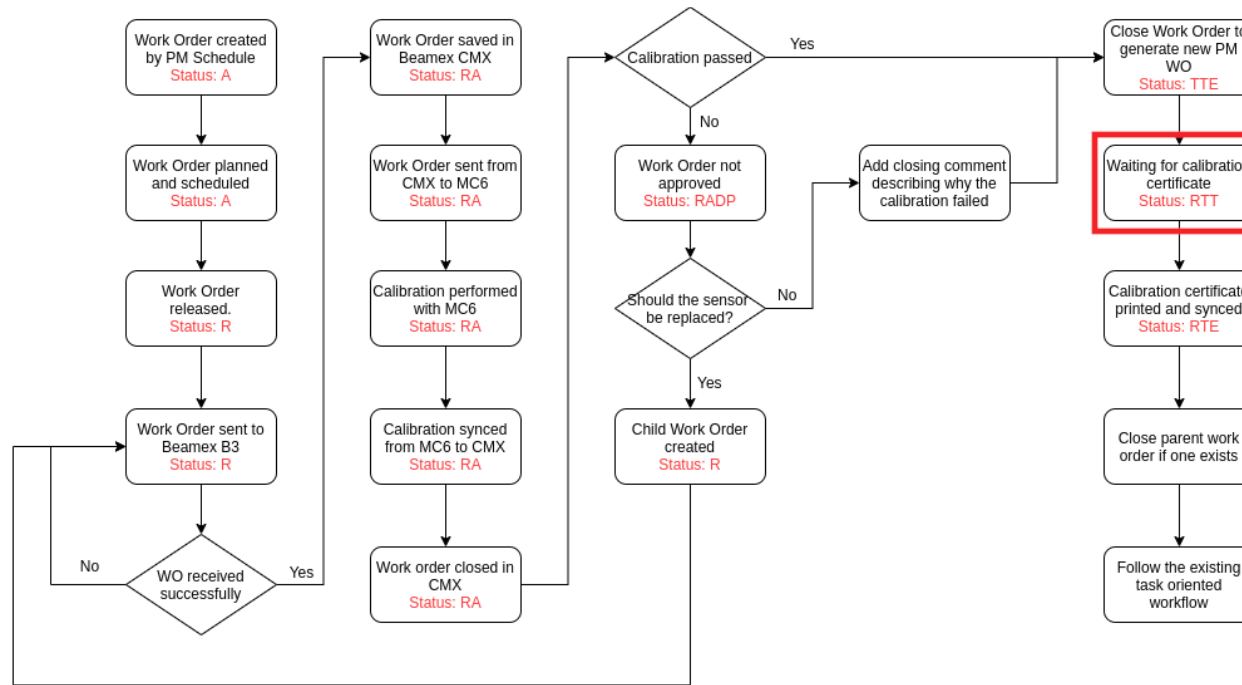


# Workflow

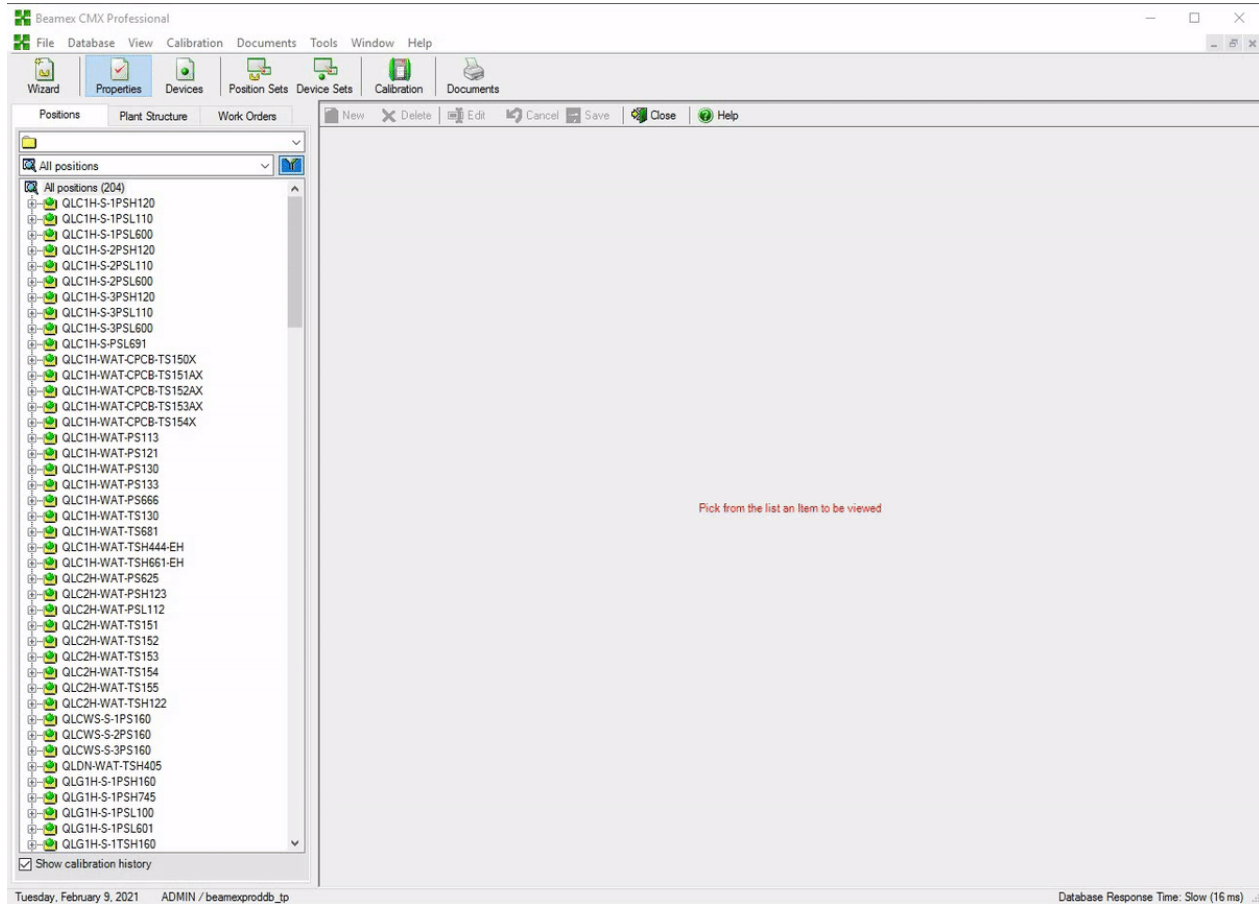




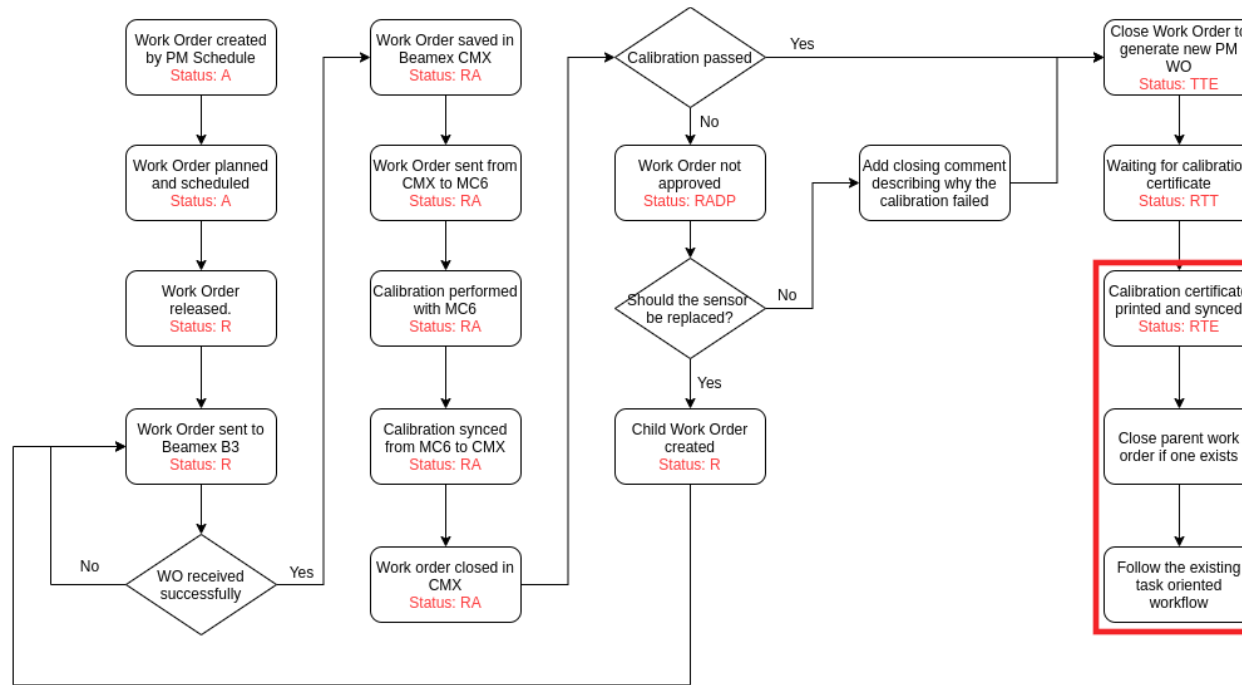
# Workflow



# Printing Certificate



# Workflow



# Certificate stored in EDMS

2423751 v.1 ● Released 🔒 Restricted access Report  
**Calibration Certificate** by Beamex User Created on 2020-10-01  
Last Modified on 2020-10-01

Edit | Status | Share | Visibility | More

**Info**

Description: External reference: Keywords:

**Details**

Local administrators: [List of Administrators](#) Equipment code: Release procedure: [DOC-OWNER](#)  
Context: [CMMS-GENERAL](#) [CMMS](#) Approval by Owner (show all files)

Associated Links:

▶ **This page** <https://edms.cern.ch/document/2423751/1>

**Files**

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Name	Size	Last modified date	Last modified by
28226064.pdf	76.9 KB	2020-10-01 16:10:31	EDMS IMPORT

Page 1 of 1 Total: 1 (displaying 1 - 1)

**More info**

Sub-Documents **Used In** Approval & Comments Access rights Versions History

Edit tags

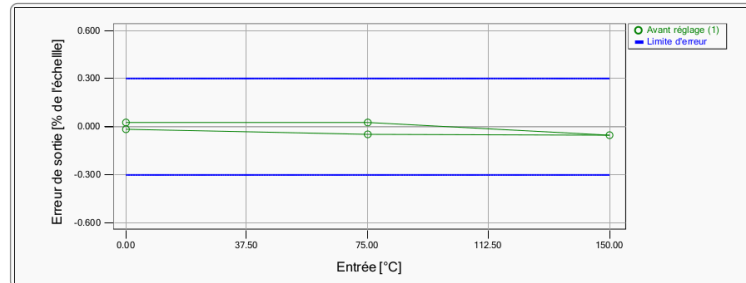
Id	Name	Eq. code	Responsible	Status	Tags
Functional Positions (1)					
QSCCA-8-TT173 ★	A179			Installed	
Work Orders (1)					
28226064 ★	PMS Temperature Transmitter for Beamex				

## Certificat d'étalonnage

Numéro de certificat:  
Numéro d'ordre de travail: 28226064

Imprimé: 01/10/2020 15:46:18  
Imprimé par: ADMIN  
CMX Version: 2.11.174.0 (2.11)

<b>Position</b>		<b>Instrument</b>	
ID Position	QSCCA-8-TT173	ID instrument	QSCCA-8-TT173
Nom	Before A179 Adsorber	Numéro de série	
Localisation		Fabricant	PR 41 16
Usine	QSCCA-8/	Rangéabilité	
		Température	Humidité ambiante
<b>Fonction</b>		<b>Evènement d'étalonnage</b>	
Nom	Transmetteur de température (QKIT)	Date d'étalonnage	28/09/2020 10:33:08
Fonction de transfert	Linéaire	Etalonnage suivant	
Echelle	0 ... 150 °C      4 ... 20 mA	Température	Humidité ambiante
<b>Procédure d'étalonnage</b>		<b>Calibrateurs</b>	
Date d'échéance	Périodicité 1 Années	Entrée calibrateur	MC6 : 606451      Date d'échéance: 30/12/2020
Rejeter si erreur >	0.3 % de l'échelle	Module d'entrée	TC-R-OUT/ R1 : 65888      Date d'échéance: 01/01/2021
Ajuster jusqu'à Erreur % du rejet d'erreur	Classification	Calibrateur de sortie	MC6 : 606451      Date d'échéance: 30/12/2020
Stratégie d'étalonnage		Module de sortie	IN : 26222      Date d'échéance: 30/12/2020



<b>1. Avant réglage</b>		<b>CONFORME</b>		
Erreur maximum: -0.054 % de l'échelle				
Entrée Nominale [°C]	Actuel Entrée [°C]	Sortie Nominale [mA]	Actuel Sortie [mA]	Trouvé Erreur [% de l'échelle]
0.00	0.000	4.00	3.9977	-0.014
75.00	75.000	12.00	11.9928	-0.045
150.00	150.000	20.00	19.9913	-0.054
75.00	75.000	12.00	12.0043	0.027
0.00	0.000	4.00	4.0042	0.026

Note d'étalonnage: NC

Etalonné par: Nicolas Calvet  
28/09/2020 10:33:08

